



# Associations between Parental Depression and Anxiety and Children's Internalizing and Externalizing Problems: Investigating Expressed Emotion as a Transdiagnostic Mechanism

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## Abstract

Parental psychopathology can influence the development of internalizing and externalizing problems in children through its effects on the emotional climate at home. Expressed Emotion (EE) is a measure of family climate that reflects the emotional quality of attributions parents make about their child and is proposed to be a transdiagnostic risk factor for the development of emotional and behavioral problems. The current study included children ( $N=247$ ; aged 4–7; 70.7% male) referred by teachers for emerging psychosocial problems at school and their caregivers. To assess psychopathology, parents completed the Hospital Anxiety and Depression Scale (HADS) and the Child Behavior Checklist (CBCL). The Five-Minute Speech Sample (FMSS) and Expressed Emotion Coding System [1] were used to measure EE. Correlations demonstrated that EE, symptoms of parental anxiety and depression, and child internalizing and externalizing problems were all significantly positively associated. Regression analyses revealed that EE was more strongly associated with severity of internalizing and externalizing problems than parental mental health symptoms. EE explained more variance in child internalizing problems than parental anxiety and was a particularly strong predictor of severity of externalizing problems in young children, alongside socioeconomic deprivation and parental anxiety. These findings support attributional models of EE and demonstrate its potential transdiagnostic role in the development of internalizing and externalizing problems in young children. This can inform the design of interventions to tackle emerging mental health problems in childhood.

**Keywords** Expressed emotion · Internalizing problems · Externalizing problems · Parent mental health · Transdiagnostic

## Introduction

Children of parents with mental health issues are at an increased risk of developing internalizing problems (e.g., low mood, anxiousness, and social withdrawal), externalizing problems (e.g., conduct problems, oppositional behaviors, and hyperactivity), or both, later in life [2]. Rutter and Quinton [3] conducted one of the first systematic studies of parents with diagnosed mental health conditions and their children, reporting that around one-third of the children experienced transient mental health problems, and an additional one-third experienced more serious and long-term adjustment issues. The extent of transmission from parental psychopathology to child psychopathology was documented to range from 41 to 77% [4].

Evidently, parental mental health is a potential risk factor for young children. Over the last 20 years, the number of children exposed to maternal mental illness has increased;

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it is now estimated that one in four children fall into this category [5]. According to the World Health Organization [6], anxiety and depression are the most prevalent mental health issues in adults. Despite anxiety and depression being highly comorbid [7, 8], few studies consider the influence of both parental anxiety and parental depression on child development. Depression in parents is associated with a range of child internalizing and externalizing problems, suggesting that parental depression may be characterized by multifinality [9]. Further meta-analyses have also concluded that parental depression increases the overall risk for general psychopathology in children [10, 11]. Research on parental anxiety, however, has found more specific transmission effects [9], with meta-analyses suggesting that children exposed to parental anxiety are more likely to develop anxiety compared to other psychopathologies later in life [9, 12].

One factor thought to influence the association between parental mental health and child psychopathology is maladaptive parenting behaviors. Associations between parental psychopathology and maladaptive parenting practices have been widely reported [13–15]. These parenting practices have also been found to be associated with the development of psychopathology in their children [16]. Critically, these effects are evident from birth, with parental depression associated with reductions in affection, sensitivity, and reciprocity, and parental anxiety linked to intrusive and overly stimulating behaviors [17]. When parents have elevated symptoms of both depression and anxiety, more severe negative effects on parenting behavior have been observed [18, 19]. These effects are particularly impactful in infancy, when children experience a range of critical and sensitive developmental periods and are highly susceptible to environmental influences such as parenting [20]. As children age, patterns of parenting behaviors may change, in part due to the reciprocal nature of parent-child interactions [16]. Anxious parents often display heightened intrusiveness and control, while depressed parents may show increased withdrawal or hostility [15, 17]. Studies indicate that earlier and prolonged exposure to parental depression and anxiety is associated with more maladaptive outcomes in young children, underscoring a heightened sensitivity during this period [21, 22].

These maladaptive behaviors resulting from parental psychopathology may facilitate the development of mental health problems in children. Parents function as “emotional teachers” for their children, modelling adaptive emotional behaviors and self-regulation strategies [23]. Familial warmth is crucial in the emotional development of children and a source of support during times of stress, especially in early childhood when self-regulation skills are developing [24]. In these times, children rely on their parents as

external resources of support [25]. As a result of this, the emotional development of a child is influenced by the behaviors and emotional climate of the parent. A supportive and warm maternal environment is associated with a child’s emotion regulation [25] and fewer internalizing and externalizing problems [26]. A reduction of positive parenting practices is often specifically associated with an increase in internalizing problems in children [27, 28]. Negative parenting behaviors (overly harsh, intrusive, or controlling) affect children through hindering emotion regulation processes [25] and fostering the development of externalizing problems [29, 30].

Expressed emotion (EE) is a measure of the family climate that reflects the emotional quality of attributions parents make about their child [31]. High levels of EE (i.e., high negativity and low warmth) in the family environment may signify a transdiagnostic, maladaptive pattern of parent-child interaction, creating an environment in which a child is less able to self-regulate and increases their vulnerability to develop psychopathology [32]. The Five-Minute Speech Sample (FMSS; [33]) is an indirect narrative tool used to measure parental EE [34]. In early research, EE comprised levels of criticism and emotional overinvolvement [33]. However, the use of this coding scheme to measure EE led to inconsistent findings with respect to child outcomes [14, 34, 35]. Many studies therefore only considered parental criticism (e.g [36, 37]) as emotional overinvolvement appears largely normative and potentially adaptive in parenting young children [38]. Moreover, the original FMSS coding scheme was developed for caregivers of psychiatric inpatients to predict relapse risk post-discharge [33], meaning its focus may be less suitable to assessing the emotional climate of parent-child interactions. Therefore, reliance on the Magaña et al. [33] coding scheme in developmental research risks inaccurately representing EE as a construct. To address these limitations, the Expressed Emotion Coding System (EECS; [1]) was subsequently developed to assess the emotional tone of parental attributions using ratings of warmth and negativity and counts the number of positive and negative comments. This coding captures both adaptive and maladaptive aspects of parenting behavior and affect; compared to the original Magaña et al. [33] coding scheme the EECS is thought to quantify the level of EE in a more sensitive and developmentally appropriate way [34, 38–40].

Studies using the FMSS have consistently found that high EE is associated with adverse childhood outcomes, with high levels of parental EE relating to more severe internalizing and externalizing problems [14, 34, 35]. Interestingly, systematic reviews suggest that effect sizes are larger in studies involving children with greater emotional or behavioral difficulties, highlighting the bidirectional nature of associations between parental EE and child mental

health [34, 35, 41]. In a meta-analytic review, Fahrner et al. [14] presented EE as a key mechanism in the transgenerational transmission of psychopathology between a parent and child. Anxiety and depression are both associated with negative cognitive triads (i.e., negative thoughts about the self, future, and world; Beck [42]), and a propensity to make negative attributions [43]. Fahrner et al. [14] suggested an attribution-negative affect link, with depressed or anxious parents being more likely to make negative comments and to be more critical of their child, because of their own negative causal attributions [44]. Research has supported this model by finding that parents with mental health issues had significantly higher levels of EE, specifically more criticism [14, 36, 37, 45].

While previous studies support EE as a mechanism in the transmission of psychopathology from parent to child [36, 37, 40], they also present with limitations. Most studies focus on diagnosed parental depression and fail to consider the role of subclinical symptoms of depression or the high prevalence of comorbid anxiety [36, 46, 47]. Further, previous studies often used less appropriate methodologies (i.e., the Magaña coding scheme; [33]) focusing on parental criticism and fail to consider the entirety of EE [36, 46]. The present study addresses these gaps by using the EECS, which quantifies both positive and negative aspects of EE, thus offering a more comprehensive and developmentally sensitive assessment of the emotional climate. In addition, we assessed severity of parental depression and anxiety alongside parental warmth and negativity, and examined associations with internalizing and externalizing problems in young children.

## The Current Study

We report the first large-scale study to examine associations between parental depression and anxiety, child internalizing and externalizing problems, and EE using the EECS [1]. Although the EECS is a validated and established coding system, it remains underutilized, particularly in developmental research. In the current study, we assessed severity of parental mental health problems and parental warmth and hostility (EE) and examined how these variables are associated with severity of externalizing and internalizing problems in young children who were referred by their teachers for emerging cognitive, socio-emotional, or behavioral problems exhibited at school. We predicted positive associations between parental mental health, parental EE, and child internalizing and externalizing problems, and that parental EE would emerge as a strong predictor of the severity of child internalizing and externalizing problems.

## Methods

### Participants

The current sample consisted of 247 children (29.3% female, 70.7% male) aged 4–7 years old ( $M=6.3$ ,  $SD=1.05$ ) and their parent or caregiver (88% mothers, 7% fathers, 5% others; 93.6% female, 6.4% males). All children were referred to the Neurodevelopment Assessment Unit (NDAU; <https://www.cardiff.ac.uk/neurodevelopment-assessment-unit>) as part of a larger, ongoing study, which investigates the cognitive, socio-emotional and behavioral functioning of young children. Teachers in South Wales can refer a pupil to the NDAU if the child exhibits socio-emotional, cognitive or behavioral difficulties at school, as confirmed by the teacher's Strengths and Difficulties Questionnaire (SDQ; [48]) scores. For a child to be accepted for an assessment, they must exhibit a raised score in at least one domain of functioning. Following the assessment the school receives a report that profiles the child's strengths and areas of difficulty, together with tailored recommendations for interventions that can support the child's learning and wellbeing at school. Children are accepted if they have not received a formal neurodevelopmental diagnosis at the time of referral. The current study included children and parents with complete data for the variables of interest.

### Sample Characteristics

Parents provided demographic and family background information, such as household income, parental education and ethnicity, summarized in Table S1 (see Supplementary Materials). Socio-economic status (SES) was assessed using the Welsh Index of Multiple Deprivation (WIMD; [49]), which is a ranked measure of relative deprivation on a scale from 1 to 5, with lower numbers indicating greater deprivation. This score takes into consideration several factors attributing to deprivation, such as income, employment, health, and education. The majority of the sample was male (70.7%), and most children were White British (83.0%). According to the WIMD, around a quarter (24.3%) of the sample live in the most deprived areas of Wales.

### Procedure

Children participating in the study visited the NDAU with a parent (usually mother) or caregiver over two sessions for a neurodevelopmental assessment. Children completed a battery of cognitive, socio-emotional and behavioral tasks in a quiet, child-friendly environment, whilst parents completed questionnaires and interviews in a separate room. The measures in the present study form part of a broader assessment

administered as part of the wider NDAU project (see <https://www.cardiff.ac.uk/neurodevelopment-assessment-unit/refer-a-child/our-assessments> for more information). Written informed consent was obtained from the primary caregiver for each child prior to the assessment and all experimental procedures were approved by the relevant university ethics committee (EC.16.10.11.4592GR).

## Measures

### Parent Anxiety and Depression

The Hospital Anxiety and Depression Scale (HADS; [52]) is a self-report measure totaling 14 items, 7 of which measure symptoms of anxiety and 7 measure symptoms of depression. All items are scored on a 4-point severity scale (0–3), which results in an anxiety ( $\alpha=0.790$ ) and a depression ( $\alpha=0.750$ ) subscale score. Scores can range from 0 to 21, where 0–7 reflects that of a typical individual, 8–10 are borderline abnormal, and scores  $>11$  are clinically relevant.

### Five Minute Speech Sample

The Five-Minute Speech Sample (FMSS; [33]) is a method of assessing parental warmth and negativity. During this task, caregivers (93.6% female, 6.4% males) were instructed to describe their child's personality and the quality of their relationship. There were no significant differences across any of the FMSS measures according to which type of caregiver (e.g., mother, father, or other caregiver) completed the task ( $ps > 0.161$ ), hence all caregivers have been used in further analyses. Participants were given the verbatim instructions “Now I'd like you to speak about (child's name) for five minutes without any interruptions from me. While you do this, I will record what you say. Can you tell me in your own words what kind of person (child's name) is and how you get along?”. Parents were encouraged to speak freely, with the researcher only speaking in cases where the parent was silent for longer than 30 s, in which they give a semi-structured non-directive probe, such as ‘How would you describe (child's name)'s personality?’.

Each FMSS was recorded, transcribed, and coded by independent coders based on the guidelines described in Caspi et al. [1]. Coders rated the FMSS based on content of speech and tone of voice for the number of positive and negative comments about the child, the overall warmth of the parent towards the child (on a scale of 0–5, where 0 is no warmth and 5 is high warmth) and the overall negativity of the parent towards the child (on a scale of 0–5, where 0 is no negativity, and 5 is resentful and hostile towards the child). There were 13 independent coders and 25% of the sample was coded by a lead coder. There was good inter-coder

reliability across all FMSS variables (FMSS Negative Comments  $ICC=0.92$ , FMSS Positive Comments  $ICC=0.92$ , FMSS Warmth  $ICC=0.85$ , FMSS Negativity  $ICC=0.86$ ).

To derive a composite measure of EE, we applied principal components analysis (PCA) to the FMSS variables. This approach is well established in developmental research to capture shared variance across complex behavioral dimensions and reduce measurement redundancy [53]. While this approach has not previously been applied to the FMSS, it has previously proven effective in summarizing observational coding of parent–child interactions, enabling researchers to identify underlying structures and consider their association with child outcomes (e.g [54]).

### Child Internalizing and Externalizing Problems

Symptoms of child psychopathology were assessed using the Child Behavior Checklist [50]. Both the preschool (1.5–5) and child (6–18) versions were used to accommodate the age range of the sample. The CBCL consists of a series of items that describe children's behavior, the reliability and validity of which is demonstrated across many studies [51]. Parents rate each item on a 3-point scale ranging from 0 (not true) to 2 (very true). Raw scores are converted to standardized t-scores, based on the child's age and sex. The subscales focused on in this study were the measures of internalizing problems ( $\alpha=0.687$ ) and externalizing problems ( $\alpha=0.816$ ). T-scores were used as dimensional measures of symptom severity, where scores of  $<60$  are classified as ‘normal’, scores between 60 and 63 are ‘borderline clinical’, and scores  $>63$  are clinically relevant. These cut-offs were used to describe the sample.

### Data Acquisition and Analysis

All analyses were run in IBM SPSS Statistics (version 25). All variables were normally distributed. Correlations were run to assess if any associations crossed the threshold of collinearity ( $r>.8$ ). Factor analysis was used to reduce the FMSS number of variables and obtain an overall measure of EE. Pearson's correlations were used to examine dimensional associations between parental mental health, child internalizing and externalizing problems, parental EE and covariates such as child age, sex, and WIMD. Hierarchical regression analyses were conducted to further investigate associations between parental mental health, EE and child internalizing and externalizing problems.

**Table 1** An overview of the samples CBCL, FMSS, and HADS scores

	Total (N=247)	Male (N=175)	Female (N=72)
Child age, M (SD)	6.30 (1.05)	6.20 (1.05)	6.49 (1.00)
WIMD, M (SD)	809.51 (588.48)	836.79 (580.84)	1021.10 (590.47)
<b>CBCL</b>			
Internalizing Problems, M (SD)	62.91 (11.67)	62.75 (11.28)	62.99 (12.43)
Borderline (%)	17.80%	20.00%	15.20%
Clinical (%)	30.80%	30.90%	27.80%
Externalizing Problems, M (SD)	65.11 (12.99)	65.04 (13.02)	65.36 (13.08)
Borderline (%)	10.50%	12.00%	9.70%
Clinical (%)	42.10%	40.00%	44.40%
<b>FMSS</b>			
Negative Comments, M (SD)	2.90 (2.31)	2.85 (2.39)	2.99 (2.09)
Positive Comments, M (SD)	4.01 (2.18)	3.97 (2.20)	4.13 (2.17)
Warmth Rating, M (SD)	3.40 (1.08)	3.44 (1.09)	3.31 (1.07)
Negativity Rating, M (SD)	1.59 (1.11)	1.59 (1.11)	1.57 (1.14)
	Total Caregiver (N=247)	Male Caregiver (N=16)	Female Caregiver (N=231)
<b>HADS</b>			
Anxiety, M (SD)	7.98 (3.86)	7.63 (2.33)	8.00 (3.94)
Borderline (%)	34.80%	50.00%	30.70%
Clinical (%)	17.40%	0.00%	18.60%
Depression, M (SD)	5.15 (3.66)	4.69 (2.94)	5.18 (3.71)
Borderline (%)	18.60%	12.50%	15.60%
Clinical (%)	4.90%	12.50%	4.30%

Note. Abbreviations: WIMD, Welsh Index of Multiple Deprivation; CBCL, Child Behavior Checklist; FMSS, Five Minute Speech Sample; HADS, Hospital Anxiety and Depression Scale.

## Results

### Preliminary Analysis

Descriptive information about the sample can be found in Table 1. Categorizations of child CBCL subgroups showed that around half of the children showed internalizing or

externalizing problems in the borderline or clinical range. Similarly, over half of the parents showed borderline or clinical levels of anxiety, and nearly a quarter showed borderline or clinically severe depression. Independent t-tests showed a significant effect of sex for WIMD,  $t(245) = -2.26$ ,  $p=.025$ , with males living in more deprived areas than females, but no other variables showed significant sex differences ( $ps > 0.240$ ).

### Data Reduction

As FMSS variables were all highly significantly intercorrelated (see Table S2; *Supplementary Materials*), a principal component analysis (PCA) was conducted to reduce multicollinearity and create an overall EE factor, reflecting how dimensions of EE interact with one another. The Kaiser-Meyer-Olkin value and Bartlett test of sphericity validated that structure detection was appropriate ( $KMO=0.721$ ;  $\chi^2(6)=427.85$ ,  $p<.001$ ). Analysis suggested a one-factor solution (see Table S3; *Supplementary Materials*). This factor, which we labelled negative Expressed Emotion ('EE<sub>Neg</sub>'), explained 65.8% of the variance. EE<sub>Neg</sub> included high loadings from the global rating of negativity, the number of negative comments, as well as a high inverse loading from positive comments and global warmth.

### Main Analyses

Correlations were conducted between child internalizing and externalizing problems, parental anxiety and depression scores, and EE<sub>Neg</sub>. Table 2 shows that all variables of interest remained highly significantly positively correlated.

Regression analyses were subsequently run to examine associations with internalizing symptoms in more depth (Table 3). WIMD was entered as a covariate into Step 1, but was not significant,  $F(1, 246)=1.41$ ,  $p=.236$ . In Step 2, parental anxiety and depression symptoms were significant predictors, accounting for 13.8% of the variance,  $F(3, 246)=13.64$ ,  $p<.001$ . When EE<sub>Neg</sub> was added in Step 3, an additional 9.6% of variance in the severity of internalizing

**Table 2** Pearson correlations among covariates, CBCL, FMSS and HADS variable scores

	1	2	3	4	5	6	7	8
1. Child sex	—							
2. Child age	0.121	—						
3. WIMD	0.143*	0.067	—					
4. EE <sub>Neg</sub>	0.013	0.056	-0.088	—				
5. CBCL Internalizing	0.004	0.016	-0.149*	0.390**	—			
6. CBCL Externalizing	0.012	-0.023	-0.165**	0.437**	0.603**	—		
7. HADS Anxiety	-0.072	0.052	-0.075	0.227**	0.342**	0.338**	—	
8. HADS Depression	-0.043	0.090	-0.203**	0.271**	0.319**	0.337**	0.584**	—

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).



**Table 3** , summary of hierarchal regression model, predicting internalizing problems

Variable	B	95% CI	$\beta$	sr	t	p
Step 1, $\Delta R^2 = 0.006$ (ns)						
WIMD	-0.005	[-0.013, 0.003]	-0.076	-0.076	-1.19	0.236
Step 2, $\Delta R^2 = 0.138$						
WIMD	-0.005	[-0.012, 0.003]	-0.076	-0.075	-1.27	0.205
HADS Anxiety	0.720	[0.284, 1.16]	0.238	0.193	3.26	0.001
HADS Depression	0.571	[0.112, 1.03]	0.179	0.143	2.45	0.015
Step 3, $\Delta R^2 = 0.096$						
WIMD	-0.007	[-0.014, 0.000]	-0.107	-0.121	-1.90	0.059
HADS Anxiety	0.619	[0.206, 1.03]	0.205	0.187	2.95	0.003
HADS Depression	0.352	[-0.088, 0.792]	0.110	0.101	1.58	0.117
EE <sub>Neg</sub>	3.78	[2.43, 5.13]	0.324	0.334	5.52	<0.001

Note.  $R^2_{adj} = 0.227$  ( $N = 247$ ,  $p < .001$ ). CI = Confidence Interval for B, sr = semipartial correlation coefficient.

**Table 4** , summary of hierarchal regression model predicting externalizing problems

Variable	B	95% CI	$\beta$	sr	t	p
Step 1, $\Delta R^2 = 0.007$ (ns)						
WIMD	-0.006	[-0.015, 0.003]	-0.086	-0.086	-1.36	0.176
Step 2, $\Delta R^2 = 0.144$						
WIMD	-0.006	[-0.014, 0.002]	-0.086	-0.086	-1.45	0.149
HADS Anxiety	0.727	[0.245, 1.21]	0.216	0.175	2.97	0.003
HADS Depression	0.747	[0.238, 1.26]	0.211	0.171	2.89	0.004
Step 3, $\Delta R^2 = 0.127$						
WIMD	-0.008	[-0.016, -0.001]	-0.122	-0.121	-2.22	0.027
HADS Anxiety	0.598	[0.151, 1.05]	0.178	0.144	2.63	0.009
HADS Depression	0.466	[-0.011, 0.944]	0.132	0.105	1.93	0.055
EE <sub>Neg</sub>	4.85	[3.38, 6.31]	0.373	0.356	6.52	<0.001

Note.  $R^2_{adj} = 0.266$  ( $N = 247$ ,  $p < .001$ ). CI = Confidence Interval for B, sr = semipartial correlation coefficient.

symptoms was accounted for,  $F(4, 246) = 19.073$ ,  $p < .001$ . The final model shows that higher levels of EE<sub>Neg</sub> ( $\beta = 0.324$ ,  $p < .001$ ) and more parental anxiety ( $\beta = 0.205$ ,  $p = .003$ ) were related to more internalizing problems in young children, and that EE<sub>Neg</sub> was the strongest predictor.

For the model predicting externalizing problems (see Table 4), WIMD was not a significant predictor in Step 1,  $F(1, 246) = 1.84$ ,  $p = .176$ . In Step 2, parental anxiety and depression both emerged as predictors of externalizing problems,  $F(3, 246) = 14.47$ ,  $p < .001$ , accounting for 14.4% of the variance in severity. When EE<sub>Neg</sub> was added in Step 3, an additional 12.7% of the variance in externalizing problem severity was explained,  $F(4, 246) = 23.33$ ,  $p < .001$ . The final model in Table 4 shows that parents from more deprived areas ( $\beta = -0.122$ ,  $p = .027$ ), with more severe symptoms of anxiety ( $\beta = 0.178$ ,  $p = .009$ ) and higher levels of EE<sub>Neg</sub> ( $\beta = 0.373$ ,  $p < .001$ ) are more likely to have children with more severe externalizing problems in young children. Again, the strongest predictor in this model was EE<sub>Neg</sub>.

## Discussion

Expressed emotion (EE) is an integral aspect of the parent-child relationship and has been linked to the development of emotional and behavioral problems in children [32, 34, 35]. The current study is the first to explore associations between symptoms of parental depression and anxiety, child internalizing and externalizing problems, and EE using a developmentally appropriate coding scheme (EECS; [1]), in a large sample of high-risk parents and children. As predicted, we found strong positive associations between symptoms of parental anxiety and depression, EE, and child emotional and behavioral problems. Importantly, the results of regression analyses indicated that EE accounted for the largest proportion of variance in explaining the severity of child internalizing and externalizing problems, alongside socioeconomic deprivation (as measured by the Welsh Index of Multiple Deprivation, WIMD; [49]) and parental anxiety symptoms. These findings underscore the importance of considering the wider emotional environment a child develops in, especially in case of elevated familial risk.

The current sample included a relatively high number of individuals who may be considered "at-risk". Over half of parents (52.2%) had anxiety scores in the borderline or

clinical range, and 23.5% had clinically significant levels of depression. Importantly, our mean scores were notably higher than those reported in normative, non-clinical samples [55]. Similarly, nearly half of the children in this sample (48.6%) showed borderline or clinically relevant internalizing symptoms, and 52.6% exhibited significant externalizing problems. Again, compared to normative, age appropriate, samples [56], the mean CBCL scores of the children in our sample classified them as being at “high risk” for developing internalizing or externalizing problems. Studying families with elevated levels of psychopathology provide insight into the mechanisms that may relate to the intergenerational transmission of psychopathology [4]. By using a high-risk sample, the current study aimed to capture the dynamics of parent–child interactions in families with pronounced difficulties that are likely to impact developmental trajectories.

Symptoms of both anxiety and depression in parents were significantly associated with the severity of internalizing and externalizing problems in young children. Previous research has reported that parental depression is more strongly associated with overall child psychopathology risk [10, 11] and that parental anxiety is more strongly associated with child internalizing problems [9, 12]. However, the results from our regression models showed that parental anxiety was a more robust predictor of the severity of child internalizing and externalizing problems than parental depression. This distinction was particularly evident when considering internalizing problems. For externalizing problems, the negative beta weight for anxiety symptoms remained significant, but the effect size was smaller, and the contribution of depressive symptoms approached significance. While anxiety symptoms were rather prevalent, depression symptoms were less so, and it could be that there was not enough variability in the experience of depression symptoms for these associations to become significant [11].

To capture an overall understanding of the effects of EE, a composite factor ( $EE_{Neg}$ ) was constructed. This factor represents high levels of negativity and low warmth from the parent. As we found that  $EE_{Neg}$  was the strongest predictor for both internalizing and externalizing problems in children, our study not only provides support to the proposal that EE is a transdiagnostic factor [14], but also shows that the study of EE can be used to inform understanding of a range of adverse child outcomes [32, 34]. While parental anxiety and depression symptoms explained 14% of the variance in the severity of problems in children, EE explained a further 9.6% of variance in internalizing problems and 12.2% of variance in externalizing problems. This stresses the importance of understanding the wider context of these variables and demonstrates the unique contribution of EE.

In line with previous studies [36, 37], and in support of attributional models of EE that propose that negative attributions and thoughts associated parental anxiety or depression influence the comments that parents make about their child during the FMSS [14, 44, 57], we found that severity of parental depression and anxiety were significantly positively correlated with  $EE_{Neg}$ . These associations suggest that our method of assessing EE is particularly sensitive to the cognitive-affective features of parental depression and anxiety, such as negative attributional styles or rumination [14]. These are often difficult to detect through symptom checklists but more observable in parents’ spontaneous speech about their child during the FMSS [57]. Further, the factor used in this study provides a comprehensive view of EE, capturing both positive and negative parental attributions, and has not been done in previous EE research.

While previous research has suggested that children’s internalizing problems are related to reduced parental warmth and positive parenting practices [27, 28], and externalizing problems are associated with higher levels of parental negativity and criticism [29, 30], the composite measure of EE used in this study was found to be the strongest predictor of child outcomes. Regression models examining child internalizing problems indicated that parental anxiety symptoms and  $EE_{Neg}$  together accounted for 22.7% of the variance in symptom severity, and that  $EE_{Neg}$  was the strongest predictor of child internalizing problems, accounting for an additional 9.6% of variance. Although associations between parental anxiety and child internalizing symptoms are well established [9, 12], our findings indicate that of the two  $EE_{Neg}$  was the better predictor, because it explained unique variance in internalizing symptoms beyond that accounted for by parental anxiety. For externalizing problems, the total regression model accounted for 26.6% of the variance in symptom severity. In this model, parental anxiety symptoms,  $EE_{Neg}$ , and socioeconomic deprivation were all significant predictors, with  $EE_{Neg}$  accounting for an additional 12.7% of variance. Parental depression, significant in the previous step, was no longer a significant predictor once  $EE_{Neg}$  was included, suggesting that its effect on child externalizing symptoms may have operated - at least in part - indirectly through negative parental EE. Parental anxiety was a stronger and a direct predictor. These findings lend clear support to Caspi et al.’s [1] proposal that EE is a ‘child-specific’ environmental influence in the development of externalizing problems in young children. Theories of ‘toxic family stress’ propose that negative EE is a persistent stressor for child development, negatively impacting the child’s ability to regulate their HPA axis [32]. Importantly, the association between socioeconomic deprivation and externalizing symptoms also remained significant, even after controlling for parental mental health symptoms,

suggesting that children in deprived environments are at greater risk of behavioral problems regardless of parental anxiety or depression. This finding aligns with a large body of research showing that socioeconomic disadvantage is a risk factor for young children, as it reduces access to support resources, and places greater strain on parent-child relationships which can contribute to the emergence of externalizing difficulties [58].

While the use of a composite measure may make it more difficult to disentangle individual effects of components of  $EE_{Neg}$ , the high factor loadings for all components suggest that parents in the current sample did not display these behaviors in isolation. The use of a combined  $EE_{Neg}$  factor may better reflect the child's naturalistic experiences of living with parents who provide a cohesive emotional climate that includes discrete (positive and negative) attitudes and behaviors, which are subsequently related to severity of internalizing and externalizing problems in children. Additionally, our sample was considered 'high risk' and exhibited high levels of comorbidity; specific associations may more clearly emerge when children present with more isolated symptoms of internalizing or externalizing problems.

Development does not occur in isolation and is the result of interaction between an individual and their environment, including the parent, and parent-child interactions are bidirectional [59]. The current study was cross-sectional, and the proposed regression designs were based on hypothetical models of transmission of risk [11], in which poor parental mental health is an early life stressor, and child internalizing and externalizing problems are 'outcome' variables. This model was not about testing causality, but to explore the contribution of EE in the relationship between parent and child mental health. The current study supports and highlights the important role of parent-child interaction in the established relationship between parent mental health and severity of their child's internalizing and externalizing problems.

## Limitations and Future Directions

The regression models proposed in this study accounted for 20–25% of the variance in the severity of child internalizing and externalizing problems. This means that although the current measure of EE aids our understanding, a significant amount of variance remains unexplained. To further understand the role of EE and the caregiver as an "emotional teacher" [23], other indices of the emotional environment, such as tone of voice or facial expressivity, could be included to further understand how parents' emotions influence the atypical development of children.

Furthermore, the current study was cross-sectional and therefore could not establish whether parental mental health

issues preceded child emotional and behavioral problems. Transactional, longitudinal models, which recognize mutual parent-child influence, are better suited to test causality, and it is in studies with such a design that the role of EE as a mediator could be examined. Our study also focused only on parental EE and further research would benefit from examining child EE toward the parent or how parental EE affects child problem severity over time. Although we included fathers and male caregivers, there was a large preponderance of female caregivers, which limits the possibility of drawing conclusions about any unique role of fathers.

Our study used parental report to assess severity of child and parental mental health problems. There may be concerns about the reliability and validity of these reports, especially if parents themselves have mental health issues [60]. However, all children were referred by teachers for school-related problems, suggesting that the children had issues that were recognized by independent others. Additionally, the use of a single parent informant allows us to understand the environment of the caregiver more. Future studies should nevertheless aim to include independent ratings and objective assessments of children's emotional and behavioral problems.

While the FMSS paradigm was conducted with an interviewer present, it is important to consider the possible effects this may have on parent behavior. The standardized administration (using single prompts and minimal interjections) encourages parents to speak spontaneously about their child for five minutes, so while some social desirability effects are possible, research suggests that parents' responses reliably reflect their underlying attributions [57]. This limitation should be considered alongside the relative advantages of the FMSS over self-report measures, which may be more susceptible to bias. Whilst the rationale for adopting the EECS [1] was explained in the Introduction, the present study can however not contribute to any debate about its unique contribution relative to other FMSS coding schemes. Hence, future studies should examine the psychometric properties of the EECS in comparison to alternative coding schemes.

Despite these limitations, the current study has increased our understanding of the role of parental EE as a transdiagnostic process, by explaining how parental mental health could influence emotional and behavioral problems in children. The findings not only indicate that EE explained a significant proportion of the variance in a young child's emotional and behavioral problems but also suggest that this factor could be targeted for intervention in those affected. Future research should increase a focus on the emotional environment the caregiver provides to help us better understand how EE affects the development of emotional processes in young children, who are more influenced by



their familial environment [38]. Because EE is susceptible to early intervention [61], understanding the role of EE in developmental psychopathology is important in promoting beneficial outcomes in young children through the development of family-based interventions. The results suggest that negative parental representations, as often seen in parental depression and anxiety, could influence the emergence of child internalizing and externalizing problems. Reducing negative attributions could be a relevant target for intervention when the aim is to strengthen the parent-child relationship.

## Conclusion

This study confirms previous findings that relate parental mental health to child emotional and behavioral problems but also highlights EE as a significant factor in these relations. Parents with higher levels of depression and anxiety exhibited higher levels of EE, i.e., expressed more negativity and less warmth when talking about their child, and EE explained most variance in the severity of child internalizing and externalizing severity. The results underline the importance of the emotional environment of the caregiver over parental mental health symptoms. This understanding can inform the development of targeted interventions to prevent or tackle these problems in young children.

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**Data Availability** No datasets were generated or analysed during the current study.

## Declarations

**Competing interests** The authors have no competing interests to declare that are relevant to the content of this article.

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## References

1. Caspi A, Moffitt TE, Morgan JE, Rutter M, Taylor A, Arseneault L, Tully LA, Jacobs C, Kim-Cohen J, Polo-Tomás M (2004) Maternal expressed emotion predicts children's antisocial behavior problems: using monozygotic-twin differences to identify environmental effects on behavioral development. *Dev Psychol* 40(2):149–161. <https://doi.org/10.1037/0012-1649.40.2.149>
2. Dean K, Green M, Laurens KR, Kariuki M, Tzoumakis S, Sprague T, Lenroot R, Carr VJ (2018) The impact of parental mental illness across the full diagnostic spectrum on externalizing and internalizing vulnerabilities in young offspring. *Psychol Med* 48(13):2257–2263. <https://doi.org/10.1017/s0033291717003786>
3. Rutter M, Quinton D (1984) Parental psychiatric disorder: effects on children. *Psychol Med* 14(4):853–880. <https://doi.org/10.1017/s0033291700019838>
4. Hosman CM, van Doesum KT, van Santvoort F (2009) Prevention of emotional problems and psychiatric risks in children of parents with a mental illness in the Netherlands: I. The scientific basis to a comprehensive approach. *Adv Ment Health* 8(3):250–263. <https://doi.org/10.5172/jamh.8.3.250>
5. Abel KM, Hope H, Swift E, Parisi R, Ashcroft DM, Kosidou K, Pierce M (2019) Prevalence of maternal mental illness among children and adolescents in the UK between 2005 and 2017: a national retrospective cohort analysis. *Lancet Public Health* 4(6):e291–e300. [https://doi.org/10.1016/s2468-2667\(19\)30059-3](https://doi.org/10.1016/s2468-2667(19)30059-3)
6. World Health Organization (2022), June 8 *Mental disorders*. World Health Organization. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/mental-disorders>
7. Kalin NH (2020) The critical relationship between anxiety and depression. *Am J Psychiatr* 177(5):365–367. <https://doi.org/10.1176/appi.ajp.2020.20030305>
8. Pollack MH (2005) Comorbid anxiety and depression. *J Clin Psychiatr* 66:22
9. van Santvoort F, Hosman C, Janssens J, van Doesum K, Reupert A, van Loon LMA (2015) The impact of various parental mental disorders on children's diagnoses: A systematic review. *Clin Child Fam Psych* 18(4):281–299. <https://doi.org/10.1007/s10567-015-0191-9>
10. Goodman SH, Rouse MH, Connell AM, Broth MR, Hall C, Heyward D (2011) Maternal depression and child psychopathology: a meta-analytic review. *Clin Child Fam Psych* 14(1):1–27. <https://doi.org/10.1007/s10567-010-0080-1>
11. Goodman SH (2020) Intergenerational transmission of depression. *Annu Rev Clin Psycho* 16:213–238. <https://doi.org/10.1146/annurev-clinpsy-071519-113915>
12. Lawrence PJ, Murayama K, Creswell C (2019) Systematic review and meta-analysis: anxiety and depressive disorders in offspring of parents with anxiety disorders. *J Am Acad Child Psychiatry* 58(1):46–60. <https://doi.org/10.1016/j.jaac.2018.07.898>
13. Clayborne ZM, Kingsbury M, Sampasa-Kinyaga H, Sikora L, Lalande K, Colman I (2021) Parenting practices in childhood

- and depression, anxiety, and internalizing symptoms in adolescence: a systematic review. *Soc Psychiatry Psychiatr Epidemiol* 56(4):619–638. <https://doi.org/10.1007/s00127-020-01956-z>
14. Fahrner J, Brill N, Dobener LM, Asbrand J, Christiansen H (2022) Expressed emotion in the family: a meta-analytic review of expressed emotion as a mechanism of the transgenerational transmission of mental disorders. *Front Psychiatry*. <https://doi.org/10.3389/fpsyt.2021.721796>
  15. Lovejoy MC, Graczyk PA, O'Hare EA, Neuman GA (2000) Maternal depression and parenting behavior. *Clin Psychol Rev* 20(5):561–592. [https://doi.org/10.1016/s0272-7358\(98\)00100-7](https://doi.org/10.1016/s0272-7358(98)00100-7)
  16. Allmann AE, Klein DN, Kopala-Sibley DC (2022) Bidirectional and transactional relationships between parenting styles and child symptoms of ADHD, ODD, depression, and anxiety over 6 years. *Dev Psychopathol* 34(4):1400–1411. <https://doi.org/10.1017/s0954579421000201>
  17. Feldman R (2012) Oxytocin and social affiliation in humans. *Horm Behav* 61(3):380–391. <https://doi.org/10.1016/j.yhbeh.2012.01.008>
  18. Feldman R (2007) Maternal versus child risk and the development of parent–child and family relationships in five high-risk populations. *Dev Psychopathol* 19(2):293–312. <https://doi.org/10.1017/s0954579407070150>
  19. Morais A, Pasion R, Pinto TM, Ciuffo G, Ionio C, Costa R, Jongenelen I, Lamela D (2025) Perinatal anxiety and depressive symptoms and maternal parenting behavior during the first three years postpartum: a systematic review. *Depress Anxiety* 2025:1801371. <https://doi.org/10.1155/da/1801371>
  20. Meredith RM (2015) Sensitive and critical periods during neurotypical and aberrant neurodevelopment: a framework for neurodevelopmental disorders. *Neurosci Biobehav Rev* 50:180–188. <https://doi.org/10.1016/j.neubiorev.2014.12.001>
  21. Brennan PA, Hammen C, Andersen MJ, Bor W, Najman JM, Williams GM (2000) Chronicity, severity, and timing of maternal depressive symptoms: relationships with child outcomes at age 5. *Dev Psychol* 36(6):759. <https://doi.org/10.1037/0012-1649.36.6.759>
  22. Hentges RF, Graham SA, Fearon P, Tough S, Madigan S (2020) The chronicity and timing of prenatal and antenatal maternal depression and anxiety on child outcomes at age 5. *Depress Anxiety* 37(6):576–586. <https://doi.org/10.1002/da.23039>
  23. Castro VL, Halberstadt AG, Lozada FT, Craig AB (2015) Parents' emotion-related beliefs, behaviours, and skills predict children's recognition of emotion. *Infant Child Dev* 24(1):1–22. <https://doi.org/10.1002/icd.1868>
  24. Eisenberg N, Sulik MJ (2011) Emotion-related self-regulation in children. *Teach Psychol* 39(1):77–83. <https://doi.org/10.1177/0098628311430172>
  25. Morris AS, Criss MM, Silk JS, Houlberg BJ (2017) The impact of parenting on emotion regulation during childhood and adolescence. *Child Dev Perspect* 11(4):233–238. <https://doi.org/10.1111/cdep.12238>
  26. Morris AS, Age TR (2009) Adjustment among youth in military families: the protective roles of effortful control and maternal social support. *J Appl Dev Psychol* 30(6):695–707. <https://doi.org/10.1016/j.appdev.2009.01.002>
  27. Pinquart M (2017) Associations of parenting dimensions and styles with internalizing symptoms in children and adolescents: a meta-analysis. *Marriage Fam Rev* 53(7):613–640. <https://doi.org/10.1080/01494929.2016.1247761>
  28. Rose J, Roman NV, Mwaba K, Ismail K (2018) The relationship between parenting and internalizing behaviours of children: a systematic review. *Early Child Dev Care* 188(10):1468–1486. <https://doi.org/10.1080/03004430.2016.1269762>
  29. Choe DE, Olson SL, Sameroff AJ (2013) Effects of early maternal distress and parenting on the development of children's self-regulation and externalizing behavior. *Dev Psychopathol* 25(2):437–453. <https://doi.org/10.1017/s0954579412001162>
  30. Pinquart M (2017) Associations of parenting dimensions and styles with externalizing problems of children and adolescents: an updated meta-analysis. *Dev Psychol* 53(5):873–932. <https://doi.org/10.1037/dev0000295>
  31. Silk JS, Ziegler ML, Whalen DJ, Dahl RE, Ryan ND, Dietz LJ, Birmaher B, Axelson D, Williamson DE (2009) Expressed emotion in mothers of currently depressed, remitted, High-Risk, and Low-Risk youth: links to child depression status and longitudinal course. *J Clin Child Adolesc* 38(1):36–47. <https://doi.org/10.1080/15374410802575339>
  32. Peris TS, Miklowitz DJ (2015) Parental expressed emotion and youth psychopathology: new directions for an old construct. *Child Psychiat Hum Dev* 46(6):863–873. <https://doi.org/10.1007/s10578-014-0526-7>
  33. Magaña AB, Goldstein MJ, Karno M, Miklowitz DJ, Jenkins JH, Falloon IRH (1986) A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatr Res* 17(3):203–212. [https://doi.org/10.1016/0165-1781\(86\)90049-1](https://doi.org/10.1016/0165-1781(86)90049-1)
  34. Rea HM, Factor RS, Kao W, Shaffer A (2020) A meta-analytic review of the five minute speech sample as a measure of family emotional climate for youth: relations with internalizing and externalizing symptomatology. *Child Psychiat Hum Dev* 51(4):656–669. <https://doi.org/10.1007/s10578-020-00964-z>
  35. Sher-Censor E (2015) Five minute speech sample in developmental research: a review. *Dev Rev* 36:127–155. <https://doi.org/10.1016/j.dr.2015.01.005>
  36. Gravener JA, Rogosch FA, Oshri A, Narayan AJ, Cicchetti D, Toth SL (2012) The relations among maternal depressive disorder, maternal expressed emotion, and toddler behavior problems and attachment. *J Abnorm Child Psychol* 40(5):803–813. <https://doi.org/10.1007/s10802-011-9598-z>
  37. Tompson MC, Pierre CB, Boger KD, McKowen J, Chan PT, Freed RD (2010) Maternal depression, maternal expressed emotion, and youth psychopathology. *J Abnorm Child Psychol* 38(1):105–117. <https://doi.org/10.1007/s10802-009-9349-6>
  38. Khafi TY, Yates TM, Sher-Censor E (2015) The meaning of emotional overinvolvement in early development: prospective relations with child behavior problems. *J Fam Psychol* 29(4):585–594. <https://doi.org/10.1037/fam0000111>
  39. McCarty CA, Lau AS, Valeri SM, Weisz JR (2004) Parent-child interactions in relation to critical and emotionally overinvolved expressed emotion (EE): is EE a proxy for behavior? *J Abnorm Child Psychol* 32:83–93. <https://doi.org/10.1023/B:JACP.0000007582.61879.6f>
  40. Psychogiou L, Moberly NJ, Parry E, Nath S, Kallitsoglou A, Russell G (2017) Parental depressive symptoms, children's emotional and behavioural problems, and parents' expressed emotion—critical and positive comments. *PLoS ONE* 12(10):e0183546. <https://doi.org/10.1371/journal.pone.0183546>
  41. Allen TA, Oshri A, Rogosch FA, Toth SL, Cicchetti D (2019) Offspring personality mediates the association between maternal depression and childhood psychopathology. *J Abnorm Child Psychol* 47:345–357. <https://doi.org/10.1007/s10802-018-0453-3>
  42. Beck AT (1979) *Cognitive therapy and the emotional disorders*. Penguin
  43. Fresco DM, Williams NL, Nugent NR (2006) Flexibility and negative affect: examining the associations of explanatory flexibility and coping flexibility to each other and to depression and anxiety. *Cogn Ther Res* 30:201–210. <https://doi.org/10.1007/s10608-006-9019-8>
  44. Barrowclough C, Hooley JM (2003) Attributions and expressed emotion: a review. *Clin Psychol Rev* 23(6):849–880. [https://doi.org/10.1016/s0272-7358\(03\)00075-8](https://doi.org/10.1016/s0272-7358(03)00075-8)

45. Davis JA, Alto ME, Oshri A, Rogosch F, Cicchetti D, Toth SL (2020) The effect of maternal depression on mental representations and child negative affect. *J Affect Disord* 261:9–20. <https://doi.org/10.1016/j.jad.2019.09.073>
46. Rogosch FA, Cicchetti D, Toth SL (2004) Expressed emotion in multiple subsystems of the families of toddlers with depressed mothers. *Dev Psychopathol* 16(3):689–709. <https://doi.org/10.1017/S0954579404004730>
47. Weissman MM, Wickramaratne P, Gameroff MJ, Warner V, Pilowsky D, Kohad RG, Verdell Helena, Skipper Jamie, Talati A (2016) Offspring of depressed parents: 30 years later. *Am J Psychiatry* 173(10):1024–1032. <https://doi.org/10.1176/appi.ajp.2016.15101327>
48. Goodman R (1997) The strengths and difficulties questionnaire: a research note. *J Child Psychol Psych* 38(5):581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>
49. Welsh Government (2019) Welsh Index of Multiple Deprivation. Retrieved from <https://gov.wales/welsh-index-multiple-deprivation>
50. Achenbach TM (1983) Manual for the child behavior checklist and revised child behavior profile. University of Vermont
51. Nakamura BJ, Ebesutani C, Bernstein A, Chorpita BF (2009) A psychometric analysis of the child behavior checklist DSM-oriented scales. *J Psychopathol Behav* 31(3):178–189. <https://doi.org/10.1007/s10862-008-9119-8>
52. Zigmond AS, Snaith RP (1983) The hospital anxiety and depression scale. *Acta Psychiatr Scand* 67(6):361–370. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
53. Tabachnick BG, Fidell LS, Ullman JB (2007) Using multivariate statistics, vol 5. Pearson Education, Boston, MA, 7
54. Richmond S, Schwartz O, Johnson KA, Seal ML, Bray K, Deane C, Sheeber LB, Allen NB, Whittle S (2018) Exploratory factor analysis of observational parent–child interaction data. *Assess* 27(8):1758–1776. <https://doi.org/10.1177/1073191118796557>
55. Crawford JR, Henry JD, Crombie C, Taylor EP (2001) Normative data for the HADS from a large non-clinical sample. *Br J Clin Psychol* 40(4):429–434. <https://doi.org/10.1348/014466501163904>
56. Bongers IL, Koot HM, Van der Ende J, Verhulst FC (2003) The normative development of child and adolescent problem behavior. *J Abnorm Psychol* 112(2):179. <https://doi.org/10.1037/0021-843x.112.2.179>
57. Palm SME, Sawrikar V, Schollar-Root O, Moss A, Hawes DJ, Dadds MR (2019) Parents' spontaneous attributions about their problem child: associations with parental mental health and child conduct problems. *J Abnorm Child Psychol* 47(9):1455–1466. <https://doi.org/10.1007/s10802-019-00536-3>
58. Scaramella LV, Neppl TK, Ontai LL, Conger RD (2008) Consequences of socioeconomic disadvantage across three generations: parenting behavior and child externalizing problems. *J Fam Psychol* 22(5):725–733. <https://doi.org/10.1037/a0013190>
59. Cicchetti D, Natsuaki MN (2014) Multilevel developmental perspectives toward understanding internalizing psychopathology: current research and future directions. *Dev Psychopathol* 26(4pt2):1189–1190. <https://doi.org/10.1017/S0954579414000959>
60. De Los Reyes A, Augenstein TM, Wang M, Thomas SA, Drabick DaG, Burgers DE, Rabinowitz JA (2015) The validity of the multi-informant approach to assessing child and adolescent mental health. *Psychol Bull* 141(4):858–900. <https://doi.org/10.1037/a0038498>
61. Asarnow JR, Tompson M, Woo S, Cantwell DP (2001) Is expressed emotion a specific risk factor for depression or a non-specific correlate of psychopathology? *J Abnorm Child Psychol* 29:573–583. <https://doi.org/10.1023/a:1012237411007>

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