

Running Head: AN EMOTION-FOCUSED EARLY INTERVENTION

An Emotion-Focused Early Intervention for Children with Emerging Conduct Problems

Sophie S. Havighurst

Mindful: Centre for Training and Research in Developmental Health, University of Melbourne

Melissa Duncombe

School of Psychological Sciences, University of Melbourne

Emma Frankling

Austin Child and Adolescent Mental Health Service

Kerry Holland

Bendigo Health Child and Adolescent Mental Health Service

Christiane Kehoe

Mindful: Centre for Training and Research in Developmental Health, University of Melbourne

Robyn Stargatt

Department of Psychology, La Trobe University

Corresponding author: Sophie S. Havighurst, Ph.D., Mindful: Centre for Training and Research in Developmental Health, University of Melbourne, Building C, 50 Flemington Street, Flemington, Melbourne 3031, Australia. Ph: 00-61-3-9371-0200, Fax: 00-61-3-9371-0250, Email: [sophie.h@unimelb.edu.au](mailto:sophie.h@unimelb.edu.au)

### Abstract

This paper evaluates the real-world effectiveness of an emotion-focused, multi-systemic early intervention combining an emotion socialization parenting program with a child and school socio-emotional intervention for children with emerging conduct problems. Schools in lower socioeconomic areas of Victoria, Australia were randomized into intervention or wait-list control. Children in the first 4 years of elementary school were screened for behavior problems and those in the top 8% of severity were invited to participate in the intervention. The study sample consisted of 204 primary caregivers and their children ( $Mage = 7.05$ ,  $SD = 1.06$ ; 74% boys). Data were collected at baseline and 10 months later using parent and teacher reports and direct child assessment. Measures of parent emotion socialization, family emotion expressiveness, and children's emotion competence, social competence and behavior were administered. Results showed intervention parents but not controls became less emotionally dismissive and increased in empathy, and children showed better emotion understanding and behavior compared to control children. These outcomes lend support for an emotion-focused approach to early intervention in a real-world context for children with conduct problems.

**Key Words:** emotion coaching, emotion socialization, emotion competence, behavior problems, parenting, early intervention, multi-systemic intervention

### An Emotion-Focused Early Intervention for Children with Emerging Conduct Problems

Disruptive behavior problems in young children are a risk factor for conduct disorder, later substance abuse, poor peer relations, delinquency and violence which add substantial costs to society on a social and economic level (Moffitt, 1993; Sawyer et al., 2000). The first years of school are an important time for identifying children at risk and intervening before these problems become intractable (Webster-Stratton & Reid, 2004). Successful interventions include multi-systemic components for lasting effects such as parent, child and school-based programs (Sanders, Gooley, & Nicholson, 2000). Typically, multi-systemic interventions include behavioral parent training based on social learning principles, which have also been found effective as stand-alone interventions for reducing children's behaviour problems (for a meta-analysis see Thomas & Zimmer-Gembeck, 2007). Up to one third of families who receive this type of parenting intervention, however, do not benefit (Dumas, 2005; Webster-Stratton & Hammond, 1997) and behavioral parent training has been found less effective when there are attachment problems, when parents have difficulties regulating emotions, or when there is maternal depression or marital conflict (Assemany & McIntosh, 2002; Dumas, 2005; Scott & Dadds, 2009). Further, behavioral parenting programs do not integrate mounting empirical and theoretical evidence about the role of parents' emotion socialization practices in the development of children's emotion competence and behavior problems (Southam-Gerow & Kendall, 2002). Multi-systemic interventions that incorporate a parenting program targeting parent emotion socialization (responses to emotions in oneself and one's child), in combination with a child intervention, which focuses on improving emotional competence (e.g., skills in understanding and regulating emotions), are yet to be evaluated. The current study is a real-world effectiveness trial of a multi-systemic intervention with early school-age children with emerging conduct problems using an emotion-focused approach. In conducting this evaluation we sought to widen the scope of available evidence-based early

interventions and simultaneously test a new theoretical model that demonstrates how strengthening emotion socialization and children's emotion competence can reduce children's conduct problems.

### *Background*

A substantive body of research has established a relationship between poor emotional competence in children, specifically problems in understanding and regulating emotions, and behavior problems. Inaccuracies in understanding one's own and other's emotions and a propensity to see other's as angry and hostile have been found in children with behavior difficulties (Eisenberg et al., 2001; Trentacosta & Fine, 2010). These children have also been found to have poor emotion regulation, social skills difficulties (Morris, Silk, Steinberg, Terranova, & Kithakye, 2010; Olson, Lopez-Duran, Lunkenheimer, Chang, & Sameroff, 2011; Trentacosta & Shaw, 2009) and greater negative emotionality (Eisenberg et al., 2005). These deficits place children with behavior problems at risk for conduct disorder and antisocial behavior in adolescence and adulthood (Trentacosta & Shaw, 2009). Identification and early intervention are believed to be the most effective course of action to alter this developmental course (Domitrovich & Greenberg, 2004).

Parenting plays an important role in shaping children's emotional competence and behavior. Parents' modeling of emotional expression and regulation, reactions to children's emotions, and coaching and teaching about emotions all influence children's understanding and regulation of emotions (Eisenberg, Cumberland, & Spinrad, 1998; Gottman, Katz, & Hooven, 1997). One core component of emotion socialization is the way parents react to and teach children about emotions, known as emotion coaching. Emotion coaching includes parents' being aware and accepting of their own and their children's emotions and teaching children how to understand and regulate feelings before seeking solutions to problems and setting limits (Gottman & DeClaire, 1997). This style of parenting has been found to assist

children in developing skills in self-soothing, inhibiting negative affect, and focusing attention in order to achieve their goals (Gottman et al., 1997). Conversely, parenting that is emotionally dismissive, disapproving and critical of children's emotions has been linked to children having higher physiological arousal, emotional dysregulation, and poorer social and behavioral functioning (Eisenberg et al., 1999; Gottman et al., 1997; Ramsden & Hubbard, 2002).

Teaching children skills in understanding and regulating emotions and social problem solving are often an effective component of early intervention with children with behavior problems (e.g., Conduct Problems Prevention Research Group, 2002; Webster-Stratton, Reid, & Hammond, 2001). Increasing emotional literacy enables children to better understand their emotional experience, more accurately judge other's emotions and develop skills in adaptive emotion regulation (Pons, Harris, & de Rosnay, 2004). School-based interventions that build emotional awareness and social competencies have been found to produce significant changes for children with behavior problems and learning difficulties (e.g., PATHS, Greenberg, Kusche, Cook, & Quamma, 1995). Stand-alone child-focused or school-based interventions, however, have been found to produce smaller effect sizes for those children at greatest risk (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The addition of a parent or family component is, therefore, often necessary to provide optimal change.

One well validated early intervention targeting children at risk for conduct disorder that combines child, teacher and parent components is *Fast Track*. Fast Track includes a child intervention (socio-emotional child group plus peer pairing and academic tutoring), a universal school intervention (PATHS) and a parent intervention (a behavioral parent program plus home visiting) which are delivered to children identified with behavior problems at school entry (Conduct Problems Prevention Research Group, 2002). The parenting program used in Fast Track draws on social learning theory and teaches parents' skills in positive

reinforcement and setting consistent limits. Fast Track is an evidence-based multi-systemic intervention that integrates emerging knowledge about the relations between child emotion competence and behavior problems into the child and teacher interventions but not into the parenting component. Exploring Together, an Australian based early intervention for children with clinical level emotional and behavioral problems, also includes a focus on emotion literacy and emotion regulation using a multi-systemic approach (Littlefield et al., 2005). The parenting component, however, is also behavioral and does not include an emotions-focus.

An emotion-focused parenting program would require addressing parents' beliefs and behaviors surrounding emotions. Improving parent empathy and self-regulation, in addition to exploring possible intergenerational patterns of responding to children's emotions that are neglectful, dismissive or critical may be important for generating change in parents with children with behavior problems (Dumas, 2005; Leerkes & Crockenberg, 2006). These changes would be expected to improve emotional communication between parents and children and foster closer connection and healthy development of children's social and emotional competence (Eisenberg et al., 1998; Gottman & DeClaire, 1997). Multi-systemic interventions with this focus in the parenting component have not as yet been evaluated. Interventions, however, solely targeting emotion socialization practices with parents have recently begun to emerge for children with behavior problems (Havighurst et al., 2013; Salmon, Dadds, Allen, & Hawes, 2009). The *Tuning in to Kids* (TIK) program teaches parents to emotion coach their children whilst regulating their own emotions. TIK aims to improve parents' empathy and addresses family of origin experiences. The program has been found effective with preschoolers with and without behavior problems (Havighurst et al., 2013; Havighurst, Wilson, Harley, Prior, & Kehoe, 2010), however has not been evaluated with school-age children. A clinical trial of the program with preschoolers with behavior problems showed the parenting program alone contributed to significant changes on many aspects of

parenting and children's functioning (Havighurst et al., 2013). The addition of a child intervention alongside the parenting program (i.e., a more multi-systemic approach) may have strengthened outcomes.

The current study examined whether a multi-systemic early intervention for school-aged children at risk for conduct disorder that targeted children's emotion competence would lead to improvements in children's emotion knowledge, social competence and behavior compared to those in a wait-list control condition. The combination of a parenting program (*Tuning in to Kids* that targeted parent emotion socialization - rather than behavioral parent training), a child emotion-focused program and a school intervention were selected based on the theoretical model that the way parents, teachers and clinicians respond to and teach children about emotions shapes their knowledge of and capacity to regulate their emotions thereby reducing behavior problems and improving social functioning.

## Method

### *Participants*

Participants were 191 mothers and 13 fathers ( $M_{age} = 36.8$ ,  $SD = 5.9$ ), who were the primary caregiver of 204 children ( $M_{age} = 7.05$ ,  $SD = 1.06$ ; 74% boys), recruited from a range of schools in lower socio-economic, metropolitan, regional and rural areas of Victoria, Australia. Children were in preparatory class ( $n = 58$ , 28.4%;  $M_{age} = 5.86$ ,  $SD = .54$ ), grade 1 ( $n = 56$ , 27.5%;  $M_{age} = 6.82$ ,  $SD = .44$ ), grade 2 ( $n = 73$ , 35.8%;  $M_{age} = 7.75$ ,  $SD = .54$ ), and grade 3 ( $n = 17$ , 8.3%;  $M_{age} = 8.83$ ,  $SD = .51$ ). Demographic data showed that 132 (63.5%) children were living with two biological parents, 17 children (8.2%) lived with a step parent, and 52 (25.0%) children were living with a sole parent. Seven families (3.4%) did not report their marital status. Half of the parents had completed high school (51.4%), 38.9% had completed a non-university qualification and 17.8% had completed a bachelor degree or higher. Most parents (83.7%) spoke English as their first language. Participating parents

worked an average of 14.3 hours per week (range 0 – 50 hours; SD =15.3) and reported gross annual combined family incomes of less than \$40,000 (38.9%), \$40,000 - \$59,999 (15.4%), \$60,000 - \$99,999 (27.4%) and \$100,000 or more (13.9%). Fifteen parents declined to report their income (7.2%). The sample were predominantly from a lower to middle socioeconomic demographic with 60% of the sample below the mean household income (\$63,232) for the state of Victoria (Australian Bureau of Statistics, 2011).

### *Procedure*

Data were collected as part of a randomized control trial conducted by Austin Health and Bendigo Health Child and Adolescent Mental Health Services (CAMHS) to evaluate the effectiveness of an early intervention program (CAMHS and Schools Early Action Program - known as CASEA) targeting preparatory to grade three children identified at risk for conduct disorder. The Austin CASEA catchment was a metropolitan area of Melbourne while Bendigo CASEA was a rural/regional area. Human ethics approval was provided for the study from hospital, school, and university ethics committees. Schools were initially approached by members of the research team to obtain expressions of interest and were then randomized using a computerized random-number generator into one of two conditions: intervention, consisting of an emotion socialization parent program (TIK) plus a child program and a school intervention (n = 14 schools); and a waitlist control (delayed start of intervention by 1 year; n = 19) (See Figure 1 for Participant Flow). Within the two catchment areas 4,752 children between the age of 5 and 9 years, whose parents provided consent, were screened for behavior problems with a seven item parent and teacher Conduct Problems Risk Screen (CPRS: Duncombe, Havighurst, Holland, & Frankling, 2012b). This measure was based on the Behavioral Disorders Screen Interview of the Schedule for Affective Disorders and Schizophrenia - for School-Age Children (K-SADS: Kaufman et al., 1997) and included items such as, “How often does the child fight with other children and bully them?”, “Does the child



get upset easily and lose his/her temper?”, and “Does he/she get into trouble at home/school for not following the rules?” Children with a Z score greater than or equal to 1 on the CPRS ( $n = 1,385$ ; 29.1%) were identified as at-risk and schools were then approached to discuss selection of children for participation in the early intervention. This Z score cut-off has been used successfully to predict serious problem behavior in this sample (Duncombe, Havighurst, Holland, & Frankling, 2012a; Duncombe et al., 2012b). Children with a diagnosis of a pervasive developmental disorder were excluded ( $n = 47$ ), a number of parents declined participation ( $n = 89$ ); and some were in schools that withdrew after screening ( $n = 261$ ). Children from each participating school were ordinaly ranked and for each school eight families whose children showed the highest combined parent and teacher screen scores for behavior problems were invited to participate in the study, representing the top scoring 7.8% of the screened sample.

Baseline assessments (parent-report, teacher-report and direct child assessments) were conducted on 231 children from 37 schools (TIK = 113; waitlist control = 118). Assessments of children’s emotional knowledge were conducted by research assistants with post-graduate qualifications or CASEA clinicians. Follow-up assessments were conducted 10 months later.

### *Interventions*

CASEA staff who delivered the parent, child, and school interventions were either clinical or educational psychologists, social workers, speech-language therapists, or occupational therapists. Co-facilitators for the parent and child groups were from community services or the school.

#### *Parent Component*

The parent intervention was the *Tuning in to Kids* (TIK) program (see Havighurst, Wilson, Harley, & Prior, 2009, for further detail) extended so that it was delivered across eight, 2 hour sessions by two facilitators. Traditional behavioral parenting interventions

suggest that parents need to change their way of responding to children's behavior. *Tuning in to Kids* instead teaches parents to respond to the emotion underlying behavior, to connect and empathize with the child's emotion experience, to help the child understand their emotions and, if necessary, to problem solve while also setting limits (such as affirming family rules). Parents are encouraged to coach lower intensity emotions, which results in fewer episodes where children's (and parents') emotions escalate or behavior is highly dysregulated (Gottman et al., 1997). Parents were taught this by learning the five steps of *emotion coaching* (Gottman & DeClaire, 1997) via a series of exercises, role plays, DVD materials and psycho-education topics. Emphasis was placed on parents noticing emotions in themselves and their children, including physiological cues (step 1) and viewing children's emotion as an opportunity to connect and teach (step 2). In the first four sessions, parents were taught to attend to children's lower intensity emotions, and to reflect, label and empathize with children's emotions (step 3 and 4). The fifth session addressed anxiety and the last three sessions focused on anger, and included emotion regulation strategies such as slow breathing, relaxation, self-control using the turtle technique from PATHS (Greenberg et al., 1995), and safe ways to express anger. At times of higher intensity anger and difficult behaviors, quiet time and time out were discouraged with a preference for using time in where parents stay with their child when the child is very angry or emotional, unless the parent is also very angry, in which case anger regulation strategies are used by parents and only if necessary the parent leaves the situation. Time in is used because many children are overwhelmed by their emotions when angry, and separation from an attachment figure can result in heightened emotional distress and anger. When the child has calmed down, emotion coaching is employed to talk about the situation and if necessary family rules may be restated. Parents were taught skills in regulating their own emotions, particularly anger, and examined the impact of their family of origin

experiences on their beliefs about and responses to emotions. Parents were also taught problem solving and setting limits around behavior while accepting the emotion (step 5).

Program fidelity was ensured by all CASEA clinicians attending a 2-day training in TIK (led by the first author), the use of a structured manual to assist in delivery (Havighurst & Harley, 2007), and weekly fidelity checklists completed by the clinicians. The first author provided fortnightly supervision to clinicians throughout delivery. Program fidelity was rated as consistently high with 100% of the foundation skills delivered and 78% of the optional skills. Optional skills were used when participants needed specific help, such as identification of appropriate emotion coaching opportunities; these were not deemed critical for conveying the main program concepts.

Intervention group sizes ranged from four to eight parents ( $M = 6.29$ ,  $SD = 1.42$ ). Average parent attendance was six sessions, with 78% of the 91 parents in the intervention condition attending five or more sessions (71 parents), and 31 parents (34.1%) attending all eight sessions. Eight parents (8.8%) attended only one session. In one school (seven parents) the average attendance was two sessions and the group only ran for a total of five out of the eight sessions. If sessions were missed, parents received a phone call from their facilitator and were provided with the session content.

#### *Child Component*

The child intervention taught skills in emotional competence and social problem solving. The program drew on materials from Exploring Together (Littlefield et al., 2005), a clinical intervention for children with social and behavioral problems, and the Fast Track child group (Greenberg, 2007). Clinicians from the two CASEA teams during 2008 were involved in collating the child program. As new staff joined, they participated in a half-day training session along with the school facilitators. The eight-session program was delivered to between six to eight children during school hours by two group facilitators, one a clinician from

CASEA and one a professional from the school (such as a school psychologist, School Support Officer, teacher or school chaplain). Sessions one to three focused on identification of emotions. Session four and five explored anger and the associated internal behavioral cues and assisted children to learn skills in de-escalation of anger. The final three sessions addressed social skills, including social problem solving and allowed opportunities for children to practice skills.

Program fidelity was ensured by all CASEA clinicians and co-facilitators attending the half-day training workshop, use of a structured manual to facilitate delivery and completion of weekly fidelity checklists by the clinicians. One hundred percent of the child program content was covered in all groups. Average attendance was 7.3 sessions with 84 children (92.3%) attending at least six sessions.

#### *School Component*

Schools were offered one of two universal interventions, PATHS or a Professional Learning Package; depending on the choice of school or availability (Bendigo CASEA was not able to offer PATHS). The PATHS program (Greenberg et al., 1995), is a universal intervention delivered by teachers to all children in their classes, with a curriculum based on emotional understanding, social-cognitive skills and self-control. Schools who selected PATHS received 6 hours training with a certified PATHS trainer. Teachers were asked to use the materials from PATHS in any way they were able (some would deliver program curriculum in class; others would only use the ideas in individual interactions with students). The Professional Learning Package (PLP) aimed to enhance teachers' knowledge of social and emotional development, and consisted of a series of topics (such as responding in emotionally responsive ways, building teacher-student relationships, managing challenging behaviors). Schools who selected PLP received 6 hours training with one of the CASEA staff and teachers were asked to use the information they learned in these sessions to assist in their responses to

all students. Both PATHS and PLP aimed to build the capacity of the whole school to work with at-risk children. Seven schools (32 children) received the PATHS program while an additional seven schools received PLP (59 children). Due to limited resources for follow up, the quality of implementation of these two interventions was not possible to determine.

### *Measures*

#### *Parent Measures*

*Parent reported emotion socialization.* Parent emotion coaching, emotion dismissing and empathy were measured with an adapted version of the *Maternal Emotional Style Questionnaire* (MESQ; Lagacé-Séguin & Coplan, 2005). A 21 item version of the MESQ, (see Havighurst et al., 2010), includes parents' responses to anger, sadness and fear (seven items each) measured on a 7-point Likert scale. Exemplar items are: "Childhood is a happy-go-lucky time, not a time for feeling sad or angry" (Emotion Dismissing), and "Anger is an emotion worth exploring" (Emotion Coaching). The Empathy variable was made up of five relevant items from the Emotion Coaching subscale and included items such as: "When my child is scared, it's an opportunity for getting close", and "When my child is angry, I take some time to try to experience this feeling with him/her". Cronbach's alphas at baseline were .82, .88, and .73, and at follow-up were .79, .78 and .74 for Emotion Dismissing, Emotion Coaching and Empathy respectively.

*Family negative emotion expressiveness.* This was measured with the negative expressiveness subscale (12 items) from the *Self-Expressiveness in the Family Questionnaire* short form (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). Items (e.g., "How often do you quarrel with a family member?") are rated on a 9-point scale (1 = *not at all frequently* to 9 = *very frequently*). The scale has been widely used and has shown good internal consistency (Halberstadt et al., 1995). In the current study, reliability for this subscale was satisfactory with Cronbach's alphas .83 at baseline and .87 at follow-up.

### *Child Measures*

*Parent reported child behavior.* Parents completed the *Eyberg Child Behavior Inventory 6* (ECBI: Eyberg & Pincus, 1999), a psychometrically strong and widely used 36-item parent report scale of problem behaviors. Items are rated on a 7-point Likert scale from 1 = *never* to 7 = *always*. Subscales of *Oppositional Defiant Disorder*, *Conduct Disorder* and *Hyperactivity* were used with Cronbach's alphas of .91 at baseline and .92 at follow up for Oppositional Defiant Disorder, .87 at baseline and .88 at follow up for Conduct Disorder, of .89 at baseline and .89 at follow up for Hyperactivity.

*Direct assessment of child emotion knowledge.* The *Kusche Affective Inventory – Revised* (KAI-R: Kusche, Greenberg, & Beilke, 1988) was used to assess children's emotion knowledge. Three sections of the KAI-R were administered. First, children were asked to identify affect (happy, sad, scared, and angry) from photographs of children's faces and the frequency of correct responses was recorded. For each picture children were asked two questions: "How is this girl/boy feeling?" and "Is there any other way this girl/boy might be feeling?" A total score for picture recognition was computed by summing responses. Second, children were asked to generate a list of feeling words and the number of correct negative and positive feeling words was recorded. An *emotion identification* variable was computed by summing the picture recognition and emotion vocabulary variables (inter-correlation .56 at Time 1 and .50 at Time 2). Third, children's ability to understand emotions was assessed. Children were asked "How do you know when you (and others) are feeling... (happy, scared, sad, angry, or jealous)?" Responses were scored on a 4-point scale in accordance with the interview's coding system, where higher responses indicated reference to multiple behavioral/situational cues, a self-reflective internal state or empathic identification with others. Children's scores across the five emotions were summed to create an *emotion understanding* variable. High inter-rater reliability has been obtained for the inventory's

coding system (Greenberg et al., 1995). Cronbach's alphas for emotion understanding was .81 at baseline, and .84 at follow-up. To calculate inter-rater reliability two raters separately coded 15% of the items. Inter-rater reliability was .86 for the emotion identification and .91 for the emotion understanding.

*Teacher reported child behavior.* Teachers completed the *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997) to measure child social and behavioral difficulties. The 25 item scale, which has well established reliability and validity, uses a 3-point Likert scale. Cronbach's alphas for the Total Scale were .86 at baseline and .87 at follow up.

*Teacher reported child social competence.* The teacher *Social Competence Rating Scale* (SCRC; Gifford-Smith, 2000) was used to measure children's prosocial behavior, emotional regulation and academic skills (25 items in total). Responses are coded on a 5-point Likert scale (0 = *not at all* to 4 = *very well*). This scale has been used in the Fast Track project and has demonstrated good internal consistency (Conduct Problems Prevention Research Group, 1990). In the current study Cronbach's alphas were .98 at baseline and .97 at follow up for Total Social Competence.

## Results

### *Analytic strategy*

Data were examined for normality and outliers. Missing data were considered missing at random, and comprised only 1.2% and 3.2% of the parent and teacher data sets. Therefore, Pearson mean imputation was used to replace missing scale items with mean values, providing at least 80% of the data were available (Bono, Ried, Kimberlin, & Vogel, 2007). Next, baseline sample characteristics were assessed for comparability between intervention and control participants. Chi-square tests of independence showed a significant between group difference for child grade, ( $\chi^2(3, n=204) = 29.36, p < .001, \phi = .38$ ) due to there being no grade three children in the control condition, compared with 17 grade three children in the

intervention condition. No other baseline between group differences emerged on any of the demographic or outcome variables, suggesting randomization was effective. There were equal numbers of participants from each site in the intervention and control conditions. Sample characteristics between sites (urban versus regional/rural), were significantly different ( $p < .05$ ) on several variables, with the regional/rural parents reporting lower education levels, and being more likely to speak English as their first language. Parents from the regional/rural site were also significantly younger, ( $M_{age} = 35.84, SD = 6.23$ ) and had older children, ( $M_{age} \text{ child} = 7.31, SD = 1.16$ ) when compared to the urban parent-child dyads, ( $M_{age} \text{ parent} = 37.59, SD = 5.32; M_{age} \text{ child} = 6.83, SD = .90$ ). Site (urban or regional/rural) and child grade were therefore included as covariates in all analyses (Pocock, Assmann, Enos, & Kasten, 2002). We also examined whether school intervention (PATHS or PLP) had an impact on outcomes. None of the three-way interactions (Condition\*Time\*School Intervention) were significant indicating that the school component did not moderate outcomes.

As is a common problem when conducting research in real world settings and with high risk populations (Fernandez & Eyberg, 2009) follow-up data was not available from a number of parents ( $n = 65, 31.3\%$ ), teachers ( $n = 46, 22.1\%$ ) and from direct child assessment ( $n = 42, 20.2\%$ ). Parents failing to return questionnaires at follow-up worked longer hours on average, ( $Mean \text{ difference in hours worked} = 7.97, SE = 2.36; t = 3.38, p = .001$ ), were more likely to be from the urban site ( $n = 43, 39.8\%$ ) rather than the regional/rural site, ( $n = 22, 22.0\%$ ),  $\chi^2 (1, n = 208) = 6.86, p = .009, \phi = .19$ , but did not significantly differ from the rest of the sample on any of the other measures. There was no significant difference in parent questionnaire return rate between intervention ( $n = 71, 62.8\%$ ) and control participants ( $n = 72, 75.8\%$ ). For direct child assessment, data at follow-up was collected from fewer control families (84, 74.3%) compared with intervention families, (82, 86.3%),  $\chi^2 (1, n = 208) = 3.88, p = .049, \phi = -.15$ . Similarly, for teacher data, significantly fewer questionnaires were



returned at follow-up for control participants (79, 69.9%) compared to intervention participants, (83, 87.4%),  $\chi^2(1, n = 208) = 8.15, p = .004, \phi = -.21$ ). Given that attrition was greater than 15%, all analyses were repeated using an intention to treat approach, where baseline data were used as follow-up scores in place of missing data, assuming no change for participants who failed to return data. Lastly, clinical and reliable change calculations were conducted.

### *Multilevel Analyses*

Due to the multi-stage sampling strategy (schools recruited first, and then children within schools), multilevel analyses were conducted to assess the impact of condition (intervention, control) from baseline to follow-up on parent and child outcome variables, taking into account variation explained by school (Peugh & Enders, 2005). First, a baseline random intercept model (i.e., children nested within schools) was constructed for each outcome measure. Best model fit for the null model (Step 1) was determined by the smallest Akaike information criterion (AIC) index, and achieved using variance components covariance structure, and intercept and school as a random effects and time as a fixed effect (Heck, Thomas, & Tabata, 2010). At step 2, key variables (condition and time; each dummy coded 0 and 1) were added to the model, followed by covariates (child grade and site) at step 3. As indicated by chi square statistics for the change in -2 Log Likelihood, adding covariates significantly improved the model ( $p = .01$ ) for all outcomes of interest (Field, 2009). Effect sizes were calculated using the recommended formula for multi-level analyses evaluating treatment efficacy in randomized control trials (Feingold, 2009). This formula uses the difference between the estimated means of the slopes (taken from the unstandardized  $b$ -value) of the two conditions (intervention and control over time) divided by the baseline standard deviation of raw scores (equivalent to the square root of the mean squared error obtained from

ANOVA with school as the group variable). According to Cohen (1988), an effect size ( $d$ ) is interpreted as small (.2), moderate (.5) or large (.8).

Outcomes, including significance figures for the interaction between time and condition are reported in table 1 (parent outcomes) and 2 (child outcomes). A significant interaction between time and condition reflects a significant difference in slopes for the two conditions (i.e., the change over time varies according to condition). Main effects of time and condition are only reported in text when the interaction between time and condition was not significant.

### *Parenting Outcomes*

*Parent emotion socialization.* For emotion dismissing, a significant interaction between time and condition showed greater reductions in emotion dismissing for parents in the intervention condition compared with control parents. The effect size was medium. For emotion coaching, parents from both conditions reported no change. A significant interaction between time and condition was found on the empathy subscale indicating significantly greater empathy for intervention parents at follow-up, compared with control parents who reported no change. All parents reported a reduction in family negative expressiveness on the SEFQ, ( $\beta = -4.94$ ,  $SE = 1.83$ ,  $t(162.6) = -2.71$ ,  $p = .007$ , 95% CI [- 8.56,- 1.35]), with the interaction between time and condition approaching significance (.069), indicating a trend for greater improvements for intervention families.

<INSERT TABLE 1>

### *Child Outcomes*

*Parent reported child behavior.* For parent reported child oppositional defiant and conduct disorders on the ECBI, the interactions between condition and time were significant, indicating greater reductions in child behaviors reported by parents from the intervention condition compared with control parents. A significant main effect for time (but non-

significant interaction between time and condition) indicated all children showed improvements over time in parent reported child hyperactivity, ( $\beta = -4.98$ ,  $SE = 1.24$ ,  $t(156.7) = 4.01$ ,  $p < .001$ , 95% CI [-2.53, -7.44]).

*Direct assessment of child emotion knowledge.* On the KAI-R a significant main effect for time indicated improvements in emotion identification for children in both conditions, ( $\beta = -2.36$ ,  $SE = .48$ ,  $t(180.4) = 4.91$ ,  $p < .001$ , 95% CI [-3.32,-1.42]). Children in the intervention condition demonstrated significantly greater improvements in emotion understanding compared to control children as indicated by a significant interaction between condition and time.

*Teacher reported child functioning.* Significant interactions between time and condition indicated greater reductions in teacher reported total social and behavioral difficulties (SDQ) for intervention children compared with control children. A significant main effect of time indicated all children showed improvements in social competence on the SCRC, ( $\beta = 6.64$ ,  $SE = 1.95$ ,  $t(161.9) = 3.41$ ,  $p = .001$ , 95% CI [10.49, 2.79]), however, the interaction between time and condition approached significance ( $p = .054$ ) indicating a trend for greater improvement in social competence for intervention children.

<INSERT TABLE 2>

#### *Intention to Treat Analyses*

To take into account intention to treat, all analyses were repeated using baseline data as follow-up scores for cases where follow-up data were missing. For parent reported variables, findings held for emotion dismissing parenting ( $p < .001$ ;  $d = .99$ ), parent empathy ( $p = .004$ ;  $d = .36$ ) child oppositional defiant disorder ( $p = .007$ ;  $d = .29$ ) and child conduct disorder ( $p = .019$ ;  $d = .51$ ); they became significant for hyperactivity ( $p = .032$ ;  $d = .26$ ), and remained non-significant for emotion coaching ( $p = .335$ ;  $d = .12$ ), and family negative expressiveness ( $p = .192$ ;  $d = .15$ ). For direct child assessment variables, findings held for

emotion understanding ( $p = .005$ ;  $d = .20$ ) and remained non-significant for emotion identification ( $p = .098$ ;  $d = .23$ ). Finally, for teacher reported variables, findings held for child total emotional and behavioral difficulties ( $p = .001$ ;  $d = .38$ ) and became significant for social competence ( $p = .015$ ;  $d = .26$ ).

### *Clinical Significance*

To examine whether behavioral changes were clinically significant we looked at the percentage of children with behavior problems (total ECBI Intensity score) in the clinical range at baseline and follow-up. For the 90 intervention families where data was available at baseline, 56 parents (62%) reported child behavior problems in the clinical range. At follow up 15 of those (26.8%) were no longer in the clinical range. For the 105 control families, 62 parents (59%) reported behavior problems in the clinical range at baseline and 11 (17.7%) were no longer in the clinical range at follow up.

In addition, we calculated an Index of Reliable Change for the subscales of the ECBI which indicate whether the changes are reliable, taking into account measurement unreliability (Jacobson & Truax, 1991). A criterion score is determined using the baseline standard deviation of the outcome measure and its reliability (<http://www.psych.org/stats/rcsc1.htm>). Changes above the criterion score are deemed reliable. Analyses of clinical significance using the Reliable Change Index indicated that 17 intervention parents (25.4%) reported clinically reliable change (i.e., reduction  $> 16.87$ ) on child oppositional defiant disorder compared with 7 control parents (10%) who indicated change. For conduct disorder, 14 intervention parents (20.9%) and 5 control (7.1%) reported clinically reliable change (i.e., reduction  $> 6.55$ ). For hyperactivity, 20 intervention parents (29.9%) reported clinically reliable change (i.e., reduction  $> 10.04$ ) compared with 12 control parents (17.1%).

## Discussion

This study examined outcomes of a multi-systemic emotion-focused intervention delivered to early school aged children with emerging conduct disorder. Components of the intervention included an emotion socialization parenting group program, a child social and emotional group program, and a teacher delivered component that focused on emotional functioning of children for use in the classroom. This real-world effectiveness trial delivered by clinical teams in an urban and a regional/rural area of Victoria, Australia used random assignment at the school level enabling comparison of children receiving an intervention versus those who were not. Universal screening enabled identification and intervention with those children most at risk. The central research question was whether this emotion-focused approach to early intervention would be effective in improving parenting and children's emotional, social and behavioral functioning.

We first examined the impact of the parenting program on parent's emotion socialization, including their reported levels of emotion dismissiveness, empathy, coaching, and family emotion expressiveness. Consistent with expectations and our previous findings (Havighurst et al., 2013; Havighurst et al., 2010), parents in the intervention condition reported significantly decreased emotion dismissing and increased empathy, with moderate effect sizes for both. There was also a trend ( $p < .069$ ) for significantly less negative emotion expressiveness in the families of those in the intervention condition. Emotionally dismissive, harsh and critical parenting has repeatedly been linked to child conduct disorders in the research literature (e.g., Eisenberg et al., 1999; Morris et al., 2010).

In contrast to Havighurst et al. (2010), and consistent with Wilson, Havighurst and Harley (2012), in the current study there was no increase in emotion coaching beliefs. Instead the main changes were that parents reported being less emotionally dismissive and more empathic. We have, however, found in other research that parent reports on emotion

socialization questionnaires, especially those targeting parent beliefs, are affected by expectancy bias and observational measures may be a more reliable indicator of whether parents increase emotion coaching (Havighurst et al., 2010; Lauw, Havighurst, Wilson, Harley, & Northam, 2014). Future research with TIK or other emotion coaching interventions would benefit from using observational measures.

There were significant changes over time for children in both conditions on direct assessment of children's emotion identification, but only children in the intervention condition showed significantly greater change in their emotion understanding. It is likely that emotion identification improved across the whole sample because children acquire increased knowledge of emotions with age (Denham, 1998). The intervention, however, appears to have contributed to greater improvement in children's knowledge of more complex emotion information relative to control participants. Changes in emotion knowledge can be taught and are expected to improve children's capacity to manage emotions (Pons et al., 2004). The combination of a parenting program with a focus on teaching children skills in understanding and regulating emotions and a child program targeting emotion awareness and regulation appears to have resulted in improved child emotion knowledge. The school interventions may also have contributed to these improvements, however, the relative contribution of each intervention component was not possible to determine.

While the parenting intervention used few behavioral strategies, parents and teachers reported significant reductions in behavior problems for those in the intervention condition with moderate effect sizes. This outcome supports the theoretical model that enhancing children's emotional competence through intervention with parents, teachers and children can indirectly impact behavior. Changes in parenting may also have a direct impact on children's behavior by reducing emotionally dismissive parenting and increasing empathy which have been found to be directly implicated in promoting children's prosocial behavior (Schaffer,

Clark, & Jeglic, 2009). Usually interventions targeting children's behavior problems utilize behavioral parenting strategies. The current study has demonstrated that a behavioral intervention is not the only method of improving child behavior. A comparison of an emotion-focused parenting approach (*Tuning in to Kids*) with a behavioral parenting approach (*Triple P*) was also conducted as part of this multi-systemic intervention (Duncombe et al., in press). This comparison showed that there were no significant differences between the two parenting approaches, with both interventions associated with significant reductions in children's behavior problems (by parent/teacher report and child direct assessment).

Children in the intervention condition demonstrated between 12.8-15.4% greater reliably and clinically significant improvements in behavior than control children. These reductions are comparable to the differences between intervention and control children in the Fast Track study at 3- year follow-up (see Conduct Problems Prevention Research Group, 2002). Participants in the current study need to be followed up for a similar period to see if these changes were sustained.

These parent and child outcomes were found in a real-world context with delivery by clinicians. Program attendance by parents was high, with 78% of parents attending 5 or more of the sessions, an important outcome when program attendance in high-risk samples is often poor (Fernandez & Eyberg, 2009). Child attendance was also excellent, with delivery in the school setting maximizing program completion. Implementation integrity of PATHS and PLP was not possible to assess in the current study due to limited resources to support ongoing program delivery. School intervention did not moderate child outcomes, suggesting that both PATHS and PLP were equivalent in their impact. These dosage and intervention delivery outcomes provide further evidence in support of this emotion-focused approach.

### *Limitations*

The absence of a dismantling procedure makes conclusions about the relative effectiveness of each component of this multi-systemic intervention difficult to draw. The degree to which changes in children's functioning were due to the parenting program versus the child or school intervention is not possible to determine. Second, attrition was high primarily for the parent follow-up questionnaires, a common problem with delivering and evaluating interventions with high-risk samples (Humphrey, Kalamouka, Wigelsworth, & Lendrum, 2010). While the difference between intervention and control attrition was not significant for parent reported data, there were significantly fewer child assessments and teacher questionnaires for control children at follow-up. While intention to treat analyses showed that all findings held, the higher rate of attrition for control participants on child assessment and teacher reports means these findings need to be interpreted with some caution. Third, due to the limitations in resources and no independent observers or research assistants blind to participants' intervention condition status, fidelity of the intervention components was difficult to accurately determine and child assessments may have been subject to bias. This is a common problem in a real-world effectiveness trial where it is difficult to maintain the stringent conditions often found in efficacy trials. Fourth, the sample was relatively ethnically homogenous, limiting the generalizability of the findings. Fifth, independent observations of children's behavior were not available: parent and teacher reports of children's behavior may have been limited by expectancy bias where reporters were aware of whether children were receiving an intervention. Finally, an extended period of follow-up into adolescence would determine whether changes were sustained and antisocial behavior was reduced in the longer term.



*Conclusion*

This effectiveness trial provides evidence that this emotion-focused intervention improved children's emotion knowledge, social functioning and behavior in a sample at risk for conduct disorder. This study is one of the first to evaluate a multi-systemic intervention designed to enhance emotional competence in a real world setting. Parents in the intervention reported increased empathy for their children and reduced emotion dismissiveness. Children in the intervention showed improved emotion understanding and their parents and teachers reported they had reduced behavior problems at follow-up. The current study, with a focus on emotions, widens the choice of intervention options for those working to prevent and intervene with children at greatest risk of later antisocial outcomes.

### Acknowledgements

We thank the Department of Education and Early Child Development, the Catholic Education Office and the organizations who contributed funding including the Victorian State Government and Australian Rotary Health. We also extend our thanks to all the parents, children, teachers and school staff who participated in this study.

## References

- Assemany, A. E., & McIntosh, D. E. (2002). Negative treatment outcomes of behavioural parent training programs. *Psychology in the Schools, 39*, 209-219.
- Australian Bureau of Statistics. (2011). *2009-10 household income and income distribution*. Canberra: Commonwealth of Australia.
- Bono, C., Ried, L. D., Kimberlin, C., & Vogel, B. (2007). Missing data on the Center for Epidemiologic Studies Depression Scale: A comparison of 4 imputation techniques. *Research in Social and Administrative Pharmacy, 3*, 1-27. doi: 10.1016/j.sapharm.2006.04.001
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Conduct Problems Prevention Research Group. (1990). *Social Competence Scale* (Teacher Version) Retrieved November 3, 2007, from <http://www.fasttrackproject.org>
- Conduct Problems Prevention Research Group. (2002). Evaluation of the first 3 years of the Fast Track prevention trial with children at high risk for adolescent conduct problems. *Journal of Abnormal Child Psychology, 30*, 19-35.
- Denham, S. A. (1998). *Emotional development in young children*. New York: The Guilford Press.
- Domitrovich, C. E., & Greenberg, M. T. (2004). Introduction to the special issue: Preventive interventions with young children: Building on the foundation of early intervention programs. *Early Education and Development, 15*, 365-370. doi: 10.1207/s15566935eed1504 1

- Dumas, J. E. (2005). Mindfulness-based parent training: Strategies to lessen the grip of automaticity in families with disruptive children. *Journal of Clinical Child & Adolescent Psychology, 34*, 779-791.
- Duncombe, M. E., Havighurst, S. S., Holland, K. A., & Frankling, E. J. (2012a). The contribution of parenting practices and parent emotion factors in children at risk for disruptive behaviour disorders. *Child Psychiatry and Human Development, 43*, 715-733. doi: 10.1007/s10578-012-0290-5
- Duncombe, M. E., Havighurst, S. S., Holland, K. A., & Frankling, E. J. (2012b). Psychometric evaluation of a brief parent- and teacher-rated screen for children at risk of conduct disorder. *Australian Journal of Educational & Developmental Psychology, 12*, 1-11.
- Duncombe, M. E., Havighurst, S. S., Kehoe, C. E., Holland, K. A., Frankling, E. J., & Stargatt, R. (in press). Comparing an Emotion- and a Behavior-Focused Parenting Program as part of a Multi-systemic Intervention for Child Conduct Problems. *Journal of Clinical Child and Adolescent Psychology*.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*, 405-432. doi: 10.1111/j.1467-8624.2010.01564.x
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry, 9*, 241-273. doi: 10.1207/s15327965pli0904\_1
- Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., Murphy, B.C., Losoya, S.H., & Guthrie, I. K. (2001). The relations of regulation and

emotionality to children's externalizing and internalizing problem behavior. *Child Development, 72*, 1112-1134.

Eisenberg, N., Fabes, R. A., Shepard, S. A., Guthrie, I. K., Murphy, B. C., & Reiser, M. (1999). Parental reactions to children's negative emotions: Longitudinal relations to quality of children's social functioning. *Child Development, 70*, 513-534.

Eisenberg, N., Sadovsky, A., Spinrad, T. L., Fabes, R. A., Losoya, S., Valiente, C., Reiser, M., Cumberland, A., & Shepard, S.A. (2005). The relations of problem behaviour status to children's negative emotionality, effortful control, and impulsivity: Concurrent relations and prediction of change. *Developmental Psychology, 41*, 193-211.

Eyberg, S., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory- Revised: Professional Manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods, 14*, 43-53. doi: 10.1037/a0014699

Fernandez, M. A., & Eyberg, S. M. (2009). Predicting treatment and follow-up attrition in parent-child interaction therapy. *Journal of Abnormal Child Psychology, 37*, 431-441. doi: 10.1007/s10802-008-9281-1

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.

Gifford-Smith, M. (2000). *Teacher Social Competence Scale; Grade 4/Year 5 Update*. Fast Track Project Technical Report.

- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Gottman, J. M., & DeClaire, J. (1997). *The heart of parenting: How to raise an emotionally intelligent child*. London: Bloomsbury.
- Gottman, J. M., Katz, L. F., & Hooven, C. (1997). *Meta-emotion: How families communicate emotionally*. Mahway, New Jersey: Lawrence Erlbaum Assoc.
- Greenberg, M. T. (2007). *Friendship Group materials*. Personal communication.
- Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology*, 7, 117-136.
- Halberstadt, A. G., Cassidy, J., Stifter, C. A., Parke, R. D., & Fox, N. A. (1995). Self-expressiveness within the family context: Psychometric support for a new measure. *Psychological Assessment*, 7, 93-103.
- Havighurst, S. S., & Harley, A. (2007). *Tuning in to Kids: Emotionally Intelligent Parenting Program Manual*. Melbourne: University of Melbourne.
- Havighurst, S. S., Wilson, K. R., Harley, A. E., Kehoe, C., Efron, D., & Prior, M. R. (2013). "Tuning into Kids": Reducing young children's behavior problems using an emotion coaching parenting program. *Child Psychiatry & Human Development*, 44, 247-264. doi: 10.1007/s10578-012-0322-1
- Havighurst, S. S., Wilson, K. R., Harley, A. E., & Prior, M. R. (2009). Tuning in to kids: An emotion-focused parenting program - initial findings from a community trial. *Journal of Community Psychology*, 37, 1008-1023. doi: 10.1002/jcop.20345

- Havighurst, S. S., Wilson, K. R., Harley, A. E., Prior, M. R., & Kehoe, C. (2010). Tuning in to Kids: Improving emotion socialization practices in parents of preschool children – findings from a community trial. *Journal of Child Psychology and Psychiatry*, *51*, 1342-1350. doi: 10.1111/j.1469-7610.2010.02303.x
- Heck, R. H., Thomas, S. L., & Tabata, L. N. (2010). *Multilevel and longitudinal modeling with IBM SPSS: Quantitative methodology series*. New York: Rutledge.
- Humphrey, N., Kalamouka, A., Wigelsworth, M., & Lendrum, A. (2010). Going for Goals: An evaluation of a short, social-emotional intervention for primary school children. *School Psychology International*, *31*, 250-270. doi: 10.1177/0143034309352578
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*, 12-19.
- Kaufman, J., Birmaher, B., Brent, D., Rao, U., Flynn, C., Moreci, P., . . . Ryan, N. (1997). Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present and Lifetime Version (K-SADS-PL): Initial reliability and validity data. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*, 980-988.
- Kusche, C. A., Greenberg, M., & Beilke, B. (1988). *The Kusche affective interview*. University of Washington, Department of Psychology.
- Lagacé-Séguin, D. G., & Coplan, R. (2005). Maternal emotional styles and child social adjustment: Assessment, correlates, outcomes and goodness of fit in early childhood. *Social Development*, *14*, 613-636. doi: 10.1111/j.1467-9507.2005.00320.x

- Lauw, M. S. M., Havighurst, S. S., Wilson, K. R., Harley, A. E., & Northam, E. A. (2014). Improving parenting of toddlers' emotions using an emotion coaching parenting program: A pilot study of tuning in to toddlers. *Journal of Community Psychology, 42*, 169-175. doi: 10.1002/jcop.21602
- Leerkes, E. M., & Crockenberg, S. C. (2006). Antecedents of mothers' emotional and cognitive responses to infant distress: The role of family, mother, and infant characteristics. *Infant Mental Health Journal, 27*, 405-428.
- Littlefield, L., Story, K., Woolcock, C., Trinder, M., Burke, S., & Reid, K. (2005). *Exploring Together: Preschool and school program manual*. Melbourne: Exploring Together.
- Moffitt, T. E. (1993). Adolescent-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701.
- Morris, A. S., Silk, J. S., Steinberg, L., Terranova, A. M., & Kithakye, M. (2010). Concurrent and longitudinal links between children's externalizing behavior in school and observed anger regulation in the mother-child dyad. *Journal of Psychopathology and Behavioural Assessment, 32*, 48-56.
- Olson, S. L., Lopez-Duran, N., Lunkenheimer, E. S., Chang, H., & Sameroff, A. J. (2011). Individual differences in the development of early peer aggression: Integrating contributions of self-regulation, theory of mind, and parenting. *Development and Psychopathology, 23*, 253-266. doi: doi:10.1017/S0954579410000775
- Peugh, J. L., & Enders, C. K. (2005). Using the SPSS mixed procedure to fit cross-sectional and longitudinal multilevel models. *Educational and Psychological Measurement, 65*, 717-741.



- Pocock, S. J., Assmann, S. E., Enos, L. E., & Kasten, L. E. (2002). Subgroup analysis, covariate adjustment and baseline comparisons in clinical trial reporting: Current practice and problems. *Statistics in Medicine*, *21*, 2917-2930.
- Pons, F., Harris, P. L., & de Rosnay, M. (2004). Emotion comprehension between 3 and 11 years: Developmental periods and hierarchical organization. *European Journal of Developmental Psychology*, *1*, 127-152. doi: 10.1080/17405620344000022
- Ramsden, S. R., & Hubbard, J. A. (2002). Family expressiveness and parental emotion coaching: Their role in children's emotion regulation and aggression. *Journal of Abnormal Child Psychology*, *30*, 657-667.
- Salmon, K., Dadds, M., Allen, J., & Hawes, D. (2009). Can emotional language skills be taught during parent training for conduct problem children? *Child Psychiatry and Human Development*, *40*, 485-498.
- Sanders, M. R., Gooley, S., & Nicholson, J. (2000). Early intervention in conduct problems in children. In R. Kosky, A. O'Hanlon, G. Martin & C. Davis (Eds.), *Clinical Approaches to Early Intervention in Child and Adolescent Mental Health* (Vol. 3). Adelaide: Australian Early Intervention Network for Mental Health in Young People.
- Sawyer, M., Arney, F., Baghurst, P., Clark, J. J., Graetz, B. W., Kosky, R. J., . . . Zubrick, S. (2000). *Mental health of young people in Australia: child and adolescent component of the national survey of mental health and well-being*. Canberra: Commonwealth Department of Health and Aged Care.
- Schaffer, M., Clark, S., & Jeglic, E. L. (2009). The role of empathy and parenting style in the development of antisocial behaviors. *Crime & Delinquency*, *55*, 586-599. doi: 10.1177/0011128708321359

- Scott, S., & Dadds, M. R. (2009). Practitioner review: When parent training doesn't work: theory-driven clinical strategies. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 50*, 1441-1450.
- Southam-Gerow, M. A., & Kendall, P. C. (2002). Emotion regulation and understanding: Implications for child psychopathology and therapy. *Clinical Psychology Review, 22*, 189-222.
- Thomas, R., & Zimmer-Gembeck, M. (2007). Behavioral outcomes of Parent-Child Interaction Therapy and Triple P—Positive Parenting Program: A review and meta-analysis. *Journal of Abnormal Child Psychology, 35*, 475-495. doi: 10.1007/s10802-007-9104-9
- Trentacosta, C. J., & Fine, S. E. (2010). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: A meta-analytic review. *Social Development, 19*, 1-29.
- Trentacosta, C. J., & Shaw, D. S. (2009). Emotional self-regulation, peer rejection, and antisocial behavior: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology, 30*, 356-365.
- Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*, 93-109.
- Webster-Stratton, C., & Reid, M. J. (2004). Strengthening social and emotional competence in young children: The foundation for early school readiness and success. [Article]. *Infants & Young Children: An Interdisciplinary Journal of Special Care Practices, 17*, 96-113.

Webster-Stratton, C., Reid, J., & Hammond, M. (2001). Social skills and problem-solving training for children with early-onset conduct problems: Who benefits? *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42, 943-952.

Wilson, K. R., Havighurst, S. S., & Harley, A. E. (2012). Tuning in to Kids: An effectiveness trial of a parenting program targeting emotion socialization of preschoolers. *Journal of Family Psychology*, 26, 56-65.

Table 1

*Multi-level Mixed Effects Modeling: Parent-rated Parent Outcomes*

		<i>Adjusted Mean<sup>a</sup></i>												
		Baseline			Follow-up			Test of Interaction						
Measure		<i>M</i>	<i>SE</i>	<i>n</i>	<i>SE</i>	<i>M</i>	<i>n</i>	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI	<i>d</i>
Emotion dismissing	Intervention	37.95	.61	91	30.04	.69	64	-3.66	.90	159.05	-4.06	< .001	-5.44, -1.88	.63
	Control	38.63	.57	113	34.37	.65	70							
Emotion coaching	Intervention	43.55	.58	91	44.09	.66	64	1.09	.93	164.08	1.17	.244	-.75, 2.94	.19
	Control	44.26	.54	113	43.70	.63	70							
Empathy	Intervention	18.37	.36	91	19.69	.41	62	1.83	.58	158.05	3.15	.002	.68, 2.98	.33
	Control	18.71	.33	113	18.21	.39	69							
Negative expressiveness	Intervention	48.66	1.48	91	43.70	1.81	62	-4.45	2.43	160.16	-1.83	.069	-9.25, .35	.31
	Control	45.89	1.36	113	45.39	1.59	70							

*Note.*<sup>a</sup> all analyses adjusted for school, site (urban or regional/rural) and child grade

Table 2  
 Multi-level Mixed Effects Modeling: Parent reported, Teacher reported, and Direct Child Assessment: Child Outcomes

Measure		Adjusted Mean <sup>a</sup>												
		Baseline			Follow-up			Test of Interaction						
		<i>M</i>	<i>SE</i>	<i>n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI	<i>d</i>
Oppositional defiant disorder (P)	Intervention	74.18	2.13	91	66.00	2.33	68	-7.62	2.95	150.96	-2.58	.011	-13.45, -1.80	.37
	Control	71.30	1.97	113	70.75	2.25	71							
Conduct disorder (P)	Intervention	34.30	1.36	91	29.49	1.49	67	-4.84	1.91	156.20	-2.53	.012	-8.61, -1.07	.37
	Control	32.41	1.26	113	32.43	1.44	71							
Hyperactivity disorder (P)	Intervention	34.41	1.17	91	29.43	1.30	68	-3.20	1.73	158.79	-1.85	.066	-6.60, .21	.29
	Control	34.68	1.08	113	32.90	1.25	71							
Emotion identification (D)	Intervention	13.04	.39	91	15.41	.41	79	.81	.66	185.4	1.22	.223	-.50, 2.12	.20
	Control	12.57	.35	113	14.13	.40	84							
Emotion understanding (D)	Intervention	9.21	.45	91	11.57	.48	79	2.23	.83	181.42	2.69	.008	.59, 3.86	.50
	Control	10.12	.40	113	10.25	.46	84							
Total SDQ <sup>b</sup> (T)	Intervention	17.28	.76	91	14.32	.78	84	-3.01	1.01	176.64	-2.98	.003	-5.01, -1.02	.41
	Control	15.83	.69	113	15.88	.78	79							
Social competence (T)	Intervention	39.48	2.13	91	46.12	2.20	80	5.36	2.76	167.58	1.94	.054	-.09, 10.82	.25
	Control	42.80	1.95	113	44.08	2.16	76							

Note. P = parent reported, D = Direct child Assessment, T = Teacher reported; <sup>a</sup> all analyses adjusted for school, site (urban or regional/rural), and child grade. SDQ<sup>b</sup> = Total social and behavioral difficulties on the Strengths and Difficulties Questionnaire

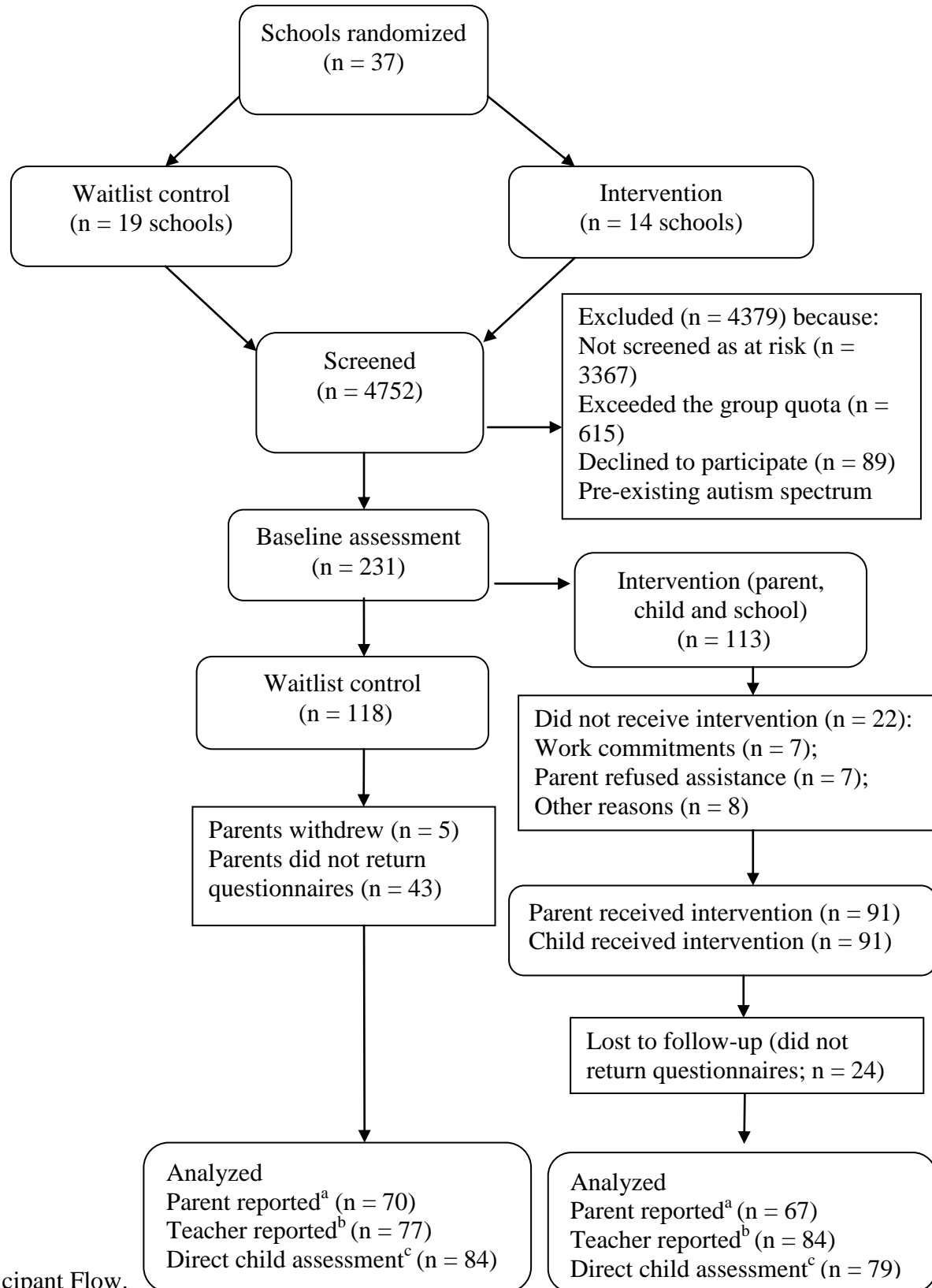


Figure 1. Participant Flow.

Note. <sup>a</sup> = Eyberg Child Behavior Inventory; <sup>b</sup> = Teacher Strengths and Difficulties Questionnaire; <sup>c</sup> = Kusche Affective Inventory – Revised



Minerva Access is the Institutional Repository of The University of Melbourne

**Author/s:**

Havighurst, SS; Duncombe, M; Frankling, E; Holland, K; Kehoe, C; Stargatt, R

**Title:**

An Emotion-Focused Early Intervention for Children with Emerging Conduct Problems

**Date:**

2015-05-01

**Citation:**

Havighurst, S. S., Duncombe, M., Frankling, E., Holland, K., Kehoe, C. & Stargatt, R. (2015). An Emotion-Focused Early Intervention for Children with Emerging Conduct Problems. *JOURNAL OF ABNORMAL CHILD PSYCHOLOGY*, 43 (4), pp.749-760. <https://doi.org/10.1007/s10802-014-9944-z>.

**Persistent Link:**

<http://hdl.handle.net/11343/219256>

**File Description:**

Accepted version