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# When Cheap is Good

*Cost-Effective Parent and Teacher Interventions  
for Children with Externalizing Behavior Problems*

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### **Abstract**

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There is strong empirical support for behavioral parent training (BPT) as an intervention for children with externalizing behavior problems (EBP). However, there is a lack of studies that have investigated the effectiveness of BPT in routine care. Furthermore, most families in need of service do not gain access to it. Another issue of concern is that a sizable portion of children who take part in BPT does not show clinically significant improvement. With regard to behavioral teacher training (BTT) for student with EBP, there is a paucity of intervention trials using randomized design. The training procedures have rarely been standardized, which have resulted in interventions that are dependent upon heavy involvement of external consultants. To enable more students with EBP to gain access to help, intervention models that use fewer resources and are feasible for typical school personnel need to be developed. Study I investigated the effects of BPT in which regular employees implemented the intervention in routine care. The participants were randomized to BPT with full practitioner support (BPT-P), self-administered BPT with minimal practitioner support (BPT-S), or a waitlist control group (WL). The study showed that BPT disseminated through brief training of social service employees (BPT-P) resulted in at least as large effects as previous efficacy studies. BPT-S also showed significant effects compared to the WL, but was less effective than BPT-P. Improvements in child behaviors were mediated by improved parenting behaviors. Study II investigated the effects of an enhanced version of the BPT-program from study I. The program targeted families with risk factors for non-response that were referred to service within the social services. The results showed strong intervention effects on child EBP and parent anxiety/depression for enhanced BPT compared to regular BPT. Study III used a randomized design to evaluate the effects of a standardized and feasible BTT program. At both posttest and follow-up, significant effects favoring the BTT-group were found on student EBP, teacher behavior management, and peer problems. The study also showed that the effect on student EBP was mediated by change in teacher behavior management.

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*To Jenny and Simon*



# List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

- I Kling, Å., Forster, M., Sundell, K., & Melin, L. (in press). A Randomized Controlled Effectiveness Trial of Parent Management Training with varying degree of therapist support. *Behavior Therapy*.
- II Forster, M., Seppälä, E., Kams, P., & Melin, L. (submitted manuscript). An Effectiveness Study Comparing Enhanced and Regular Parent Management Training for Children with Conduct Problems. *Clinical Child Psychology and Psychiatry*.
- III Forster, M., Sundell, K., Morris, R. J., Karlberg, M., & Melin, L. (accepted with request for minor revisions). A Randomized Controlled Trial of a Standardized Behavior Management Intervention for Students with Externalizing Behavior. *Journal of Emotional and Behavioral Disorders*.

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# Abbreviations

ADD	Attention Deficit Disorder
ADHD	Attention Deficit/Hyperactivity Disorder
BM	Behavior Management
BPT	Behavioral Parent Training
BPT-E	Enhanced Behavioral Parent Training
BPT-P	Practitioner assisted Behavioral Parent Training
BPT-R	Regual Behavioral Parent Training
BPT-S	Self-administered Behavioral Parent Training
BREB	Brief Rating of Externalizing Behaviors
BTT	Behavioral Teacher Training
CBT	Cognitive Behavior Therapy
CD	Conduct Disorder
CTRS	Conntes Teacher Rating Scale
EBP	Externalizing Behavior Problems
ECBI	Eyberg Child Behavior Inventory
ECBI-IS	Eyberg Child Behavior Inventory - Intensity Scale
ECBI-PS	Eyberg Child Behavior Inventory - Problem Scale
FBA	Functional Behavioral Assessment
HADS	Hospital Anxiety and Depression Scale
HI	Harsch and Inconsistent [subscale]
ICC	Intra-Class Correlation
ODD	Oppositional Defiant Disorder
P-COMP	Social Competence Scale - Parent
PDR	Parent Daily Rating
PI	Praise and Incentives [subscale]
PPI	Parenting Practices Inventory
SDQ	Strengths and Difficulties Questionnaire
VIF	Variation Inflation Factor
WL	Waiting List



# Introduction

## Externalizing Behavior Problems in Children

### Definition

The construct of externalizing behavior problems (EBP) in children refers to a grouping of behaviors including aggression, defiance, impulsivity, antisocial behavior, and hyperactivity (Achenbach & Edelbrock, 1984; Hinshaw, 2002). The dimensions of the construct have the common feature of describing behaviors that reflect the child negatively acting on the *external* environment (Campbell, Shaw, & Gilliom, 2000). In contrast to EBP, children may develop *internalizing* behavior problems, such as withdrawn, anxious, and depressed behaviors. These problems more centrally affect the child's internal psychological environment rather than the external world (Liu, 2004). This dichotomy is neither perfect nor complete, since children with externalizing problems may suffer internally and vice versa. In fact, there is a substantial co-morbidity between externalizing and internalizing behavior problems (Hinshaw, 1987).

In the context of this thesis, the concept of EBP is regarded to be a continuous rather than a categorical concept. However, in clinical contexts, the use of qualitative categories (i.e., diagnoses) is common practice. Childhood externalizing disorders include oppositional defiant disorder (ODD), attention-deficit/hyperactivity disorder (ADHD), and conduct disorder (CD). Although the use of diagnoses is dominant within the clinical literature, the continuum approach has enjoyed strong empirical support for many years and will probably be incorporated in the fifth version of the Diagnostic and Statistical Manual of Mental Disorders (Hinshaw, 2002; Moffit et al., 2008). The most apparent advantage of a continuous concept is that it captures a larger part of the variation in the problems at hand, which increases the predictive value of the concept (Moffit et al., 2008).

Other terms used to describe EBP include for example *conduct problems*, *antisocial behavior*, and *disruptive behavior*. Although these terms often are regarded as synonyms, distinctions are sometimes drawn between them. The term EBP is generally broader than the other and may be viewed as an overarching concept. For example is hyperactivity often included as a part of EBP, while it is usually separated from *conduct problems*. EBP also generally refers to less severe behavior problems than for example *antisocial behavior* (Shaw & Winslow, 1997).

Despite the issues related to definition and co-morbidity, there is nevertheless utility to the separation of the constructs of externalizing and internalizing behavior problems. Children with a variety of externalizing behaviors often benefit from similar types of interventions (e.g., Eyberg, Nelson, & Boggs, 2008; Pelham & Fabiano, 2008). In turn, children with a variety of internalizing behavior problems (e.g., depression and anxiety) are often targeted with interventions that have similar features (e.g., David-Ferdon & Kaslow, 2008; Silverman, Pina, & Viswesvaran, 2008), which are distinct from those used to prevent and treat externalizing behavior problems.

## Prevalence

In the empirical studies of this thesis, EBP was regarded as a continuous variable. For example, in the first study, a child was targeted for intervention if they obtained a score above the 90<sup>th</sup> percentile on a parent rating of EBP. In prevention science, it is common to apply a cut-off when assigning children to interventions with various levels of interventions (e.g., Sugai et al., 2000). However, in order to make sense of prevalence rates, children have to be identified by discrete categories (e.g., diagnoses) rather than continuously. There is large variation in the reported prevalence of childhood psychiatric disorders related to EBP, depending on the nature of the population sample and methods of ascertainment. For example, the lifetime prevalence of ODD and CD has been reported to be between 2-16% (APA, 2000; Loeber, Burke, Lahey, Winters, & Zera, 2000; Maughan, Rowe, Messer, Goodman, & Meltzer, 2004), and between 3-7% for ADHD (APA, 2000). In one of the most recent estimates of lifetime prevalence of psychiatric disorders, retrospective clinical interviews were conducted with a nationally representative sample of close to 10,000 participants across the US (Kessler et al., 2005). The prevalence rates were 8.5% for ODD, 9.5% for CD, and 8.1% for ADHD. It is however not certain that the results based on samples from North American and Britain can be generalized to Scandinavia. For a fact, parents and teachers in Scandinavia consequently report lower problem scores on questionnaires compared to other developed countries (Heiervang, Goodman, & Goodman, 2008; Rescorla et al., 2007). A recent study shed light on this matter, in providing comparable cross-cultural prevalence rates of externalizing disorders (Heiervang et al., 2008). Large normative samples of children in Britain and Norway were screened and thoroughly assessed for childhood psychiatric disorders. The researchers employed a standardized evaluation procedure including several measures to assure reliability. In Norway, the rate of ODD/CD was 2.5% and the rate of ADHD was 1.3%. These rates were indeed lower than those reported in the British sample, which were 4.8% and 2.5%, respectively. Furthermore, when relating these findings to parent and teacher ratings in the same study, no

evidence of underreporting of problem behaviors in Norway was found. The samples were limited to 8-10 year old children, but it is still the best estimate of prevalence of EBP in Scandinavia so far. Although the study was conducted with a Norwegian sample, it is probably safe to generalize the findings to Sweden (Heiervang et al., 2007; Obel et al., 2004). Thus, the literature supports the notion of lower prevalence rates of externalizing disorders in Scandinavia and that the prevalence of externalizing disorders at a certain time point is less than 5%. Still, in prevention and community based intervention practice, it is reasonable to target a larger portion of children (e.g., 10%) considering that the impairment and elevated risk for future maladjustment in children with sub-threshold EBP (Hinshaw, 2002).

## Prognosis

Longitudinal studies have shown that EBP are persistent across time (Broidy et al., 2003; Kim-Cohen, Caspi, & Moffit, 2003). For example, in children who have received a CD diagnosis before the age of 15, more than 50% meet criteria for antisocial personality disorder in their mid twenties (Kim-Cohen et al., 2005). Consequently, early expression of EBP is in itself one of the strongest risk factors for later EBP (Conduct Problems Research Group, 1999; Kazdin, 1998; Moffit & Caspi, 2001). Several researchers have adopted methods that identify subgroups of children with unique developmental pathways of EBP. Studies that apply such methods can detect individual differences that otherwise would have been masked in traditional multivariate analyses (Hinshaw, 2002). For example, Patterson and colleagues have developed a frequently applied model, in which subgroups of children and youths are identified by the age of onset of antisocial behavior; early vs. late starters (Patterson, Capaldi, & Bank, 1991). These subgroups have been shown to have distinct etiological and developmental characteristics (e.g., Patterson et al., 1998). Moffit (1993) has developed another commonly cited model, in which individuals are classified as having either “life-course persistent” or “adolescent limited” antisocial behavior patterns. Several prospective longitudinal studies have in recent years identified distinct developmental pathways of EBP similar to the theoretical frameworks described above. In a large-scale multi-site study, analyses from six longitudinal samples identified several distinct pathways of physical aggression (Broidy et al., 2003). Although the exact results differed between the samples, there was an overwhelming consistency in the identification of a small subgroup of high-risk boys (4-11% of the total sample). This group showed a trajectory with high level of physical aggression in kindergarten, which was stable or even increased through adolescence. For girls, a similar high and stable aggressive subgroup was also identified, at least in most samples. However, the high and stable subgroup of boys expressed about twice as much aggressive behaviors as the corresponding group in girls.

Furthermore, in two of the samples, another larger group of boys who also expressed high levels of physical aggression in kindergarten was identified (28-31% of the samples). In contrast to the stable group, the pathway of this larger group of boys declined and approached normative levels in adolescence. Thus, it appears that for highly aggressive boys in kindergarten, the prognosis may be quite different. Such differences are probably due to other risk- and protective factors that will be reviewed in a later section. In sum, this landmark study showed that there is a small group of children who show stable and consistent levels of aggression and that the developmental impact of early EBP may differ between boys and girls. However, the general findings in studies of causes, development, and outcomes related to EBP have pointed to more similarities than differences between boys and girls (e.g., Odgers et al., 2008; Gorman-Smith & Loeber, 2005).

Broidy et al. (2003) also analyzed the predictive value of different types of EBP. In multivariate analyses, it was investigated if early expressions of physical aggression predicted self-reported delinquency in adolescence, controlling for non-aggressive conduct problems, opposition, and hyperactivity. For boys, physical aggression was significantly predictive in 70% of the analyzed relationships across sites. The corresponding results were 50%, 30% and 0% for non-aggressive conduct problems, oppositional behavior, and hyperactivity, respectively. The finding that more severe forms of early EBP were stronger predictors for later delinquency has also been reported in other studies. For example, in a longitudinal study it was shown that childhood diagnosis of CD, but not ADHD significantly predicted adult diagnoses of antisocial personality disorder (Lahey, Loeber, Burke, & Applegate, 2005). In individuals with a history of either CD or CD combined with ADHD, the incidence rates of adult antisocial personality disorder were the same, which was twice as high as for individuals with a history of childhood ADHD. Similar results with regard to ADHD/hyperactivity versus conduct problems as predictors for future maladjustment have been reported in other longitudinal studies (Kim-Cohen et al., 2003; Pardini, Obradovic, & Loeber, 2006; Satterfield et al., 2007). In sum, with respect to stability and development of more serious forms of EBP (i.e., delinquency), evidence supports that children with high levels of conduct problems have worse prognosis than children who only display hyperactivity (or ADHD). That said, hyperactivity, inattentive and impulsive traits are not without meaning in the development of EBP, as will be discussed in the next sections. Furthermore, ADHD-traits have been shown to reliably predict maladjustment later in life other than EBP, such as substance use and school failure (e.g., Burke, Loeber, White, Stouthamer-Loeber, & Pardini, 2007; Trzesniewski, Moffit, Caspi, Taylor, & Maughan, 2006).

## Theoretical framework for the thesis

Much of the empirical work pertaining the development of externalizing behavior problems has involved multivariate analyses of the relationship between risk variables and child externalizing outcomes. Kraemer et al. (1997) have proposed a conceptual model in which a variable that merely is associated with a particular outcome is termed *correlate*, while *risk factors* are variables that temporally precede an outcome. Risk factors are divided into *fixed markers* (variables that cannot be altered, e.g., age or sex), and *variable markers* (malleable risk factors). Finally, the term *causal risk factor* is used for variable markers that, when altered, yield a change in the outcome. Despite the host of literature on the development and maintenance of EBP, influential reviewers have concluded that the field is stuck in the “risk factor” stage, because so few studies have used designs that are able to document causality (e.g., Hinshaw, 2002; Moffit, 2005a). Consequently, Hinshaw (2002) points out three important future directions to advance the research related to developmental risk factors. First, there is a need for investigations of the malleability and causal status of risk factors (i.e., natural or controlled experiments). Second, more research has to be theory-driven, because “the sheer size of this list [of risk factors]...betrays the field’s lack of ability to synthesize or to tell a fully coherent story about the development and maintenance of externalizing behavior” (Hinshaw, 2002, p.435). Third, studies need to take typologies of externalizing behavior into account to understand differential effects of risk factors on subgroups within the population of children with EBP (i.e., person-centered approaches). Hinshaw concludes, that if these issues are not considered, it is tempting to apply a large set of multivariate data analyses to large lists of risk factors, which may serve to obscure rather than to clarify developmental processes.

In keeping with Hinshaw’s conclusions, the review of development of EBP in this thesis will be underpinned by theory. Specifically, the *coercion theory* (Patterson, 1982), will serve as the main framework for the review, due to the major role it has played in the development of behavioral interventions the last decades. Coercion theory specifies key risk factors in the development of EBP (Patterson, 1982; Reid, Patterson, & Snyder, 2002). The theory involves both micro-social and macro-social aspects of child development. At the micro-social level, the theory specifies coercive patterns in the moment-to-moment interactions between parents and children. These patterns are characterized by reinforcing contingencies for externalizing child behaviors and the lack of effective parenting that supports prosocial behaviors. Disrupted parenting practices are thought to be a proximal causal factor for antisocial behavior in young children. At the macro-social level, the maintenance and escalation of early antisocial behaviors is specified through interactions of further risk factors across time. Once coercive patterns are established at home, subsequent antisocial behaviors and

coercive interactions generalize to other settings. Aversive interactions with teachers and peers lead to early school failure and peer rejection. This, in turn, leads to association with deviant peers, which is specified as a key causal factor that precludes delinquency and other serious outcomes in adolescence and adulthood (Patterson, Forgatch, Yoerger, & Stoolmiller, 1998). A strength of coercion theory is the empirical support of the proposed mechanisms that comes from numerous observational studies in natural settings, longitudinal studies, and experimental studies of parenting interventions (Granic & Patterson, 2006; Patterson, 2005).

Another influential theoretical framework has been developed by Moffit (1993) based on the identification of life-course persistent versus adolescent limited antisocial behavior patterns. There are similarities with coercion theory, but there is a greater emphasis on person-environment interactions, especially along the life-course persistent pathway. First, the model includes elaborations on genetic effects that are expressed as cognitive and emotional difficulties. Moffit particularly points to the evocative effect these early child characteristics have on responses from others (e.g., parents). Second, further genetically driven processes are proposed in the maintenance of antisocial behavior, when individuals with genetic vulnerability selects or creates environments that reinforces antisocial behaviors. Due to these two person-environment interactive processes, life-course persistent persons miss out on opportunities to acquire and practice prosocial alternatives at each developmental stage.

## Domain specific developmental processes

In the following sections, a review of domain specific processes in the development of EBP will be presented. Considering the vast literature on developmental psychology, the selection of topics and references will be guided by the theoretical framework, aim, and scope of this thesis. Developmental processes related to parents and teachers are therefore of primary interest. Nevertheless, as stated in the previous section, to fully understand the mechanisms in the development of EBP, isolated processes and factors need to be placed in context. Therefore, the following sections will also include accounts of the developmental impact of child characteristics, peers, and neighborhoods.

### The impact of child characteristics

When does the development of EBP start? A blunt answer is; at conception. The genetic makeup of the child will influence early cognitive and emotional functioning, which in turn interacts with environmental factors in the

development of EBP. The following sections will review the role of genes and their expression in cognitive and emotional functioning related to EBP.

### **Genetic influence**

In behavioral genetic studies, samples of twins and adoptees are used to estimate the portion of variation in a certain trait or behavior that can be explained by genes. Recent reviews have synthesized a large body of studies and shed light on factors responsible for the variation in reported estimates (Moffit, 2005b; Rhee & Waldman, 2002). These reviews employed the term *antisocial behavior*, which in their definition included a range of measures at different levels (e.g., parent and teacher ratings of behaviors in young children and criminal records in adolescents). The general conclusion was that genes account for about 50% of the variation in antisocial behavior in the population. Shared environment (e.g., family and parenting that is common to both twins or siblings) account for about 20%, and non-shared environment (i.e., unique environmental factors that affect only one of the twins or siblings) explain the remaining part of the variation.

The issue of heritability is however more complicated than just stating a percentage. A range of moderating and interactive processes related to genetic and environmental influence has been identified. First, the portions of genetic and environmental influence on antisocial behavior vary with age. Several findings converge to the conclusion that the genetic influence is stronger for early emerging and persistent antisocial behavior, compared to antisocial behavior that is limited to adolescence (Moffit, 2005b). Through adolescence, individuals are to a greater extent exposed to environmental factors (e.g., peers) that may influence antisocial behavior independent of genetic vulnerability. Second, the use of different measures of EBP is linked to variation in heritability estimates. In general, the use of wider concepts result in higher estimates of heritability compared to estimates for specific behavioral outcomes (Krueger et al., 2002). For example is the genetic influence on aggressive behavior (around 60%) and hyperactivity (around 75%) stronger than on delinquent acts (30-40%; Faraone, 2005; Moffit, 2005b). Wide concepts may reflect constellations of stable individual traits with strong genetic influence, while specific behaviors to a greater extent are influenced by environmental factors. Third, the more pervasive the antisocial behavior is across settings, the stronger the genetic influence (Arseneault et al., 2003; Scourfield, Van den Bree, Martin, & McGuffin, 2004). Finally and importantly, the estimates of genetic influence include both pure genetic effects and interactions between genetic and shared environmental factors. Thus, the general finding that the shared environment accounts for 20% of the variation in antisocial behavior represent only direct effects – not conditional on genetic vulnerability (Moffit, 2005b). In other words, the genetic account for variation in antisocial behavior is partly dependent upon shared environmental factors.

Studies have demonstrated that genes in general as well as specific genes interact with the environment (Moffitt, 2005b). A famous example of the latter mechanism is the study by Caspi et al. (2002) in which a large sample of 3 year olds was assessed regularly for more than 20 years. The sample was divided in two groups depending on a specific gene (MAOA-low activity and MAOA-high activity). As it turned out, in the MAOA-low activity subgroup, the risk of developing CD was around three times ( $OR = 2.8$ ) higher if the children also had experience of maltreatment in childhood. The risk of having been convicted for a violent crime was around ten times higher ( $OR = 9.8$ ). In contrast, in the MAOA-high activity group, the experience of maltreatment did not result in any significant increase in risk for antisocial outcome. The interactive effect between the MAOA genotype and environmental factors has been replicated in a study by Foley et al. (2004), who found that the risk of developing CD as a result of poor parenting was more than doubled among children with MAOA-low activity genotype compared to the MAOA-high activity group. In sum, studies of genetic influence point to strong influence of genes in the development of EBP, but a growing number of studies have shown that this influence interacts with the environment of the child.

### **Genetic expressions: basic cognitive and emotional processes**

The role of specific genes represents the most basic level in the study of child characteristics and development of EBP. However, the influence of child characteristics can also refer to the mediating role of basic cognitive and emotional processes, which for a large part can be viewed as expressions of the genetic makeup of a child (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Krueger et al., 2002; Vaughn, Bost, & van IJzendoorn, 2008). A cognitive construct that has been particularly well studied in relation to EBP is executive functions (EF), defined as neurocognitive processes that maintain an appropriate problem-solving such as response inhibition, vigilance, working memory, and planning (Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Response inhibition, defined as the ability to inhibit and override prepotent responses, is an EF function that has been closely linked to EBP (Barkley, 1997; Morgan & Lilienfeld, 2000; Willcutt et al., 2005; Young et al., 2009). In the context of EBP, deficits in response inhibition could result in inability to withhold impulsive, aggressive or antisocial responses (Raine, 2008). Competing casual models that involve motivational processes (e.g., inability to resist instant gratification) rather than cognitive inabilities have been proposed (e.g., Sonuga-Barke, 2005) and recently many researchers promote the idea of multiple neuropsychological routes to EBP (Pennington, 2005). It is well established that individuals with ADHD have deficits in EF (Willcutt et al., 2005), but deficits are also found in individuals with other disorders in the externalizing spectrum as well as adolescent and adult antisocial behavior (Oosterlaan, Logan, & Sergeant,

1998; Raine et al., 2005; Séguin, Nagin, Assaad, & Tremblay, 2004). Some authors have proposed that such findings could be explained by comorbid ADHD (e.g., Oosterlaan, Scheres, & Sergeant, 2005; Pennington & Ozonoff, 1996). However, other authors have reported contradictory results and concluded that EF deficits are uniquely associated with both ADHD and other externalizing disorders and behaviors (e.g., Raaijmakers et al., 2008; Raine et al., 2005; Séguin et al., 2004).

It is well known that early emotional traits characterized by high negative affect and lack of control predicts later EBP (Caspi, Henry, McGee, Moffit, & Silva, 1995). A specific type of emotional and cognitive deficit, callous-unemotional traits, has received growing attention in recent years with respect to its role in the development of EBP. Children with antisocial behavior and callous-unemotional traits show a specific neurocognitive profile suggestive of amygdala/orbitofrontal dysfunction, as manifested by insensitivity to punishment and distress cues (Blair et al., 2006; Dadds et al., 2006). This profile differs from that of antisocial children without callous-unemotional traits, who do not show comparable punishment insensitivity, and, if anything, can be hypersensitive to anger and punishment (i.e., is characterized by high negative affect/anger; Blair et al., 2006). It has also been shown that antisocial behaviors in children are more influenced by genes if they also have callous-unemotional traits (71-81%) compared to antisocial behavior in children without such traits (30-36%; Viding et al., 2005; Viding et al., 2008).

### **The relevance of child characteristics to intervention research**

Although the study of child characteristics is of great importance in understanding the development of EBP, the relevance to intervention research is less obvious. As Hinshaw (2002) pointed out, behavioral interventions are dependent upon developmental factors that are both malleable and causal, which usually not is the case for child characteristics. Genetic makeup is for example better described as a fixed marker. However, estimates of heritability include genetic main effects as well as interaction effects between genes and environmental factors (Rutter & Silberg, 2002). Both specific genes and specific environmental risk can conceivably have moderate-to-large effects when interactions are taken into account (e.g., Caspi et al., 2002). Thus, studies of interaction effects can be helpful to behavioral (and biological) intervention research in identifying risk groups with a certain genetic vulnerability and in targeting triggering environmental risk factors. Another useful application of genetic studies is, somewhat counter intuitively, to identify and achieve more precise estimates of environmental risk factors. If studies of environmental risk do not take genetic influence into account, effects that actually are of genetic origin may be falsely attributed to the environment (Moffit, 2005b). Consider the case of poor parenting for example. The proposed environmental risk of

experiencing poor parenting could also be explained by pure genetic influence. If the same genes influence inadequate parenting behavior and child antisocial behavior, then the finding of a relationship between the proposed environmental factor (parenting) and the outcome (child antisocial behavior) may in fact be purely due to shared genetic influence. Thus, including genetic factors in the study of environmental risk is crucial to gain more knowledge of causal and maintaining functions in child development. Unfortunately, only a minority of studies of environmental risk factors have controlled for genetic influence (Serbin & Karp, 2003). A few exceptions do however exist. Independent of genetic influence, it has been shown that the development of EBP in children is related to parental warmth and negativity (Caspi et al., 2004), to deprived neighborhoods (Caspi, Taylor, Moffit, & Plomin, 2000), to domestic violence (Jaffee, Moffit, Caspi, Taylor, & Arseneault, 2002), to family adaptability (Meyer et al., 2000), to parent-child conflict (Burt, Krueger, McGue, & Iacono, 2003), and to physical maltreatment (Jaffee, Caspi, Moffit, & Taylor, 2004). Although genetically informed studies rule out confounding of environmental and genetic effects, natural or randomized experiments are still the best research designs in pursue of causality. Such studies do not need to include measures of genetic influence to be valid, which will be exemplified in later sections.

The identification of mediating psychological processes is of relatively limited use in behavioral intervention research. A possible application is to directly target specific psychological deficits in interventions. A common proposition in reviews is however that this is possible “in theory” or “in the future” (e.g., Loeber, Burke, & Pardini, 2009; Raine et al., 2005). One exception is computer-guided training of working-memory, that has been evaluated in several studies. However, a recent review concluded that the empirical evidence for such interventions to date is insufficient (SBU, 2009). Another possible implication for behavioral interventions is to use findings from studies in neuropsychology and emotional traits to identify diagnostic subtypes with specific etiology and prognosis, which can lead to better matching and tailoring of interventions (e.g., Hinshaw, 2002). An example is children with callous-unemotional traits, as discussed in the previous section. Thus far however, the empirical evidence with regard to basic cognitive and emotional deficits still is too insufficient to be regarded for inclusion in the coming DSM-V (Moffit et al., 2008; Nigg et al., 2005; Stefanatos & Baron, 2007).

## The impact of family and parenting

In coercion theory and other models of the development of EBP, family, and parenting in particular, plays a key role. Parenting practices has not only been shown to be strongly related to child outcomes, but to be a proximal causal factor that is operating from the very beginning of antisocial

pathways. Also, many aspects of family and parenting are malleable with opportunities for change through interventions.

### **Family adversity**

There is a robust association between EBP in children and family adversity, including conditions such as large family size, poverty, unemployment, minority status, low parental education, marital discord, and parental stress (Farrington & Loeber, 1998). In recent years, a growing number of genetically informed longitudinal studies have emerged, in which the specific role of family adversity in the development of EBP has been illuminated. For example, Jaffee et al. (2002) showed that exposure to domestic violence over the first five years of a child's life specifically explained 13.5% of the development of co-occurring externalizing and internalizing problems, after controlling for latent genetic and environmental factors. Meyer et al. (2000) also used a twin study to establish the specific influence of marital discord and family adaptability (i.e., family cohesion and ability to handle hardships). Both variables were significantly associated with adolescent conduct problems, but after controlling for latent genetic and environmental factors only family adaptability remained significant specifically accounting for 4% of adolescent conduct problems.

Results from several studies have shown that the associations between family adversity and EBP are mediated at least in part via more proximal parenting deficits. For example, in a five year longitudinal study of two cohorts of children, structural equational modeling showed no or weak direct links between family adversity (socioeconomic status, employment, income, and household density) and antisocial behavior (Knutson, DeGarmo, & Reid, 2004). However, there were significant relations from family adversity via parenting variables (neglect and punitive discipline) and child antisocial behavior, even after controlling for prior levels of child behavior. Riggins-Caspers, Cadoret, Knutson, and Langbehn (2003) used a creative analysis to demonstrate that adoptees' genetic liability for antisocial behavior provoked more harsh discipline from the adoptive parents in homes where the adoptive parents suffered from social disadvantage. Conger et al. (2002) replicated those results and presented a path-model showing that economic pressure was related to the emotional distress of caregivers, which in turn was associated with problems in the caregiver relationship. These problems were in turn related to disrupted parenting practices, which predicted higher externalizing problems in the children. This model represented the best fit of the data, although direct relations between some of the variables also emerged in testing alternative models.

In contrast, studies of more severe forms of - and later emerging - EBP, have demonstrated direct effects of family adversity. In a large 6-year longitudinal study using a person-centered approach to model trajectories of physical aggression, membership in the high and stable aggressive group

was independently predicted by family income, parent education level and parenting practices (Côté, Vaillancourt, LeBlanc, Nagin, & Trembley, 2006). Similar results were found in another study examining variables distinguishing low- from high aggressive trajectories in children (NICHD, 2004), in which both parent practices and maternal depression were significant predictors. Ackerman, Brown, and Izard (2003) found that family adversity was the only significant predictor of change in EBP in school children between first and third grade, controlling for initial levels of EBP, harsh parenting and verbal ability. Finally, Farrington, Tofti, and Coid (2009) reported that poor housing predicted late-onset offending (after 21 years of age). It emerged as the strongest predictor in a logistic regression with a large number of predictor variables, including parenting variables, of which none turned out significant.

In conclusion, several studies show that family adversity operates through parenting practices, at least in early development of EBP. However, family factors may have stronger direct impact on later emergence and change in EBP, as well as more severe forms of EBP (i.e., high and stable aggressive developmental trajectory).

### **Negative parenting practices**

The key role of negative parenting strategies has repeatedly been pointed out in the literature on the development of EBP. Coercion theory specifies three such strategies; negative reciprocity, escalation, and negative reinforcement (Forgatch & DeGarmo, 2002). A typical coercive communication pattern begins with a minor misbehavior from the child, to which the parent responds in an aversive manner (negative reciprocity). This is followed by increased child misbehavior as well as negative responses from the parent (escalation). Finally, the child's misbehavior is negatively reinforced when the parent gives in to escalating coercive actions. The reinforcing mechanism in coercion theory has received most empirical support. For example, Snyder and Patterson (1995) showed that the relative rate of negative reinforcement for coercive behavior correlated .83 with the relative rate of coercive behavior observed in the home a week later. Prospectively, it has also been shown that the relative rate of negative reinforcement for deviant behavior observed in the home predicts later police arrests and out of home placements (Schrepferman & Snyder, 2002; Snyder, Schrepferman, & St. Peter, 1997). In the former study, it was the negative reinforcement rate that specifically predicted the outcome, while other coercive strategies did not. Burke, Pardini, and Loeber (2008) reported a similar result in a prospective longitudinal study. The only parenting variable that predicted EBP was the lack of discipline (i.e., negative reinforcement), whereas harsh punishment and poor communication were non-significant predictors. Thus, even if negative and harsh responses sets the stage and escalates parent-child

conflicts according to coercion theory, the determining developmental factor may be parental tendency to give in during escalation of conflicts.

Some of the strongest empirical support for the impact of parenting practices on child EBP is found in experimental studies. The causal role of parenting practices in general is supported by numerous intervention studies of parent training (Eyberg et al., 2008). Furthermore, in several experimental studies, improved parenting practices have been shown to mediate intervention effects on child behaviors (e.g., DeGarmo, Patterson & Forgatch, 2004; Tein, Sandler, MacKinnon & Wolchik, 2004). Some studies have also investigated the unique effects of negative and positive parent strategies. With one exception (Martinez & Forgatch, 2001), negative parenting has been found to be the stronger mediator of change in EBP (Beauchaine, Webster-Stratton, & Reid, 2005; Eddy & Chamberlain, 2000; Fossum, Mørch, Handegård, Drugli, & Larsson, 2009; Ogden & Amlund Hagen, 2008). Further support for the relatively greater importance of negative parenting comes from longitudinal and correlational studies that have explored the predictive value and mediating role of parenting practices (Burke et al., 2008; Caspi et al., 2004; Van Leeuwen, Mervielde, Braet, and Bosmans, 2004; Pettit, Bates, & Dodge, 1997; Webster-Stratton & Hammond, 1998).

An important issue to address with regard to negative parenting practices is the bi-directional relationship with child EBP. According to coercion theory, not only is the child negatively reinforced when the parents give in to demands or aggression. In the same manner, harsh parenting behaviors are also negatively reinforced when the child occasionally complies. There is ample empirical support for the bi-directional process. In a recent twin-study it was shown that the process starts with genetically influenced child-driven evocative effects (e.g., difficult temperament), which then is reinforced through environmentally mediated negative parenting practices (Larsson, Viding, Rijdsdijk, & Plomin, 2008). In a longitudinal study it was found that child conduct problems at kindergarten entry reliably predicted subsequent use of ineffective discipline tactics, which mediated growth in child conduct problems at home during kindergarten and first grade (Snyder, Cramer, Afrank, & Patterson, 2005). Similar results have been reported in other studies, in which harsh and coercive parenting practices have been shown to mediate and moderate the relation between early child behaviors and later levels of EBP (Bates, Pettit, Dodge, & Ridge, 1998; Dodge, 2002; Patterson, DeGarmo, and Knutson, 2000; Miner & Clarke-Stewart, 2008; Stoolmiller, 2001). Thus, even if the bi-directional relationship starts with difficult child behaviors, negative parenting practices serve as a key causal and maintaining factor in the further development of EBP.

Studies have shown that negative parenting practices may have differential impact dependent upon child characteristics. For example, in a person-centered longitudinal study a differential effect of negative parenting

control was found dependent upon the personality type of the child (Leeuwen et al., 2004). Negative parental control was related to EBP in children with undercontrolled personality type, whereas it was related to internalizing problems in overcontrolled children. Another documented moderating effect of childhood characteristics has been suggested in studies of callous-unemotional traits. In comparisons of antisocial children with and without such traits, it has been shown that the behaviors of the former group to a larger extent are genetically influenced (e.g., Viding et al., 2008). This suggests that those children are less influenced by environmental factors, such as negative parenting practices, which has found support in neurobiological and neuropsychological studies (e.g., Blair et al., 2006).

### **Positive parenting practices**

A group of researchers have argued that positive parenting practices may have a greater impact on EBP in toddlers than in pre-school children, because of the importance to early establish a context in which children can develop positive behaviors and skills at the expense of EBP. In several randomized intervention trials it was consistently demonstrated that an increase of positive parenting practices predicted or mediated effects on child EBP (Dishion et al., 2008; Gardner et al., 2007; Gardner, Burton, & Klimes, 2006; Lunkenheimer et al., 2008). A weakness, however, is that only one of these studies controlled for the simultaneous effects of negative parenting practices (Gardner et al., 2007). As stated in the previous section, the support for the relative impact of positive parenting practices is weaker than that of negative parenting. Why do most behavioral parent training programs still promote positive parenting practices? It makes common sense that the rate of positive interactions in a relationship would influence the rate of conflicts, but what is the theoretical and empirical support for this proposition? Positive parenting practices occur in context in which externalizing child behaviors are absent. The relation between these variables may be separated in time and context. Therefore, the relationship between positive parenting and EBP may be harder to detect in multivariate analyses that assumes linear relationships between variables. In the work by Patterson and colleagues, the value of analyzing the function of specific behaviors in moment-to-moment interactions has always been stressed (Patterson, 2005). Such methods can demonstrate strong impact of behaviors that are not detected in multivariate analyses.

Furthermore, traditional behavioral formulations maintain that behavior is controlled strictly by a set of immediate environmental contingencies, and that altering any behavior requires simply altering those contingencies. Strand (2000) argues that modern behaviorism is not restricted to a narrow focus on behavior and its contingencies. Rather, modern behavioral conceptualizations focus on the *context* within which particular reinforcement exchanges occur. In keeping with this, positive parenting

practices may alter the context in which traditional learning mechanisms operate, rather than having a direct impact on child behaviors. Specifically, matching theory and behavioral momentum are pointed out as a theoretical framework that can help to explain the effects of positive parenting on EBP (Strand, 2000). In matching theory, not only the specific reinforcing contingencies are proposed to be operating, but the density, or relative rate of reinforcement for different kind of behaviors also have an impact. For example, if a child often gets the opportunity to engage in - and be reinforced for - positive behaviors (e.g., through joint play), in relation to opportunities and reinforcement for externalizing behaviors, the frequency of the latter will decrease. Empirical work has shown that children with EBP suffer from a lack of opportunities and reinforcement for positive behaviors (Gardner, 1987; Patterson, 1982; Wahler, Castellani, Smith, & Keathley, 1996). In other words, their parents seldom engage in joint play or conversation and often respond inconsistently to positive or neutral child behavior. On the other hand, as stated in coercion theory, the rate and consistency of negative reinforcement is often high for children with EBP (e.g., Snyder & Patterson, 1995). Therefore, not only the actual reinforcement of EBP, but also the rate of reinforcement for such behaviors relative neutral or positive behaviors operates. Thus, matching theory offers an argument for including parenting strategies in interventions that increases opportunities for positive child responses. In support of this theoretical position, several studies have linked positive parenting practices to social competence and positive peer relations (Denham, Renwick, & Holt, 1991; Harrist, Pettit, Dodge, & Bates, 1994; Kennedy, 1992; Kuczynski & Kochanska, 1995; Laible, 2004; Webster-Stratton & Hammond, 1998), as well as academic performance (Dopkins Stright & Neitzel, 2003; Pettit et al., 1997; Pratt, Green, MacVicar, & Bountrogianni, 1992). Further support for a contextual view on the function of positive parenting is found in recent developments of the coercion theory. Patterson and colleagues have demonstrated that parents to children with EBP tend to have more rigid response patterns (Granic & Patterson, 2006; Granic, O'Hara, Pepler, & Lewis, 2007). They are less skilled in shifting strategy to the demands of the present context, which often result in repeated negative interactions. Analyses of data based on moment-to-moment observations suggest that the best way to break those vicious cycles is to increase the level of positive interactions (e.g., "repairing" after conflict), rather than to attempt to directly decrease the frequency or strength of negative interactions (Granic et al., 2007).

The other part of the framework proposed by Strand (2000), behavioral momentum, refers to the persistence of behaviors under shifting circumstances. Behavioral momentum depends on the overall rate of reinforcement in a certain context. That is, if a certain behavior is richly reinforced in one context, the probability for persistence of the behavior is

increased when the context is altered. For example, if a child is frequently reinforced in the context of high-probability requests (e.g., put your shoes on the shelf), the likelihood for the same (or similar) behaviors is higher in the context of low-probability requests (e.g., clean your room). Parpal and Maccoby (1985) tested the effect of brief parent training (20 minutes) in the principles of sensitive and responsive play in an experimental study. After the training, parents were instructed to play for 15 minutes, after which they were to clean up the toys together with the child. During clean-up, the number of conflicts were halved in the experimental group. In another study, the amount of time spent in spontaneous joint play predicted lower levels of conduct problems one year later (Gardner, Ward, Burton, & Wilson, 2003). Interestingly, other forms of joint activities did not result in less conduct problems, while the amount of time spent alone predicted worsening child behaviors. From a theoretical perspective, the effects in these studies can be accounted for by behavioral momentum. Joint activities that are characterized by high levels of reinforcement for positive and neutral child behaviors will increase the probability for such behaviors to occur in other contexts. Thus, behavioral momentum is an argument for including joint activities and frequent positive reinforcement as strategies in parenting interventions. Another account of these effects comes from attachment theory, in which sensitive and responsive parenting is said to foster secure attachment between parents and children, which in turn is proposed to lower the risk for subsequent behavior problems (Maccoby, 1992). There are similarities between attachment theory and the framework laid out by Strand (2000) in the focus on promoting responsive parenting. Several behavioral parenting programs have also been inspired by attachment theory and included responsive and child-directed playtime as part of the parent training (Webster-Stratton & Reid, 2003; Eyberg, 2003).

In conclusion, the effects of positive parenting practices may be difficult to detect in traditional multivariate analyses. Instead, detailed analyses of the function of parent and child behaviors can be necessary. Even if such approaches have provided support for the importance of positive parenting, the stronger support for the direct impact of negative parenting is non-arguable. Therefore, positive parenting practices may be best viewed as a necessary but not sufficient prerequisite to change negative parenting, which in turn is necessary to have an impact on child EBP.

## The impact of school and teachers

Children with already emerging EBP enter the school system unprepared for the experience of schooling and often bring externalizing behavior patterns with them (Loeber & Farrington, 1998). In coercion theory, overlearned coercive cycles between parents and children are expected to increase the risk for similar patterns to emerge in the school-setting, with increased risk

for academic failure and peer rejection (Patterson et al., 1992). This, in turn, will increase the risk for association with deviant peers, which is pointed out as a key process in the acceleration of EBP (Farrington, 2005; Moffit, 1993; Patterson et al., 1992; Rutter & Maughan, 2002).

The effect of schools in the development of EBP has been investigated both at the student level (e.g., academic failure and truancy), at the classroom level (e.g., teacher-student interactions), and at the school level (e.g., impact of school organization). With respect to the latter level, most research has concerned the impact on academic achievement, while less is known about the impact on EBP (Rutter & Maughan, 2002). In a study that investigated systematic school-based variations in measures related to psychological well-being, peer relations and EBP, most of the variation was attributable to student-level factors (Van den Oord & Rispens, 1999). Systematic school effects were also found, but they predominantly reflected variations between classrooms. Other studies have also demonstrated the effect of classroom variation, in which the density of students with behavior problems has been shown to impact individual levels of EBP (Kellam, Ialongo, & Mayer, 1994; Werthamer-Larsson, Kellam, & Wheeler, 1991). With regard to these findings, and to the scope of this thesis, the following sections will focus on developmental school factors at the student- and classroom levels.

### **Student-level risk and protective factors**

There is a host of research that has demonstrated that academic underachievement and poor attachment to school are factors related to the development of EBP (e.g., Farrington, 2005; Maddox & Prinz, 2003). For example, reviews of multiple longitudinal studies have demonstrated a robust association between students' reading achievement and EBP (Dionne, 2005; Mandel, 1997; Hinshaw, 1992). However, these studies have not been able to answer if academic achievement was a cause or consequence of EBP. This issue was addressed in a genetically informed twin study, in which the interrelations between reading achievement and antisocial behavior were investigated (Trzesniewski et al., 2006). The results showed that antisocial behavior at age 7 was explained by prior antisocial behavior and IQ, but also by a bi-directional relation to reading achievement. The conclusion was that reading achievement and antisocial behaviors reciprocally influenced each other over time. Furthermore, the study showed that the reason antisocial behavior was related to reading achievement was because of environmental factors they had in common. In contrast, shared genetic factors explained the relationship between reading achievement and ADHD.

Early school failure has also been related to maladjustment in adolescence and adulthood. In a person-centered longitudinal study, logistic regression analyses revealed that the only adolescent predictors that remained significant among a set of 20 risk factors, were two individual school-related

factors (Farrington et al., 2009). School drop-out and hyperactivity in class significantly increased the risk of belonging to the late-onset and persistent criminal trajectories. Similar results were reported in another study, in which truancy and poor school motivation independently predicted later violent crimes in a logistic regression with a host of other risk factors (Loeber et al., 2005).

In conclusion, poor achievement and school failure are risk factors for further maladjustment and EBP. Furthermore, student achievement is reciprocally related to EBP. Thus, when analyzing the impact of school related factors on EBP, it is also important to consider their effect on academic achievement and school attendance.

### **Interactions between teachers and students**

Compared to extensive literature on coercive interactions in families, there are relatively few studies that have investigated the interactions between teachers and students. However, the existing studies generally confirm that children from families with coercive behavior patterns experience similar interaction with their teachers. For example, in a study by Nelson and Roberts (2000), it was demonstrated that students with EBP suffered an elevated risk of being involved in prolonged coercive interactions with their teachers. The teachers were also more likely to respond negatively to disruptions from EBP-students than from comparison students. Van Acker, Henry, and Grant (1996) conducted moment-to-moment observations of the interactions between aggressive students and their teachers. Praise from teachers was delivered at random, non-contingent upon any specific student behaviors. However, there were strong contingent relations between externalizing student behaviors and teacher reprimands. For students with high levels of aggressive behaviors, the likelihood that externalizing behaviors would be followed by a reprimand was twice as high as for students with medium levels of aggressive behaviors.

A host of single-subject experiments have demonstrated that specific teacher behaviors actually cause changes in student behaviors. For example, in a meta-analytic review of effects student disruptive behaviors, the aggregated effect size from several single-subject and time-series studies was  $d = 0.77$ , for interventions promoting more teacher praise and less reprimands (Stage & Quiroz, 1997). Likewise, in a recent review (Simonsen et al., 2008), it was concluded that contingent praise and ignoring of misbehaviors were evidence based teacher strategies resulting in beneficial student outcomes. The evidence from these reviews strongly supports that teacher praise and reprimands have at least a short-term causal impact on student EBP.

As reviewed earlier, experimental group studies of parenting interventions have demonstrated the relative impact of positive and negative parenting. Unfortunately, no such studies have been published with regard to teaching

practices. There are however non-experimental correlational and longitudinal studies that have explored the relationship between teacher and student behaviors. The reported relations between teaching practices and student behaviors have been similar to the findings pertaining parenting practices, as reviewed earlier. Positive teaching practices (e.g., praise) have been found to correlate with prosocial child behaviors, while negative teaching practices (e.g., harsh reprimands) have been related to student EBP (Beaman & Wheldall, 2000; Dobbs & Arnold, 2009). It has also been demonstrated that the development of student EBP is more influenced by teacher-student conflict than teacher-student conflict. For example, Ladd and Burgess (2001) showed that the rate of teacher-student conflict significantly contributed to less cooperation, less school liking, more attention problems, more conduct problems, and worse academic achievement. The effects were significant even after controlling for initial school adjustment and aggression. Furthermore, the effects were stronger if the teacher-student conflict was stable through the three assessment points and more expressed for chronically aggressive children. Thus, the study supports the proposition in coercion theory that teacher-student conflict not only is a consequence of maladjusted student behaviors, but also seems to further reinforce such behaviors. Other studies have also reported relatively stronger effects for teacher-student conflict compared to closeness (Hamre & Pianta, 2001; Silver, Measelle, Armstrong, & Essex, 2005).

As for positive parenting, the effects of positive teaching may have indirect effects on student EBP, via promotion of alternative behaviors and altering of context. In the study by Ladd and Burgess (2001), teacher-student closeness had no direct effects on student EBP, but made independent contributions to more cooperation and school liking. Likewise, an indirect of teacher-student closeness was suggested in Silver et al. (2005). The interaction between teacher-student closeness and student EBP in kindergarten significantly predicted the growth of EBP in grade 1-3, as rated by a new set of teachers. Students with the highest levels of EBP showed less increase in EBP if they had a close relationship with their kindergarten teacher. Hence, for this high-risk group, the teacher-student closeness may be an important protective factor.

A limitation in the studies using constructs like teacher-student conflict and closeness is that specific teaching strategies are obscured. How should a teacher behave in order to achieve closeness and avoid conflict? Burnett (2002) addressed this issue in a large study using structured interviews with elementary school students. The frequency of negative feedback from the teacher and three different kinds of praise (general praise, ability feedback, and effort feedback) was assessed. These teacher behaviors were entered in a structural equation modeling analysis together with the students' perception of the teacher-student relationship. It turned out that general praise and ability feedback had no significant link to the teacher-student

relationship. In contrast, significant paths were found for effort feedback (0.80) and negative feedback (-0.22). Thus, the study points to fact that both teacher praise and reprimands may impact the teacher student relationship, which in turn has been shown to have long-term impact on the development of EBP. The study also suggests that all praise is not equal. Similar findings were reported in Mueller & Dweck (1998), in which effort-based praise resulted in higher motivation for learning and better persistence and achievement after failure, compared to general praise. Interestingly, the students who received ability based praise fared even worse. The results in these studies are in concert with the common advice in behavioral interventions to use behavior specific praise, as opposed to general praise. In behavior specific praise, as well as in effort feedback, the child is told specifically what he or she has done, while general praise or ability feedback obscures that matter.

## The impact of peers and neighborhood

### **Peer rejection and deviant peers**

In coercion theory, early peer rejection and later association with deviant peers are defined as key steps on the antisocial pathway (Patterson et al., 1992). This model has found empirical support in several studies that have demonstrated both independent and indirect developmental effects from problematic peer relations (Adams & Evans, 1996; DeGarmo & Forgatch, 2005; Ladd, Birch, & Buhs, 1999; Laird, Criss, Pettit, Dodge, & Bates, 2008). In a particularly illustrative person-oriented longitudinal study the impact of early peer rejection as well as subsequent association with deviant peers was demonstrated (Petras et al., 2004). The experience of peer rejection in first grade significantly increased the risk for membership in an aggressive subgroup, when controlling for the effects of earlier aggressive behavior. Furthermore, association with deviant peers in middle school increased the risk of antisocial outcomes in young adulthood, over and above the effects of early aggression and peer rejection. There is also support for the theoretical proposition that deviant peer association in adolescence serves as a key risk factor. For example, in a 13-year longitudinal study, 32 variables from different domains were analyzed as predictors of adult antisocial behavior (Loeber, Pardini, Stouthamer-Loeber, & Raine, 2007). In the final logistic regression, association with delinquent peers in early adolescence was by far the best predictor. Furthermore did peer delinquency qualify as one of three significant predictors distinguishing adolescent that persisted with antisocial behavior through adolescence from those who desisted in late adolescence. Conversely, positive peer relations have been shown to moderate the risk of other factors, such as family adversity and

deficient parenting practices (Criss, Pettit, Bates, Dodge, & Lapp, 2002; Lansford, Criss, Pettit, Dodge, & Bates, 2003).

The literature on interventions for children with peer problems is sparse. For one thing, peer relations are often dependent upon processes that are out of reach for adults and therefore difficult to target in interventions. However, there are several studies that have investigated the indirect impact of parents and teachers on childrens' peer relations (DeGarmo & Forgatch, 2005). It has for example been shown that sensitive monitoring by parents has a protective function with respect to associations with deviant peers (Laird et al., 2008). In the school setting, it has been demonstrated that both the level of teacher support and conflict with students, impact the way other students view them as peers (Hughes, Cavell, & Willson, 2001).

### **The relationships between neighborhood, family and peers**

Social adversity in the neighborhood has been linked to development of EBP (Farrington & Loeber, 1998). There is empirical support both for independent effects of neighborhood factors, as well as indirect effects via family and peer processes (Leventhal & Brooks-Gunn, 2000). During childhood, family factors have been shown to be more important than the neighborhood. For example, a nationwide study of 2-year-olds twins demonstrated that children in deprived neighborhoods were at increased risk for emotional and behavioral problems over and above any genetic liability (Caspi et al., 2000). Neighborhood deprivation explained 5% of the variation in behavior problems, controlling for latent genetic and environmental influence. Still, family factors (shared environment) explained a larger part of the variation (20%). Ingoldsby et al. (2000) found similar results in a longitudinal study of children, in which family communication (parent-child conflict) by far was a stronger factor than neighborhood adversity in predicting membership in the high and stable EBP pathway. In contrast, during adolescence empirical findings suggest a growing impact of the neighborhood. In longitudinal studies, neighborhood factors during adolescence have been found to be strong predictors for later antisocial outcomes, independent of family adversity (McCabe, Lucchini, Hough, Yeh, & Hazen, 2005; Petras et al., 2004). The findings in these studies are consistent with coercion theory and the late starter model (Patterson et al., 1992) in showing that neighborhood environments during adolescence that are characterized by crime and exposure to deviant peers may be powerful negative learning environments predicting increase of EBP in adolescence.

There are several methodological difficulties in determining the way neighborhood operates on the development of EBP, such as lack of control for possible confounding variables and correct modeling of indirect effects (Leventhal & Brooks-Gunn, 2000). Involvement with deviant peers is an important confounding variable that has to be taken into account in studies of neighborhood adversity. In the study referred to above by Loeber et al.

(2007), none of the neighborhood or community factors survived in the final analyses, in contrast to the peer factors. Ingoldsby et al. (2006) reported similar findings. Another important factor to take into account in studies of neighborhood adversity, is the moderating effects of child characteristics. Trentacosta, Hyde, Shaw, and Cheong (2009) showed that dangerous neighborhoods had a significantly impact on later antisocial outcomes for sensation seeking adolescents. This relation disappeared for children who were low in sensation seeking. Similar results have been reported for temperamental traits such as impulsivity (Lynam et al., 2000), callousness (Meier, Slutske, Arndt, & Cadoret, 2008), and combinations of either high positive affect plus low fear or low positive affect and high fear (Colder, Lengua, Fite, Mott, & Bush, 2006).

## Summary of the developmental process

This section will summarize key points and clarify the relevance of the reviewed literature for the empirical studies of the thesis. First, in the section on child characteristics, recent research on genetic influence was reviewed. Of special interest to behavioral intervention research are the findings from genetically informed studies that have managed to isolate “true” environmental effects. These studies support that for example parenting variables have an independent role in the development of EBP, which in turn justifies such variables to be targeted in interventions. Also, the findings that genetic influence interacts with environmental factors (e.g., Caspi et al., 2002) lends further support for targeting parenting and teaching even when treating conditions that to a large extent are explained by genetic influence. Nevertheless, the usefulness of research related to genetic influence, as well as basic cognitive and emotional processes, is limited to behavioral intervention research. Behavioral parent and teacher training are examples of interventions in which the behavioral manifestations in the present context, rather than specific underlying psychological phenomena, guide the design of the interventions. Until there is sufficient evidence for treatments directly targeting underlying cognitive and emotional deficits, behaviorally and contextually oriented interventions are reasonable treatments of choice.

Second, in the section on family adversity, the main point in relation to this thesis is the fact that effects are mediated through parenting practices. Therefore, even in families who suffer from adversity, it is reasonable to offer parenting interventions.

Third, the theory and empirical findings that were reviewed in the section on negative parenting practices serve as the main foundation for the interventions in this thesis. The main target is the coercive patterns, in which negative parenting behaviors serve as setting events and subsequent reinforcement for externalizing child behaviors. The findings pertaining bi-directionality are also important as background in intervention practice. It

may help parents to know that children often start coercive interactions, but that parents often supply subsequent triggers and reinforcement. It is also important to understand the mechanism through which lack of parental consistency also is negatively reinforced in the coercive process.

Fourth, the main point in the section on positive parenting behaviors is the contextual theoretical propositions that complement coercion theory. Although positive parenting practices have less direct impact on externalizing behaviors, they serve to establish a context in which higher rates of prosocial child behaviors compete with externalizing behaviors. This is the main argument for including positive parenting components in interventions for EBP.

Fifth, the section on student-level risk and protective factors includes arguments for targeting achievement and school attendance in school-based interventions. Again, targeting positive child behaviors in a certain context will indirectly affect the frequency of externalizing behaviors. Consequently, in study III of the thesis, positive educational and social goals were formulated for the students in the intervention condition.

Sixth, the findings reviewed in the section on teacher and student interactions serves as the main foundation for the teacher training intervention in study III. The body of research is not as large compared to corresponding research on parenting practices. Nevertheless, the findings with regard to teaching generally confirm that the same coercive patterns operate in the home- and school settings. Student EBP is more strongly related to negative than positive teaching practices. However, as with parenting, it is important to consider the context in which teacher-student interactions take place. The lack of contingent teacher reactions to prosocial student behaviors is a rationale for shifting the teachers' focus from reprimanding student misbehaviors to providing attention for the opposite. Another important point is the findings that support the use of behavior specific feedback, which is common practice in behavioral teacher interventions.

Seventh, in the section on peer problems, findings that support the key role of peers in coercion theory are reviewed. Both early rejection and subsequent association with deviant peers are important factors to consider in intervention research. Of special importance to the thesis are findings that pertain to the role of parenting and teaching practices that have impact on peer relations, which point to the possibility of indirectly altering peer relations.

Eighth, the main conclusions in the section on the influence of neighborhood factors is that the effects in childhood are mediated by parent-child relations and that peer deviance is an important confounding variable. Thus, despite the general impact of neighborhood adversity, it is still justified to target parenting and peer relations in interventions.

In conclusion, the review of the development of EBP supports the focus on parenting and teaching in interventions. Even if factors such as child characteristics, peers and neighborhoods play important developmental roles, the malleability, causal, and maintaining status of parenting and teaching processes justifies that these factors are prioritized in interventions for EBP. In the following sections the evidence-base for such interventions will be reviewed.

## Behavioral parent and teacher training interventions

### Behavioral Parent training interventions

Behavioral parent training (BPT) is one of the most theoretical and empirical well-founded methods for early prevention of EBP (Eyberg et al., 2008; Kazdin, 2005; Nock, 2003). Several standardized BPT programs - for instance, the Incredible Years (IY; Webster-Stratton & Reid, 2003), Parent Management Training Oregon Model (PMTO; Patterson, 1976), Triple-P (Sanders, Markie-Dadds, Tully, & Bor, 2000), and Parent-Child Interaction Therapy (PCIT; Eyberg, 2003) - have been developed over the last few decades. Coercion theory is an important theoretical framework common to the programs, with focus on the negative reinforcing interaction patterns. PCIT and IY also refer to attachment theory, in considering sensitivity and responsivity in parent behaviors.

### **General content and format of parent training**

The parent training programs referred to above, as well as other BPT programs, share common features in terms of content and format. Therefore, it is possible to refer to BPT as a generic type of intervention. The program content is usually covered in 10-20 sessions that last 1-3 hours. Typically, the programs are implemented with individual families, but some programs (e.g., The IY) often use a group format. All programs include role-play and homework as part of the implementation, but there are also differences between programs. The IY program uses a large number of video-vignettes to model parenting skills and offer concurrent child training and teacher training as part of the intervention package. There is also a booster program (“ADVANCE”) as an optional extension of the basic parent training in IY. PMTO and Triple-P have used telephone calls between sessions to support the implementation of homework. Triple-P also offers their program at different levels of intensity, ranging from self-administered to an enhanced option with additional therapist support. In PCIT, parents bring their children to sessions and receive live coaching from the therapist in the application of new skills.

Similar sets of parenting skills are included in the programs and usually the training starts with introduction of positive parenting practices (e.g., joint activities and increased use of praise), after which discipline practices are introduced. The guiding principle during the discipline phase is to teach parents to avoid coercive patterns in the interaction with their children. Despite the general similarities, the detailed content differs between programs. In PMTO, five core skills are covered during the training; positive involvement, skills encouragement, problem solving, monitoring, and effective discipline. The IY program starts with child-directed interactive play skills, followed by monitoring, ignoring, effective use of commands, application of logical consequences, problem-solving, and time-out. In Triple-P, 17 child management strategies are specified. Ten of the strategies are designed to promote children's competence and development (e.g., quality time, praise, attention, engaging activities, setting a good example, and effective commands). Seven strategies are designed to help parents manage misbehavior (e.g., setting rules, planned ignoring, logical consequences, and time-out). The program also includes training in planning activities to increase generalization of intervention effects. The PCIT start with a child-directed interaction phase, in which parents learn to use positive attention, behavioral descriptions, labeled praise, and planned ignoring. These skills are applied in play situations. In the second phase, the focus lies on parent-directed interactions, in which the parents learn to give clear instructions and use time-out.

### **Research evidence**

In reviews and meta-analyses, BPT have consistently been pointed out to be an evidence based practice in treatment of children with EBP, with average effect sizes between  $d = 0.42$  and  $d = 0.67$  (Dretzke et al., 2009; Eyberg et al., 2008; Lundahl, Risser, & Lovejoy, 2006; Nock, 2003; Pelham & Fabiano, 2008). A recent article reviewed the results from 17 randomized controlled trials of IY, PMTO, PCIT, and Triple-P (Eyberg et al., 2008). Of a total of 80 outcome measures, 55 (69%) were significantly in favor of the intervention group. Furthermore, 92% of the outcome measures yielded an effect size larger than  $d = 0.20$ . In a progress review, the quality and advances in research pertaining different psychosocial treatments of child conduct problems were analyzed (Nock, 2003). For each type of treatment it was assessed if there was sufficient research regarding impact, component analyses, mechanisms of change, moderators of treatment effects, dose-response relationships, and generalization of treatment effects. Research of BPT showed most progress of all treatment types, which were categorized as BPT, CBT (i.e., individual child training), multimodal treatments, functional family therapy, and psychodynamic therapy.

However, one important missing piece in the research literature is that few intervention studies have investigated the effectiveness of BPT in routine care (Costin & Chambers, 2007; Ogden, Forgatch, Askeland, Patterson, & Bullock, 2005; Van den Hoofdakker, Van der Veen-Mulders, Sytema, Emmelkamp, Minderaa, & Nauta, 2007). The need for such studies is pressing because many implementation efforts of evidence-based programs in routine care are less successful compared to results found in highly controlled efficacy studies (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005). For example, in a recent effectiveness study of BPT, only small effect sizes were found on externalizing child behavior (Ogden & Amlund Hagen, 2008). The term *effectiveness* refers to studies that are conducted under “real-world” conditions, in which the intervention is implemented without support or resources provided as part of the study. The term *efficacy*, on the other hand, refers to research in which interventions are implemented under optimal conditions (e.g., heavy involvement of researchers and qualified consultants).

Furthermore, only a minor portion of children with conduct problems receives effective help, due to lack of parental awareness of - and accessibility to - evidence-based interventions (Dodge, 2009; Kazdin, 2008; Sanders & Turner 2005). Therefore, different means of intervention delivery have to be investigated to enable large-scale dissemination, which was highlighted in a recent special issue of *Journal of Consulting and Clinical Psychology* (e.g., La Greca, Silverman, & Lochman, 2009). As in the U.S., families and children in Sweden also lack access to evidence based practices. The child psychiatric care suffers from serious limitations according to a recent nation-wide study investigating almost 500 patient journals (Socialstyrelsen, 2009). For example, in almost half of the journals, no diagnosis was specified. In a majority of the journals, the specified treatment was general support (talk) and parents or family members were only the focus of treatment in 16% of the cases. To summarize, most families in need of help do not have access to BPT (or other evidence based interventions), and if they do, the effectiveness of the intervention is uncertain.

Another way of disseminating BPT at a larger scale, apart from training practitioners in routine care, is to limit the amount of therapist support. There are several studies that have evaluated the Triple-P parenting program in which each participating parent only was provided 100-200 minutes of telephone support (Hahlweg, Heinrichs, Kuschel, & Feldmann, 2008; Markie-Dadds & Sanders, 2006; Morawska & Sanders, 2006; Turner & Sanders, 2006). Limited therapist assistance has been shown to enhance intervention effects and improve acceptability of self-administered interventions (Markie-Dadds & Sanders, 2006; Morawska & Sanders, 2006).

### **Risk factors associated with non-response**

Although BPT is considered to be an evidence-based treatment for children with EBP, a substantial portion of the participating children do not respond to the treatment. In several studies of BPT that have examined the clinical significance of the intervention, 20-50% of the participating children still had conduct problems in the clinical range after the intervention (Larsson, Fossum et al., 2008; Sanders, Markie-Dadds, Tully, & Bor, 2000; Sanders & McFarland, 2000; Webster-Stratton & Hammond, 1997). Researchers have identified several risk factors that characterize families who do not respond to treatment (Kazdin, 2005). Such factors include parental mental health problems (e.g., depression, anxiety disorders and substance abuse; Fernandez & Eyberg, 2005; Werba, Eyberg, Boggs, & Algina, 2006; Chronis, et al., 2007), social problems (e.g., poverty, unemployment and lack of support; Kazdin, 1997; Lochman, 2004; Kim-Cohen, Moffitt, Taylor, Pawlby, & Caspi, 2005), immigrant status (Reyno & McGrath, 2006), marital problems (Cummings, Keller, & Davies, 2005), and families who are referred to treatment as opposed to self-referred families (Reyno & McGrath, 2006). The severity of the child's problems and/or comorbidity (e.g., ADHD) are also often regarded as risk factors for poor outcomes, but the empirical support for that is mixed. In some studies, severity and comorbidity have been associated with worse outcomes (e.g. Fossum et al., 2009), while other studies have found no such effect (e.g., Conduct Problems Prevention Research Group, 2002), or even a positive moderating effect (e.g. Hartman, Stage, & Webster-Stratton, 2003; Lundahl et al., 2006). Essentially the same risk factors that have been linked to non-response in BPT, have also been linked to poor attendance and adherence to treatment (Nock & Ferriter, 2005), which in turn may result in weaker response to the treatment (Nix, Bierman, & McMahan, 2009). Furthermore, there is more support for the negative effect of poor adherence, than for attendance problems (Nock & Ferriter, 2005).

### **Program enhancements that target risk factors for non-response**

Several researchers have evaluated the benefit of adding components to parent training that addresses risk factors for non-response. In three randomized trials of the Triple-P program, the inclusion of components that directly addresses parental difficulties such as depression, anxiety, stress and marital problems, have resulted in larger reductions in those problem areas (Sanders & McFarland, 2000; Dadds, Schwartz, & Sanders, 1987), as well as larger reductions in child conduct problems (Sanders et al., 2000). Despite these significant results, the advantage of including enhancements has still been modest in comparison to standard intervention. Kazdin and Whitley (2003) found improvements in both parental mental health problems and child conduct when adding stress management and problem solving to parent

training. In a similar study, effects on measures of parent communication and problem solving were found, but no added effect on child measures (Webster-Stratton, 1994). These studies support that the addition of components targeting parent mental health and marital problems can be an effective way to enhance the effects of BPT for at-risk families. However, additional services may also present an overwhelming burden or impede parents' ability to focus on and master parenting skills, which was discussed in a recent meta-analysis (Kaminski, 2008). This may explain why the advantage of including enhancements has been rather modest (e.g., Sanders, Bor, & Morawska, 2006). Consequently, it is important to carefully time and integrate additional services in parent training programs. Another possible way to enhance existing parenting programs may be to include additional individual support, which in a recent meta-analysis was significantly superior for disadvantaged families as compared to the delivery of BPT in group format (Lundahl, et al., 2006). A third option is to use home visits, besides the scheduled in-service sessions. The inclusion of home visits has been shown to improve the effect of parenting programs on measures of child social-emotional development, child cognitive development, potential abuse, parenting behaviors and attitudes (Sweet & Appelbaum, 2004).

Despite the obvious benefit of developing interventions that parents actually will attend and adhere to, only a few studies have specifically evaluated enhancement strategies with that focus (Nock & Ferriter, 2005). Most of these studies have evaluated the use of preparatory efforts to inform and engage parents through interviews, information material and telephone calls (e.g., Day & Reznikoff, 1980; Szapocznik, et al., 1988). In one study, Nock and Kazdin (2005) randomized participants to parent training with and without a brief motivating preparatory interview. Parents who received the preparatory intervention had greater treatment motivation, attended significantly more treatment sessions, and showed better adherence to treatment.

## Behavioral teacher training interventions

Behavioral teacher training was for several decades applied primarily in special educational settings targeting students with severe disabilities. More recently however, several intervention models have been developed that target student's with EBP in general education settings. These models often apply intervention components at multiple levels within schools and target students at different risk-levels. The empirical support for school-wide multi-level behavioral intervention models is growing (e.g., Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Horner et al., 2009; Sorlie & Ogdén, 2007). However, there are still limitations with regard to the evidence of specific components within school-wide models (Iovannone, 2009). An example of such models that has been widely disseminated in recent year is

School-Wide Positive Behavioral Support (SWPBS; Sugai et al., 2000), which is currently being adopted by more than 7,000 schools across the USA (Bradley, Doolittle, Lopez, Smith, & Sugai, 2007). SWPBS is not a new intervention or a new theory of behavior, but an application of a behaviorally based systems approach to enhance the capacity of schools to design effective environments that improve the fit or link between research-validated practices and the environments in which teaching and learning occur. Integral features of SWPBS are; an emphasis on functional determinants of challenging behaviors, context-derived intervention plans, outcome-based assessment, and consideration of social validity (satisfaction and acceptability) as a measure of efficacy. SWPBS is organized as a three-tiered model, in which the primary tier represents school-wide systems intended to prevent challenging behaviors and affect approximately 85-90% of a school's population. Whole-school programs of behavior support include many components but generally emphasize collaborative team building among students and staff, teaching prosocial skills, reducing imposition of negative (punitive) consequences as a method of discipline, and achieving early academic competencies. The secondary tier is reserved for students who display emerging or modest challenging behaviors, involving between 7-10% of a school population. At this level, interventions target small groups of students and can involve strategies such as social skills training or classroom management strategies. Clearly, selective interventions are more intensive and student-specific than those that constitute a universal orientation. The tertiary tier targets approximately 3-5% of the student body, who require more complex and individualized supports beyond their exposure to universal and selective interventions. Interventions at this level are tailored to the individual students and include teacher consultation. The third tier of this model have direct relevance for this thesis, with the scope of behavioral teacher training targeting individual students, which will be the focus in the following sections.

### **Behavioral teacher training targeting individual students**

There is a long history of behavioral teacher training targeting individual students, which has been extensively described by Kratochwill and colleagues (e.g., Bergan & Kratochwill, 1990; Busse, Kratochwill, & Elliot, 1995; Kratochwill, Bergan, Sheridan, & Elliot, 1998). They used the term behavioral consultation for this process. Four stages are specified in the process. In the first stage, problem behaviors as well as competencies are identified and operationally defined. These behaviors are to be recorded by the teachers to establish baseline data. Recordings of student behaviors continue throughout the process to assess intervention effects. In the second stage, a functional behavioral assessment (FBA) is conducted, which is a key step in the process. The purpose of a FBA is to identify influences that set the occasion for and reinforce challenging behaviors, as well as conditions

associated with the non-occurrence of problems and the display of acceptable alternatives. Thus, this assessment includes both antecedent (discriminative stimuli, establishing operations) and consequence (positive and negative reinforcement) sources of control. By isolating the function of behaviors, intervention plans can be tailored to maintaining variables. In the absence of such assessment, intervention selection is arbitrary and ill defined. Based on the FBA, a behavioral support plan is formulated that include single or multiple behavior management strategies (e.g., contingent praise). The selection and tailoring of strategies are based on the FBA. The third stage involves implementation of the behavioral support plan through teacher training and consultation. In the fourth stage, the effects of the support plan are evaluated both in terms of behavioral change and social validity. If necessary, the support plan is modified and re-implemented.

In recent years, the term behavioral consultation has often been replaced with the terms FBA and behavior support plans (e.g., Sugai et al., 2000). In the remainder of the text, the term behavioral teacher training (BTT) will be used as an overarching term including behavioral consultation, FBA, behavior support plans, and specific behavior management strategies. It will exclusively refer to interventions targeting individual students.

### **Research evidence for behavioral teacher training**

The fact that BTT is a functionally based intervention has influenced the way research traditionally has been conducted. Because the intervention is tailored to each student, no predefined set of strategies is applied, as opposed to BPT. Thus, there is no such thing as “generic” BTT and consequently, the majority of research have used flexible single-subject and time-series designs (e.g., Busse et al., 1995; Medway & Updike, 1985). This has bearing on the issue of wide-spread dissemination of BTT, which will be discussed thoroughly below.

In 2004, the federal government in the USA mandated the use of BTT (specifically FBA and behavioral support plans) for students whose behavior impedes their learning or warrants consideration of a change in placement, including extended suspension and expulsion (Individuals With Disabilities Education Act, 2004). Despite the widespread use of BTT, there are several issues that limit claims about efficacy and effectiveness of such interventions. First, a review of the literature on BTT reveals a body of research that spans the past 30 years, but most of the research concerns children in contained settings with serious disabilities and has little direct relation to general education students in classroom settings (Conroy, Clark, Fox, & Gable, 2000; Scott et al., 2004).

Second, the few existing studies of BTT in general education have usually used single-subject and within-group experimental design (Iovannone et al., 2009; Simonsen et al., 2008). Despite the promising reports in recent years from randomized trials of multi-level, multi-component intervention models

involving BTT (e.g., Horner et al., 2009; Sorlie & Ogden, 2007), it is difficult to disentangle the specific effects in those studies. In the few randomized trials investigating the sole effect of behavioral teacher training, the results have been mixed. Metropolitan Area Child Study Research Group (2002) reported no significant intervention effects on student behavior, while Iovannone et al. (2009) found significant effects on student behaviors with effect sizes in the medium range. The present lack of randomized trials of BTT, and discrepant views on what counts as credible evidence, has led to conflicting conclusions in reviews of interventions for externalizing behavior. Some reviews state that behavioral teacher training is an evidence-based intervention (e.g., Pelham & Fabiano, 2008; Wilson & Lipsey, 2007), while others exclude this type of intervention due to lack of randomized trials (e.g., Eyberg et al., 2008; Mytton, DiGuseppi, Gough, Taylor, & Logan, 2006). One could argue that evidence from studies using single-subject design shows that BTT causes meaningful behavior change, but many researchers would argue that evidence from randomized trials also is necessary to enable high-quality, wide-scale dissemination of such interventions (e.g., APA, 2006; Donaldson, Christie, & Mark, 2008; Flay & Collins, 2005).

Third, recent evidence suggest that BTT is conducted either with such lack of rigor and logic as to be worthless or with such complexity and formality as to be unrealistic for the typical school setting (Blood & Neel, 2007; Scott, Anderson, & Spaulding, 2008; Van Acker, Boreson, Gable, & Potterton, 2005). To improve the quality of the implementation and increase the feasibility for typical school personnel in everyday school settings, there is a need to develop standardized training models of behavioral teacher training. With such models it would also be possible to conduct randomized controlled trials with sufficient control of the independent variable (i.e. the intervention).

Fourth, interventions in outcome studies of BTT have often been applied with heavy involvement by the researchers (Lane, Weisenbach, Phillips, & Wehby, 2007; Sasso, Conroy, Peck-Stichter, & Fox, 2001). Interventions that largely are implemented by consultants are not a realistic option for most school districts, due to the costs and lack of qualified specialists. To enable a widespread dissemination of BTT, it is important to develop intervention models that are not only effective, but also reasonably limited in terms of costs and time (Romeo, Byford & Knapp, 2005).

### Evidence-base for parent and teacher training: what is missing?

In this section, some limitations of the reviewed evidence-base for parent and teacher training will be summarized. A general limitation, which is related to the overall aim of this thesis, is that most evidence-based parent and teacher interventions are too costly and cumbersome to be feasible in

“real-world” settings. A second general limitation is that most intervention studies of parent and teacher training have been conducted in the U.S., and to date no randomized controlled trials of BPT or BTT in a Swedish context have been published.

With regard to BPT, a first limitation is the lack of randomized controlled intervention trials in routine care (effectiveness studies). Second, most studies of BPT intervention programs employ demanding implementation procedures, involving high costs and qualified staff. This limits the possibilities for large-scale dissemination. Third, there are still only a few studies that have investigated the relative effectiveness of self-administered BPT. Fourth, although some promising studies have been published that target families at risk for non-response for treatment, the number of failing participants is still too high. This calls for further investigations of how to effectively help these families through modifications of standardized intervention programs.

The most apparent limitation with regard to BTT is the lack of published randomized controlled trials. Second, most studies of teacher training have employed flexible approaches where the interventions have been tailored to the individual students. This has resulted in a lack of standardization of training programs. Furthermore, most published studies have investigated the effects of interventions with extensive implementation procedures and heavy involvement of researchers. A higher level of standardization with simplified implementation models would facilitate large-scale dissemination and improved possibilities to enhance the general quality of implementation.

# The Empirical Studies

## Aims of the Thesis

The overall aim of the thesis was to investigate the impact of cost-effective and feasible parent and teacher training interventions targeting children with externalizing behavior problems. The interventions had in common that they employed implementation models with limited involvement of qualified consultants and therapists, which facilitates future large-scale dissemination. A second overall aim was to increase the evidence-base for such interventions when implemented in a Swedish context.

The aim of the first empirical study was to investigate the effects of BPT-program implemented by regular staff in routine care in a randomized controlled effectiveness study. A secondary aim of the first study was to investigate the effects of the same program implemented through self-administration with limited therapist support.

The aim of the second study was to investigate advantages of using an enhanced BPT-program for families at risk for non-response for treatment.

The aim of the third study was to investigate the effects of a feasible and standardized BTT-program in a randomized controlled trial.

# *Study I: A Randomized Controlled Effectiveness Trial of Parent Management Training with varying degree of therapist support*

## Aims

There are very few studies that have investigated the effectiveness of BPT for children with externalizing behavior implemented in routine care (Costin & Chambers, 2007; Ogden & Amlund Hagen, 2008). Thus, it is not well known if the results that have been reported in highly controlled efficacy studies (Eyberg et al., 2008), can be generalized to real world settings. An even more pressing issue is the fact that most families in need do not receive any service at all, whether it is evidence based or not. For that reason, it is important to investigate different means of intervention delivery that will enable large-scale dissemination of interventions (La Greca, Silverman, & Lochman, 2009).

The aim of the study was to evaluate a standardized BPT-program disseminated in routine care by means of two different ways of delivery. In the first condition, the program was delivered through brief training of regular staff within the social services, who implemented the program in weekly group sessions with the targeted families. In the second condition, the participants were offered an initial instructional workshop, followed by self-administration of the program. The participants of the study were randomized to either of the training conditions or to a waitlist control group. It was hypothesized that the intervention effects in the practitioner-assisted format (BPT-P) would be superior to the mainly self-administered format (BPT-S), which in turn would be superior to the waitlist control group (WL).

## Method

Families in the greater Stockholm urban area were informed about the study through advertisements and flyers. Families who showed interest to participate ( $N = 203$ ) were assessed for eligibility and 183 met the inclusion criteria. A further 24 declined participation at this stage, leaving  $N = 159$  for randomization. The inclusion criteria were that the targeted child should (a) be between three and ten years old, (b) display conduct problems within the clinical range (90<sup>th</sup> percentile) on the Strength and Difficulties Questionnaire (SDQ; Heiervang, Goodman, & Goodman, 2008; Malmberg, Rydell, & Smedje, 2003), and (c) not be part of any on-going psychosocial treatment. Of the final sample, the mean age of the children was 6.0 years ( $SD = 2.3$ ) and 60% were boys. Most of the children lived with both of their biological parents (72%), which was slightly less than the average within the city of Stockholm (81%; Statistics Sweden, 2006). The mothers were between 19-

57 years old ( $M = 37$ ,  $SD = 5.5$ ) and the fathers were between 27-65 years old ( $M = 39$ ,  $SD = 7.0$ ). A lesser part of the parents in the sample (37%) had at least three years of education post senior high school (average within the city of Stockholm = 36%; Statistics Sweden, 2008b). A minority (22%) was born abroad and had arrived as immigrants to Sweden (average within the city of Stockholm = 20%; Statistics Sweden, 2008a). None of the demographic variables differed significantly between study conditions.

The participants were randomly assigned to BPT-P, BPT-S and WL. The probability was 37,5% to be assigned to either of the intervention groups, while the probability for the WL was 25%.

The intervention in the study was the Swedish BPT-program known as Comet (COmmunication METhod), which is administered by the Stockholm Social Services Administration as a regular part of their services to families. The program includes several evidence based parent training components (Webster-Stratton, 1996), for example, self-directed play, effective commands, contingent praise, tokens and rewards, home-notes from school teachers, extinction of negative behaviors, behavioral contracts, and problem-solving.

In the BPT-P condition, two group leaders implement the program in eleven 2,5-hour group sessions with no more than six families. The parents attend without their children and are assigned homework specifying exercises that are to be completed with the child between sessions. The group leaders in the present study were Social Service employees (79%) and pre-school teachers (21%) without prior experience in behavioral family interventions. They were briefly trained and supervised in the implementation procedures of the program by clinical psychologists (total training time = 34 hours).

In the BPT-S condition, the participating parents attended an instructional 7-hour workshop at the start of the intervention, after which the parents implemented the program on their own, without further support. The workshop briefly covered the program content, with possibility for parents to ask questions and discuss the following implementation. Parents in both conditions were provided a manual and materials necessary for the implementation of the program.

Implementation fidelity was assessed through weekly checklists completed by group leaders in the BPT-P condition and by parents in both intervention conditions. The assessment showed that 70% and 76% of the program content was covered during the BPT-P sessions according to parents and group leaders, respectively. On average, parents in the BPT-P condition attended 85% of the sessions and completed 63% ( $SD = 24\%$ ) of the homework assignments. In the BPT-S condition, 85% of the parents attended the initial workshop and the average portion of completed homework was 45% ( $SD = 26\%$ ). The parents also rated the competence of the group leaders in BPT-P, and workshop leaders in BPT-S, on a 5-point

scale. The leaders in both conditions had an average competence score of 4.0 ( $SD = 0.7$ ).

Measures were collected at baseline, at posttest (after four months), and at follow-up (six months after posttest). The primary outcome measure was child conduct problems, which were assessed through telephone interviews (PDR; Chamberlain & Reid, 1987) and questionnaires (ECBI; Eyberg & Pincus, 1999). Parent ratings of child social competence (P-Comp; Webster-Stratton & Hammond, 1998) and child rearing practices (PPI; Webster-Stratton, Reid, & Hammond, 2001) were also collected. That PPI includes dimensions of both positive and negative parenting practices. Finally, the parents rated the intervention credibility (Devilley & Borcovec, 2000) at posttest.

Of the 159 families in the final sample, 14 (9%) dropped out before posttest. At follow-up, the total number of dropouts was 20 (17%). There were no significant differences between the dropouts and completers of the study with regard to baseline scores on outcome measures or demographic variables. To enable an intention-to-treat analysis, a multiple imputation procedure was used (Little & Rubin, 2002).

## Results

### **BPT compared to the waitlist control group**

There were no significant ( $p > .05$ ) differences at baseline between the three experimental conditions with respect to demographic variables or outcome measures. Intervention effects for the two BPT conditions compared to the waitlist control group were tested with ANCOVA, using outcome at posttest as the dependent variable and baseline scores as covariate. There were significant between-group effects for all outcome measures except for P-Comp (Table 1). Planned contrasts showed that both BPT conditions were significantly superior to the waitlist at posttest on all measures, except for P-Comp, for which the BPT-S group did not differ significantly from the waitlist.

Table 1. *Comparison between the two BPT conditions and the waitlist.*

<b>Outcome</b>	<b><i>F(N = 159)</i></b>	<b><i>ES (d) BPT-P vs WL</i></b>	<b><i>ES (d) BPT-S vs WL</i></b>
PDR	11.0***	.76***	.46***
ECBI-IS	13.2***	.79***	.48***
ECBI-PS	12.6***	.91***	.45***
P-COMP	2.3	.48*	.18
PPI	8.0***	1.07***	.55**

Note. PDR=Parent Daily Rating; ECBI-IS=Eyberg Child Behavior Inventory Intensity Scale; ECBI-PS=Eyberg Child Behavior Inventory Problem Scale; P-COMP = Social competence scale – Parent; PPI=Parent Practices Interview.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Direct comparison between BPT-P and BPT-S

The two BPT conditions were tested against each other with ANCOVA repeated measures, using outcome at posttest and follow-up as dependent measures and baseline scores as covariate. Because the waitlist parents received training after posttest, they were excluded from this analysis. There were significant between-group effects for the measures PDR and the problem scale of ECBI, showing that the BPT-P group was superior to the BPT-S group (Table 2). There were no significant interaction effects between time and group for any outcome measure, indicating similar developments between posttest and follow-up for the two conditions and also that the advantage of BPT-P over BPT-S was stable. Furthermore, there were significant main effects of time on all outcome measures, indicating that both groups showed further improvements between posttest and follow-up.

Table 2. *Direct comparison of BPT-P and BPT-S.*

Outcome	<i>F(N = 119)</i>	<i>F(N = 119)</i>	<i>F(N = 119)</i>	ES ( <i>d</i> )	ES ( <i>d</i> )
	Between	Within	Interaction	at post	at follow-up
PDR	6.6**	8.4**	0.3	.30	.38
ECBI-IS	0.2	7.9**	1.7	.30	.16
ECBI-PS	4.1*	7.8**	0.2	.46	.62
P-COMP	0.9	14.2***	1.1	.30	.22
PPI	0.5	25.6***	2.9	.52	.34

Note. PDR=Parent Daily Rating; ECBI-IS=Eyberg Child Behavior Inventory Intensity Scale; ECBI-PS=Eyberg Child Behavior Inventory Problem Scale; P-COMP = Social competence scale – Parent; PPI=Parent Practices Interview.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Mediators of intervention effects

Mediator analyses were performed to investigate whether the effects of group assignment on measures of child conduct problems were indirectly affected by improved parenting skills, which has been shown in several previous studies of parent training (e.g., Ogden & Amlund Hagen, 2008; Reid, Webster-Stratton, & Hammond, 2007). The mediator variables in the present analyses were change between pretest and posttest in two summary scores from PPI that were used in a study by the developers of the questionnaire (Reid et al., 2007). The first summary score represents harsh and inconsistent parenting - HI (15 items), and the second represents praise and incentives - PI (11 items). The dependent variable was change between pretest and posttest in child conduct problems, which was calculated by taking the standardized means of PDR, ECBI-IS and ECBI-PS. Partial mediation was established for both the HI-score and the PI-score, which were significant ( $z = 2.6$ ,  $p < .01$  and  $z = 2.0$ ,  $p < .05$ , respectively) according to the Sobel test (Baron & Kenny, 1986). The direction of the mediation was as expected; the larger increase in the PI-score as well as

decrease in the HI-score, the larger reductions of conduct problems. For exploratory purposes, further analyses not included in the research article were conducted to investigate the relationship between the two parenting variables. First, to explore the relative importance of the HI and the PI variable, they were entered simultaneously in a regression analysis with change in conduct problems at posttest as the dependent variable. In accord with earlier research reviewed in the introduction, was the effect of the HI variable stronger ( $t = 4.3, p < .001$ ) than the PI variable, which no longer was significant ( $t = 1.8, p < .10$ ). In the next step, it was shown that the change in PI partially mediated change in HI. The mediation was significant ( $z = 2.0, p < .05$ ) and the direction of the relations suggested that an increased use of praise and incentives facilitated lower levels of harsh and inconsistent discipline. The mean levels and standard deviations of the HI-score across time in the BPT-groups were 3.4 (0.6), 2.8 (0.6), and 2.8 (0.5), at pretest, posttest, and follow-up, respectively. The corresponding values for the PI-score were 3.7 (0.8), 4.2 (0.6), and 4.5 (0.8). In the WL-group the values for the HI-score were 3.4 (0.7) and 3.1 (0.5), at pretest and posttest, respectively. For the PI-score the corresponding values were 3.8 (0.6) and 3.8 (0.6).

An analysis was also performed to investigate if the differences in intervention effects between BPT-P and BPT-S were mediated by homework fidelity, which was significantly lower in the BPT-S group. In this case the dependent variable was the change in a compound score of the two measures of child conduct problems that were significantly different between the groups (PDR and ECBI-PS). The analysis revealed that homework fidelity completely mediated the change in conduct problems at posttest and follow-up, which was significant ( $z = 2.1, p < .05$ ). The more homework the parents completed, the larger reductions of conduct problems.

### **Moderators of intervention effects**

Multiple regression analyses with forced entry were conducted to examine the possible moderating effects of eight demographic family variables and a ninth variable representing the number of participating families in each training group. For the outcomes of child conduct problems, a compound score was calculated as the standardized means of PDR, ECBI-IS, and ECBI-PS. However, only two significant moderating effects was found, which is close to what would have been expected by chance, given 27 analyses (nine moderator variables  $\times$  three outcome variables) and  $p < .05$ .

### **Intervention credibility**

The average rating of intervention credibility at posttest was 8.7 (SD = 1.1) out of a maximum of 10 in the BPT-P group, compared to 8.1 (SD = 1.6) in the BPT-S group. The difference was close to significant:  $t(118) = 1.95, p < .10$ .

## Discussion

The present study is one of the few randomized trials evaluating parent training implemented in routine care. It also adds to the growing number of studies evaluating parent training with limited therapist support (Hahlweg et al., 2008; Morawska & Sanders, 2006; Markie-Dadds & Sanders, 2006; Turner & Sanders, 2006). The hypothesis that both BPT-P and BPT-S would be superior to the waitlist control group was supported. Furthermore, the results partly supported the hypothesis that the BPT-P group would perform better than the BPT-S group. This was true for two out of three outcomes related to child conduct problems. Both intervention groups improved further between posttest and follow-up on all outcome measures. Improved parent practices and homework fidelity mediated the intervention effect on child conduct problems. The interventions were essentially equally effective regardless of family characteristics and the number of participating families in the training groups. The only significant moderator of intervention effects was the age of the participating mother. It is worth to note that there was a significant difference between the groups on the problem scale of ECBI, in contrast to the intensity scale. Maybe the parents in the BPT-P condition experienced their child's difficulties as less problematic across time due to the possibility to relate to other families during group sessions.

A recent meta-analysis of parent training including only randomized efficacy trials reported effect sizes on ECBI-IS and ECBI-PS of  $d = .67$  and  $d = .62$ , respectively (Dretzke et al., 2009), which were exceeded in this study ( $d = .79$  and  $d = .91$  in the BPT-P group). The number of comparable effectiveness studies is limited, but two previous randomized studies also reported significant effects on parent practices and child conduct problems (Ogden & Amlund Hagen, 2008; Van den Hoofdakker et al., 2007), with effect sizes in the small to medium range. The large effects found in this study were therefore surprising, especially with respect to the group leaders' limited training and experience compared to the therapists in the referred studies. However, some dissimilarity in study characteristics may explain the differences in effect sizes. Both of the referred studies compared the interventions to active control groups (treatment as usual). Furthermore, the participants were referred to service, as opposed to the self-referred sample in this study. Despite that participants in this study and the referred studies had comparable family characteristics (e.g., education and marital status) and equal levels of conduct problems at baseline BORT, the different procedures of referral may have moderated the intervention effects. Self-referred participants in parent training have in previous studies shown better results than participants referred from other sources (Reyno & McGrath, 2006).

The BPT-S condition included an initial instructional workshop, but the following implementation of the program was entirely self-administered. A

relevant comparison is the evaluations of the Triple-P program that has been implemented with limited therapist support as well as through self-administration alone. In this study, each practitioner spent 145 minutes per participating family in the BPT-S condition and the average effect size on parent reports of child conduct problems at posttest was  $d = .46$ . In the Triple-P studies, the practitioner support was delivered through weekly telephone sessions or brief live sessions with an average of 131 minutes of BORT support per participating family. Effect sizes for parent reports of child conduct problems (PDR and ECBI) from those studies have been between  $d = .52$  and  $d = .60$  (Turner & Sanders, 2006; Morawska & Sanders, 2006; Hahlweg et al., 2008). Thus, the Triple-P studies have reported somewhat larger effect sizes than the findings regarding BPT-S in this study. In contrast, the significant increase in intervention effects found at follow-up in this study, was not found at the 6-month follow-up in the Triple-P-studies.

Although several factors favor the credibility of the present findings, such as a well-controlled design and support for a link between parent practices and child conduct, there were limitations. First, the outcome measures included the single informant source of the measurements. A second limitation was the fact that a relative large number of parents randomized to the BPT-S condition did not receive their allocated intervention, which may have affected the results. However, against that risk stands the fact that the supplementary analysis of study completers (i.e., non-imputed data) essentially showed the same results as the intent-to-treat analysis. A third limitation was that the proposed mediators related to parenting practices were measured at the same time as the outcome variables (i.e., at posttest), meaning that there is no temporal precedence proven by a mid-treatment assessment. The reason for this was that the waitlist only was assessed at two time points. A fourth limitation was that there was no control of whether BORT the mothers or fathers who completed the rating scales BORT. The instruction was that the same parent should complete the scales at all measurement points. It could be suspected that mothers completed most ratings, because relatively more mothers attended the training sessions. This may have resulted in higher absolute levels of problem ratings across time, because Fathers generally experience less problems in their children than mothers (e.g., Sanders et al., 2000).

## *Study II: An Effectiveness Study Comparing Enhanced and Regular Parent Management Training for Children with Conduct Problems*

### Aims

Between 20-50% of children participating in BPT do not respond to the treatment (Larsson, Fossum et al., 2008; Sanders et al., 2000; Sanders & McFarland, 2000; Webster-Stratton & Hammond, 1997). Researchers have identified several factors that characterize families who are at risk for non-response, as reviewed in the introduction. The purpose of this effectiveness study was to compare an enhanced BPT-program (BPT-E), with a regular BPT-program (BPT-R). The programs targeted children with conduct problems living in families with risk factors for poor response to treatment. Employees within the social services provided the enhanced program, while the comparison program was provided to families at a child psychiatric clinic. Both programs were part of the routine care at each facility. It was hypothesized that families receiving the enhanced program would benefit more in terms of child conduct problems and parent mental health.

### Method

The sample consisted of 52 participating parents from 42 families (28 in BPT-E and 14 in BPT-R). No formal inclusion criteria were employed in the recruitment. Instead, each facility offered all families that were enrolled in their intervention programs to join the study. In terms of risk factors for non-response to treatment, participants from both groups showed elevated levels of parent depression/anxiety, single parenthood, and unemployment. Furthermore, parents from both groups were referred to treatment (as opposed to being self-referred). Some characteristics differed significantly between the groups. In the BPT-E condition, the mothers were younger and more parents were born abroad. In the BPT-R condition, the children were on average two years older and a larger part was diagnosed with ADHD/ADD (93% compared to 32% in the BPT-R and BPT-E, respectively). The difference with regard to diagnoses was not surprising since the participants in the BPT-R group were referred to the study by a child psychiatric clinic, where assessment of diagnosis is part of the routine care. To what extent this represents a true difference between the groups in terms of child attention- and hyperactivity-problems is not certain, since many of the children in the PMT-E group never were assessed in a psychiatric evaluation. To control for this, the ADHD-index on the ECBI (Burns & Patterson, 2000) was used. The comparison of pretest scores revealed that children in both groups were equal in terms of ADHD-

symptoms,  $M = 4.8$  ( $SD = 1.1$ ) and  $M = 4.7$  ( $SD = 1.1$ ) for BPT-E and BPT-R, respectively.

The parents in the BPT-E condition were recruited from six units within the social services across Sweden. The group leaders in the BPT-E condition were social workers that were trained and supervised by an educational unit within the social services, independent from the research group. The mean number of parents in each group was five, including those who declined participation. The participating children in the BPT-R program were patients at a child psychiatric clinic, which provided the parent training as well as the training of the teachers to the participating children. The leader of the parent and teacher training was a psychiatric nurse, who also was the developer of the training program. The mean number of parents in each training group was ten.

Pretest measurements were collected at the first training session with the parents. Posttest measurements were then collected at the last session, 11 and 18 weeks later in the BPT-R and BPT-E group, respectively. Of the 42 families who entered the study, four dropped out from the BPT-E group and one from the BPT-R group. These families were nevertheless included in the analyses in accordance with the principles of intention-to-treat analysis.

The BPT-E program was an enhanced version of the Comet program, described in study I of this thesis. The enhancements in comparison to the regular Comet-program include smaller group size (maximum four families) and nine to twelve individual 1-hour sessions scheduled between the group sessions. The purpose of the individual sessions is to build motivation, assist with implementation of the program content, and to attend to parental stress, depression, or marital conflicts. When possible, the individual sessions take place in the home settings of the families.

The BPT-R program was the regular parent training intervention offered at the child psychiatric clinic in the city of Uppsala. The program consists of an intervention manual covering ten 2-hour group sessions. The content includes psychoeducation, problem solving, and token systems. One employee is leading the sessions that include weekly handouts and work-material. In addition to the parent training, the teachers to the children also receive training by the same employee during eight two-hour sessions. Some of the parent sessions are combined with the teacher sessions. Between each session, parents and teacher complete homework assignments.

The parents in the BPT-E group attended 78% ( $SD = 21\%$ ) of the group sessions and 79% ( $SD = 26\%$ ) of the individual sessions. In the BPT-R group, the average attendance rate was 80% ( $SD = 12\%$ ) during the parent sessions. On average, the leaders reported that 88 percent of the program content in BPT-E was covered during the implementation. Furthermore, the parents in the BPT-E group on average completed 68% of the homework assignments. No information on session adherence or completed homework was collected in the BPT-R group.

The outcome measure for child conduct problems was the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). Parent mental health was assessed with the Hospital Anxiety and Depression Scale (HADS). The total score of the scale is highly correlated with Becks Depression Index ( $r = .73$ ) and Spielberg's State Trait Anxiety Inventory ( $r = .71$ ; Lisspers, Nygren, & Söderman, 1997).

The analyses of the intervention effects were performed as ANCOVAs at posttest, using baseline scores on the outcome measures and the participant characteristics that were significantly different between the groups as covariates. Multiple imputation was used to handle missing data and to facilitate intention-to-treat analyses (Little & Rubin, 2002).

## Results

There were no significant differences at baseline between the two groups with respect to the outcome measures. At posttest, the ANCOVAs resulted in significant group effects favoring the BPT-E condition for ECBI-IS ( $F(1, 40) = 10.8, p < .01$ ), ECBI-PS ( $F(1, 40) = 6.7, p < .05$ ), as well as for HADS ( $F(1, 50) = 9.5, p < .01$ ). The effect sizes were  $d = 1.09$ ,  $d = 0.82$ , and  $d = 0.86$  for ECBI-IS, ECBI-PS, and HADS, respectively. Although the covariates that were entered (parent age, parent education, child age, and child diagnosis) differed significantly between the groups, none of them had a significant effect on the outcome measures. A supplementary analysis of non-imputed data was performed (i.e., study completers) where all reported effects were found again.

By comparing each participant with clinical cut-off values based on Scandinavian norms (Axberg et al., 2008; Pallant & Tennart, 2007), the clinical significance of the interventions was assessed. All children in the BPT-E group and 86% in the BPT-R group were rated above the cut-off for conduct problems at a clinical level at pretest, which was a non-significant difference. At posttest, 54% of the children were rated above the cut-off in the BPT-E group, compared to 93% in the BPT-R group,  $\chi^2(40) = 5.9, p < .05$ . For parent mental health, there was no significant difference between the groups at pretest, at which point 68% and 61% were above the cut-off in BPT-E and BPT-R, respectively. At posttest, 48% of the parents scored above the cut-off in the BPT-E group, compared to 82% in the BPT-R group,  $\chi^2(40) = 5.7, p < .05$ .

## Discussion

This effectiveness study compared an enhanced parent training program (BPT-E) in routine care within the social services with a regular parent training program (BPT-R) provided by a child psychiatric clinic. The hypothesis that the more intensive BPT-E program would be superior to the

BPT-R program was supported for child conduct problems as well as parent mental health, with large differences in terms of statistical and clinical significance.

In interpreting the results, the crucial issue is to what extent the two conditions were comparable. Both groups were referred to service, showed equal problem rates in the outcome measures at pretest, and were comparable in terms of demographic variables. On the other hand, the fact that the children in the BPT-R group were older and more often were diagnosed with ADHD/ADD may have affected the outcome in that group. These characteristics have in some studies been associated with worse outcomes (e.g., Ogden & Amlund Hagen, 2008; Fossum, et al., 2009). However, in other studies no such effects have been found (e.g., Kling et al., in press; Lundahl et al., 2006; Hartman et al., 2003). Furthermore, child age and diagnosis were used as covariates in the statistical analyses of the intervention effects and had no effect on the outcome measures. It is also important to recall that the level of ADHD-symptoms according to the subscale on the ECBI were the same in the two groups at pretest. Considering these facts, it is less likely that sample characteristics alone would explain the large differences in outcome measures. Furthermore, several facts favor the interpretation of the outcomes as a result of differences between the two interventions. First, larger reductions of child conduct problems and parent mental health problems have in previous studies been associated with several features of the BPT-E program, such as individual support (Lundahl et al., 2006), components addressing parental stress and depression (Sanders & McFarland, 2000; Dadds et al., 1987; Sanders et al., 2000; Kazdin & Whitley, 2003), initial motivational efforts (Nock & Kazdin, 2005), and the use of home visits (Sweet & Appelbaum, 2004). Second, the within-group effect size on ECBI was smaller in study I for the same parenting program without the enhancements (BPT-P). That study is not entirely comparable, because the participating families were self-referred and the average level of EBP at pretest was lower compared to this study. However, when selecting a sub-sample consisting of 28 participants with the highest problem ratings from the BPT-P group, the mean ECBI pretest score were almost the same as in this study. The pre-post effect size in BPT-P sub-sample was  $d = .82$  and  $d = .77$  for ECBI-IS and ECBI-PS, respectively. This was considerably smaller than the pre-post effect sizes in the BPT-E condition ( $d = 1.37$  and  $d = 1.25$ , respectively), which suggests that the enhancements in the BPT-E condition actually had an impact. Third, one reason for the large effect sizes between the groups was the weak within-group effects in the BPT-R group, which in one way was expected considering the content and format of the BPT-R program. It lacks several components that usually are included in evidence-based BPT and contains relatively few sessions of actual training of parent competencies.

The BPT-E program included some components targeting parent mental health (e.g., scheduling pleasurable activities), but the major part of the program was devoted to parenting skills. The large effect on parent mental health was therefore surprising. Part of that effect may be due to the reductions of child conduct problems, which has been shown to influence parent stress and depression (e.g., Patterson, DeGarmo, & Forgatch, 2004; Barlow, Coren, & Stewart-Brown, 2007). The effect size for parent mental health was comparable to previous studies of parent training enhanced with components targeting parent depression and stress (Sanders et al., 2000; Bor, Sanders, & Markie-Dadds, 2002).

The major limitation of the study was that the participants in the two conditions were recruited from different contexts (psychiatric vs. social services). This limitation has already been discussed above. Another limitation was the single informant source of the measurements. Although the rating scales were well established and validated instruments, the addition of independent home-observations would have strengthened the conclusions. A third limitation was that the time periods between pretest and posttest were different in the two conditions. The reason for this was that the posttest measures were collected immediately after the last session in each program, approximately 11 and 18 weeks after pretest for BPT-R and BPT-E, respectively. In some studies, delayed intervention effects of parent and teacher training have been reported (e.g., Webster-Stratton & Hammond, 1997; DeGarmo, Patterson, & Forgatch, 2004). Generally, however, the effects seem to deteriorate once the intervention has ended (Lundahl et al., 2006), for which reason it was decided that immediate assessment in the BPT-R group, rather than postponed, would be more justified. In further studies of the BPT-E intervention, comparison groups with the same time-period for implementation need to be employed, preferably using randomized assignment of participants. A fourth limitation of the study was that no measures of completed homework assignments were collected in the BPT-R condition.

In conclusion, the two conditions were more alike than different and several facts related to the content and format of the interventions can explain the large differences in outcome. Thus, the conclusion is that BPT-E is a promising intervention for families with risk for non-response to treatment. Still, future studies need to use randomized design and preferably compare the same BPT-program with and without enhancements.

# Study III: *A Randomized Controlled Trial of a Standardized Behavior Management Intervention for Students with Externalizing Behavior*

## Aims

Despite a widespread use of behavioral teacher training targeting individual high-risk students, there are several issues that limit claims about the efficacy and effectiveness of such interventions, as reviewed in the introduction. The purpose of the present study was to evaluate a standardized and feasible BTT program for students with EBP in a randomized controlled trial. The primary outcome domains were measures of student EBP and teacher behavior management. The intervention was compared to an active control group, in which the teachers were trained in a universal program, teaching social and emotional skills to the students. The program did not target externalizing behavior or teacher behavior management. Nor did it target individual students. Consequently, the hypothesis was that the BM intervention would outperform the comparison group on measures of student externalizing behavior and teacher behavior management. It was also hypothesized that changes in teacher behavior would mediate the change in student externalizing behavior.

## Method

In total, 100 students (86 boys) with EBP attending first and second grade regular education classrooms were included in the study. The students were recruited through a screening procedure in which the level of externalizing behavior was rated on a five-point rating scale (1 = not at all, 5 = very much). The ratings were then used as a base for discussion between the researchers and the teachers to identify students who exhibited elevated levels of EBP. After randomization, the students were rated again with the SDQ (Goodman, 1999). On average, the students included in this study scored more than two standard deviations above the average in Scandinavian normative samples (Heiervang et al., 2008) on the subscales related to EBP. No student scored less than one standard deviation above the normative average.

The students in the sample were distributed in 88 classrooms from 38 schools across Stockholm. The randomization to the BTT-intervention or the comparison group was performed at the school level ( $N = 38$ ) to prevent spill over effects once the interventions had started. Because there were more training resources available for the BTT-intervention than for the program offered to the comparison group, the intervention group was over-sampled. The sample was representative of the general population in the

Stockholm area in terms of socioeconomic index and portion of students with foreign background (Statistics Sweden, 2008a). None of these variables were significantly different between the two experimental conditions. Nor were there any differences in terms of student age, class size, or hours of special education.

The training procedure in the intervention group followed a standardized program known as “Comet” (Forster & Karlberg, 2005). The program primarily targets individual students, but also include classroom behavior management strategies. The implementation of the BTT is guided by the principles of FBA including the following steps; (1) identify problem behaviors and matching behavioral goals, (2) assess occurrence and triggering antecedents, (3) formulate an individual intervention plan including goal setting and contingent praise in combination of decreased use of reprimands for unwanted behaviors. As an option, the teachers can enhance the reinforcement of the goal behaviors through token-systems, which in turn could be enhanced through the use of back-up reinforcement by the student’s parents. The program is different from many traditional applications of BTT, however, in that it has been standardized. The teachers attend nine three-hour sessions with predefined agendas in groups of 4-5 teachers. A program manual with prepared exercises is used throughout the training. The first six sessions of the program are devoted to initiate the BTT targeting the individual student, while the last three involve maintenance as well as classroom management strategies (stating and reinforcing classroom rules and cooperative learning exercises).

The teachers in the comparison group were trained in a universal prevention program known as CHARLIE (Chemical Abuse Resolution Lies In Education), which was developed by the Storefront Group in Minnesota, USA (Project Charlie manual, 1987). The program is based on a manual containing descriptions of 74 lessons plans on social and emotional learning. The teachers in this condition were offered two full-day workshops given to groups of 20 teachers by certified CHARLIE trainers. Although CHARLIE is a universal program, the teachers also received a three-hour small group session (4-5 teachers) where they discussed possible applications of the program to meet the needs of the individual students targeted in the study. After the workshops the teachers applied the program without further support or guidance, consistent with the manner in which the program is typically implemented.

Measures were collected at pretest, posttest (after six months), and at follow-up (14 months after pretest). The main outcome domains were externalizing student behavior and teacher praise and reprimands. Because externalizing behavior often coincide and interact with hyperactivity and peer problems (Ladd, 2006; Pedersen, Vitaro, Barker, & Borge, 2007; Rudolph & Asher, 2000; Snyder, Prichard, Schrepferman, Patrick, & Stoolmiller, 2004), secondary measures related to these constructs were also

collected. Finally, student on-task behavior during deskwork was also measured, due to the increased risk of academic failure for students with externalizing behavior (Kearney, 2008). Measures were collected through independent and blind observations, teacher ratings, and peer ratings. The observers conducted continuous event recordings of the student's externalizing behaviors and teacher reprimands. The level of teacher praise was assessed twice on each observation day and on-task behavior was observed during one lesson of deskwork. The inter-rater reliability was good to excellent ( $.67 < K < .84$ ) for the raters during pre observation training. The observations were also validated through independent teacher ratings throughout the study.

Two teacher rating scales were used as outcome measures. First, the teacher completed the Conners Teacher Rating Scale - CTRS-39, with subscales referring to externalizing behavior, hyperactivity, and peer problems (Conners, 1990; DuPaul, Power, McGoey, Ikeda, & Anastopoulos, 1998). Second, the teachers performed a brief rating of externalizing behavior (BREB; Sundell & Kraft, 2002). This scale allowed for normative comparisons, since the targeted students as well as his/her classmates were rated ( $N = 1940$ ).

Positive and negative peer nominations were collected in each class by a research assistant, following the procedures describes by Coie, Dodge and Coppotelli (1982). Due to different implications of positive and negative nominations, the measures were reported separately, instead of the commonly used procedure in which the negative nominations are subtracted from the positive (Coie et al., 1982).

Intervention effects were analyzed separately at posttest and follow-up, using repeated measures ANOVA. The independent variables were experimental condition (intervention vs. comparison) and time (pre-post and pre-follow-up, respectively). To account for the nesting of students within classrooms, all analyses of the outcome measures were made at the class level ( $N = 88$ ). To account for the nesting of classrooms within schools, the intraclass correlation coefficients (ICC) and variation inflation factors (VIF) were calculated for every outcome measure (Murray & Hannan, 1990). The F-values from the ANOVAs were then adjusted with the VIFs that accounted for the nesting of classrooms within schools (Murray, 1998).

Three participants dropped out at posttest and 14 at follow-up. To handle missing data and to allow for an intention-to-treat analysis, a multiple imputation procedure was used (Little & Rubin, 2002). The attendance rates during teacher training sessions were fairly high. The average number of actual training hours per teacher in the BTT-condition was 22, out of maximum 27. In the comparison condition, the teachers attended 18 training hours on average, out of maximum 19.

## Results

### Analyses of intervention effects

There were no significant differences between the two experimental conditions outcome measures at pretest ( $F(1,86) < 2.8, p > .05$ ), apart for the CTRS hyperactivity scale,  $F(1,86) = 5.7, p < .05$ .

With regard to the primary outcome measures, there were significant interaction effects between time and experimental condition in favor of the intervention for observed externalizing behavior and observed teacher reprimands at posttest (Table 3). At follow up, four out of five primary outcome measures showed significant interaction effects between time and experimental condition (Table 3).

Table 3. *Interaction effects between group and time for primary outcomes.*

Outcome	Post $F(1, 86)$	Post ES ( $d$ )	F-U $F(1, 86)$	F-U ES ( $d$ )
Observed EBP	5.9*	.63	4.0*	.62
CTRS EBP	0.6	.15	0.3	.02
BREB	2.4	.22	5.4*	.68
Observed teacher reprimands	5.9*	.46	9.0**	.83
Observed teacher praise	0.2	.12	8.7**	1.15

Note. CTRS=Conners Teacher Rating Scale. BREB=Brief Rating of Externalizing Behavior.  
\*  $p < .05$ , \*\*  $p < .01$

There were few differences between the conditions with regard to the secondary outcomes. At posttest, an effect in favor of the intervention group was found for positive peer nominations, which was maintained at follow-up (Table 4). A significant intervention effect was also found for the CTRS hyperactivity scale at follow-up, when accounting for pretest differences between the groups (Table 4).

Table 4. *Interaction effects between group and time for secondary outcomes.*

Outcome	Post $F(1, 86)$	Post ES ( $d$ )	F-U $F(1, 86)$	F-U ES ( $d$ )
Observed on-task behavior	0.2	.11	2.1	.48
CTRS hyperactivity <sup>a</sup>	0.3	.42	0.2	.57
Positive peer nominations	5.5*	.57	4.9*	.64
Negative peer nominations	0.1	.00	0.3	-.07
CTRS peer problems	0.1	-.02	0.4	.09

Note. CTRS = Conners Teacher Rating Scale.

\*  $p < .05$

<sup>a</sup>In a supplementary analysis, controlling for the pretest difference and the pretest-intervention interaction (Norman & Streiner, 2008), a significant intervention effect was found at follow-up,  $F(2, 84) = 5.66, p < .01$ .

### **Analyses of mediation and moderation of intervention effects**

A mediation analysis was performed to explore the hypothesis that these changes in teacher behavior at posttest mediated change in student externalizing behavior at follow-up. For teacher praise, it was not possible to explore mediation, since there was no significant difference between the experimental conditions for that measure at posttest. However, the analysis showed that change in teacher reprimands at posttest partially mediated change in student externalizing behavior at follow-up. The mediation was significant according to the Sobel test,  $z(88) = 2.1, p < .05$  (Baron & Kenny, 1986).

Multiple regression analyses with forced entry were conducted to examine the possible moderating effects of student age, gender, immigrant status, special education status, class size, and the socio-economic index of the student's schools. Only two instances moderated the intervention effect, which is less than what would have been expected by chance, given 120 analyses (6 moderator variables x 10 outcome variables x 2 measurement points) and  $p < .05$ , thus suggesting that the intervention effects were unaffected by the moderator variables.

### **Social validity of the intervention**

A questionnaire was administered at posttest to assess how acceptable and credible the teachers found the interventions offered in the two conditions. The average score on a 5-point scale was 4.4 for the intervention in the BTT-group ( $SD = 0.4$ ), as well as the comparison group ( $SD = 0.4$ ). This suggests that the teachers in both groups perceived the programs as equally acceptable and credible.

For positive and negative peer nominations, as well as for BREB, data from the targeted students' classmates was collected ( $N = 1940$ ). This allowed for comparisons of the targeted students with the average student as norm. At follow-up, the targeted students in the intervention group had gained almost one positive peer nomination on average, resulting in the same number of positive nominations as their classmates ( $Z = 0.0$ ). In contrast, the number of negative nominations was still almost one standard deviation above the class means for both groups at follow-up. At pretest, 73% and 63% of the targeted student were rated at least one standard deviation above the average student on externalizing behavior (BREB), in the intervention and comparison group, respectively. At follow-up, this proportion had decreased to 39% in the intervention group, while a slight increase was evident in the comparison group (72%). The difference between the groups at follow-up was significant,  $\chi^2(2, 100) = 8.7, p < .01$ .

## Discussion

The hypothesis that the BTT-Intervention would outperform the comparison group in terms of student externalizing behavior and teacher behavior management was partly supported at posttest, and fully supported at follow-up. The intervention effect on student externalizing behavior was more evident in the observational measure than in teacher ratings. Perhaps the BTT-intervention changed actual behavior, but did not alter teacher perceptions of the targeted students. Teacher ratings are less sensitive to the present context, which make the rating more susceptible to expectation effects and other forms of bias (De Los Reyes & Kazdin, 2005). This notion is supported by the fact that there was a significant effect on the BREB teacher rating, in which the teachers rate the students with consideration to the behaviors of his/her classmates (i.e., the present context).

The limited intervention effect on the secondary outcome measures was disappointing. A possible explanation for the differential effect on positive and negative peer nominations is that negative peer appraisals are more stable across time (i.e., harder to change) than positive appraisals (Johnston et al., 1988). Past research has established that both child behavior and peer reputation are important influences on children's peer acceptance (Hymel, 1986). The effect of reputation is a possible explanation to the stability in negative appraisals. Furthermore, it has been shown that the impact of teacher-student interactions is greater on positive than negative appraisals from peers (Hughes et al., 2001).

Of previous school-based intervention studies, the most relevant comparison to the present study probably is Iovannone et al. (2009), in which the specific effects of a similar FBA-based BM-intervention were investigated in a randomized controlled trial. A strength in that intervention was the team-based approach and inclusion of an elaborative fidelity check with continuous control of the implementation procedure. Another strength was that the consultation partly involved direct observation of the teachers in the classroom settings, which generally has been shown to have a greater impact on teacher behavior compared to group consultation (Noell et al., 2005). However, the intervention model used in the present study required less invested time by the teacher consultants, an issue that will be addressed in the general discussion.

An explanation for the delayed effect on some of the outcome measures may be the fact that students stay with the same teachers for several years in Sweden, which may be longer than other countries. The teachers have more time to learn and master the BTT-strategies and the students are exposed to them during extended time-periods. Although follow-up data still is to be reported, Iovannone et al. (2009) suggest in their preliminary report that intervention effects seem to fade. Frequent change of classrooms and teachers in North America may be related to the lack of long-term effects.

The delayed effects on teacher praise may have been due to a decreased rate of teacher praise across time in the comparison group. Studies have shown that teachers in general express less praise towards students with externalizing behavior and that the level of praise will deteriorate across time (Beaman & Wheldall, 2000). Thus, the intervention seems to have buffered a natural decline in praise, an effect that also was reported in Metropolitan Area Child Study Research Group & Gorman-Smith (2003).

The external validity of the present study was strong, since the participants were recruited from a large number of schools in diverse settings. Another strength of the study was that the use of an active control group. Although the attention provided to the teachers in the two conditions was not entirely comparable, it was nevertheless a strength to use a credible intervention as control, rather than wait-list or no-treatment. Despite these strengths, there were some limitations of the study, which primarily were related to the observational measures. The limited assessment of inter-rater reliability may have increased the error variance and consequently the risk of missing possible intervention effects. Also, more observation periods at each measurement point would have strengthened the reliability of the observations. A specific limitation pertaining the measure of teacher praise was that the observers estimated the amount of contingent praise instead of employing continuous ratings. It probably resulted in loss of reliability and restricted the possibility to find mediating effects of praise. The reason for the choice of observation method was that the frequency of praise appeared to be very low during the testing of the observation protocol.

On a general note, future studies of this BTT-intervention should include more established outcome measures in order to increase the generalizability of the findings. Finally, the fact that the socio-metric ratings were collected anonymously prohibited detection of mutual friendships, which would have been a valuable outcome regarding the developmental impact of deviant peers (e.g., Loeber et al., 2007; Petras et al., 2004).

# General Discussion

## Is cheap good enough?

The overall aim of the thesis was to investigate if parent and teacher interventions were effective when using implementation models that were feasible and required limited resources. Such models are crucial in reaching the large portion of families and children that presently do not receive any help at all (Dodge, 2009; Kazdin, 2008; Sanders & Turner 2005). The general conclusion based on the results from the three empirical studies was that the interventions were at least as effective as earlier efficacy studies with heavy involvement of researchers and qualified therapists. Several features that limited costs and improved feasibility characterized the evaluated interventions. First, training of staff without prior experience in behavioral interventions involved less costs compared to implementation through certified therapists. Second, dissemination through locally based staff, with established networks in the immediate neighborhoods of the targeted families, offers opportunities to recruit hard to reach families. Third, a common obstacle for service was avoided through open invitations to interventions that usually require extensive assessment procedures and referrals. Fourth, the standardization of the interventions (especially the school-based program) offers possibilities for effective training and supervision of staff at reasonable costs. Fifth, self-administration of the parent training program in study I can be a cost-effective option to practitioner-assisted implementation.

With regard to the last remark, it is important to discuss the relative advantage of supplying full practitioner assistance in BPT. Sanders et al. (2000) found small advantages for full therapist assistance (each practitioner invested 600 minutes per family) over self-administration at posttest and at the 6-month follow-up, which included no therapist support at all. At the 3-year follow-up, no significant differences emerged between intervention conditions (Sanders et al., 2006). In the first study of this thesis, two out of five outcome measures favored practitioner-assisted BPT over the primarily self-administered version at both posttest and follow-up, with effect sizes in the small to medium range. The question remains whether the relative small advantages found in this study (and the studies by Sanders and colleagues) justify the extra resources that full assistance requires; the group leaders spent 145 minutes in BPT-S per participant versus 570 minutes in BPT-P. To

answer this question, several issues need to be addressed. First, even if the differences in effect sizes were relatively small between the two training conditions, the practical significance may still be meaningful for serious and fairly intractable problems (Lipsey & Wilson, 1993). To better understand how meaningful the effects in this study are, further studies need to investigate the short-term cost-effectiveness, as well as long-term societal gains of small effect sizes. So far, few studies have been published involving cost-effectiveness and cost-utility of parent training (Romeo et al., 2005). However, Foster, Olchowski, and Webster-Stratton (2007) evaluated a related issue in a recent study. They investigated the relative cost-effectiveness of stacking intervention components in parent and teacher. Although the advantage for extra components was relatively small in terms of effect sizes, the authors still concluded that these efforts were cost-effective.

Second, the general importance of matching intervention type to the needs of individual families has lately been highlighted (e.g., La Greca et al., 2009). Despite the lack of significant moderating variables in study I, it is still likely that some families benefit relatively more from one particular training condition. For example, because this study as well as the Triple-P studies employed self-referral of participants, further studies need to target families referred to service. Parents in such families may be less motivated to actively engage in self-administration of interventions. As a matter of fact, in a preliminary analysis of a sub-sample in study I including participants that were in the clinical problem range at pretest ( $N = 137$ ), the interventions effects for BPT-S relative the WL were no longer significant. These data are to be reported in a later article focused on clinical significance.

Third, consumer preferences and satisfaction are important variables in successful dissemination of interventions. Parents seem to prefer the continuous support from therapists. The parents tended to rate the BPT-S condition as less credible than the BPT-P condition ( $p < .10$ ), and in the Triple-P studies, conditions that include therapist support have consistently been rated as more satisfying (Markie-Dadds & Sanders, 2006, Morawska & Sanders, 2006; Sanders et al., 2000).

With these issues in mind, the findings in study I still justify parent training with limited therapist support (BPT-S) as a viable alternative in choice of intervention for children with conduct problems. To succeed in the implementation of family interventions, it is important to take the needs and interests of all involved parties into account (Aarons & Palinkas, 2007). Although BPT-S was slightly less effective than BPT-P, it may still be a warranted alternative for some families due to practical circumstances (e.g., distance to training facilities) or due to personal preferences. BPT-S could also be considered as a cost-effective first option in a stepped-care procedure.

In the second empirical study, the BPT-E program was also implemented in a way that limited required resources and qualified therapists. Despite that fact, the implementation was still considerably more extensive compared to the BPT-R program. Each employee in the BPT-E program spent about 20 hours effective hours for each participating family, compared to about 5 hours in the BPT-R program (including the teacher training). This means that the BPT-E program was four times as expensive. However, study II does not permit conclusions regarding cost-effectiveness. It is not known if the BPT-R program was more effective than no treatment at all. Nevertheless, the lack of clinical significance suggests that BPT-R had no real impact. In a recent Swedish study of a non-enhanced parent training program, the author reached similar conclusions (Thorell, 2009). The program (COPE) showed very small or small effects on child conduct problems and parent stress in a clinical group. The general conclusion in study II is that cheap is not always good enough. Families at risk for non-response to treatment did not respond well to the parent training condition with limited support and training. This issue needs to be further investigated in future studies; which families need more intense interventions and what particular enhancements to interventions are crucial?

In the third empirical study, the teacher consultation model was more cost-effective than that reported in the only existing comparable randomized study by Iovannone et al. (2009). Unfortunately, the actual time spent on consultation was not reported in Iovannone et al. (2009). The maximum time a consultant spent on a case in their model was 12 hours plus five meetings that ranged between 30 minutes and two hours. Consequently, each consultant used up to 22 hours per targeted student, compared to about six hours per student in the intervention in this study. This difference is rather large considering that both studies found similar effect sizes on student EBP. This issue is of great importance, considering the lack of well-trained consultants and financial resources available for school-based mental health (e.g., Scott et al., 2008).

## Practical and clinical significance

The term clinical significance refers to the importance or applied value of the intervention effects in everyday life (Kazdin, 1999). While clinical significance is related to absolute levels of everyday functioning, the term practical significance usually refers to the amount of change (i.e., effect size), regardless of end state functioning (Campbell, 2005). The importance of including reports of both clinical and practical significance, in addition to statistical significance, has been stressed in recent years (e.g., Campbell, 2005). Therefore, several analyses of practical and clinical significance were conducted in the three empirical studies.

In terms of practical significance, both the parent- and teacher training programs showed larger effect sizes than reported mean effect sizes in recent meta-analyses (Dretzke et al., 2009; Wilson & Lipsey, 2007). It is worth to note that the meta-analyses almost entirely are based on efficacy studies, while the studies in this thesis were conducted mainly under “real-world” conditions. The fact that the parenting programs showed larger effects than the teacher training program is consistent with results from the referred meta-analyses. The smaller effects for BTT is not surprising, regarding that teachers have to consider the needs of all the students in their classroom. On the other hand can teacher based interventions be cost effective despite small effect sizes, because each teacher has the potential to implement the intervention with a large number of students.

In contrast to the large effect sizes for BTE-E reported in study II, the clinical significance was less impressive. Although many parents and children showed large improvements, a large part (54%) still scored above the clinical cut-off at posttest. Is this good or bad? The gap between the BPT-E and the BPT-R group in terms of clinical significance was 39% at posttest (93% above cut-off in BPT-R minus 54% in BPT-E), which was similar to the gap between the intervention and the control condition in other studies (Larsson, Fossum et al., 2008; Sanders et al., 2000; Webster-Stratton & Hammond, 1997). Thus, evidence suggests that parent training alone, despite enhancements, is clinically insufficient for a large portion of families. Nevertheless, reviews and meta-analyses still favor BPT over other types of interventions for children with EBP (Eyberg et al., 2008; Nock, 2003). Further studies need to investigate how parent training could be modified, or combined with other efforts, to improve the clinical significance. A more encouraging finding in study II was that attendance and adherence in the BPT-E group was higher than expected, maybe as a result of the added component aimed to motivate and engage participants. Only 14% of the families in the BPT-E group dropped out of treatment, which was similar to the drop-out rate in the self-referred sample in study I. These rates were considerably lower than the general drop-out rate of 40-60% in BPT (Kazdi, 2005; Kazdin & Wassell, 1998).

In study III, no established measures of student EBP with Scandinavian norms were employed, which limited the possibility to analyze clinical significance. On the other hand, the BREB-rating enabled normative comparisons with high social validity, because the ratings of the targeted students could be compared to the general level of EBP in their present context. The fact that the portion of students above the cut-off dropped below 40% in the intervention, while it increased to 72% in the control group, supports the clinical significance of the intervention. This result still has to be interpreted with caution, considering the moderate effect sizes and inconsistencies in statistical significance across outcome measures.

A missing feature in the empirical studies was the inclusion measures related to everyday functioning. Such measures express the extent to which participants are able to take part in expected activities and manage expected tasks. For example, how many children remained in general education settings as a result of the intervention? Or, did the intervention have an impact on the need for student aids? For such measures to be reliable, large sample size and a high degree of control of other factors that may affect change (e.g., school resources) is generally required. Therefore, no measures related to everyday functioning were included in the empirical studies.

## Theoretical implications

The findings in the empirical studies of this thesis are primarily relevant for practice and intervention research, but there are also some theoretical implications. Perhaps the most interesting findings concern the roles of parenting and teaching practices. In accordance with coercion theory (Patterson, 1982), harsh parenting was found to mediate change in child EBP in study I. Similar findings have been reported in several previous experimental intervention studies (Beauchaine et al., 2005; Eddy & Chamberlain, 2000; Fossum et al., 2009; Ogden & Amlund Hagen, 2008). On the other hand, extant evidence of the causal role of teacher behaviors rest heavily on single-subject experiments (Busse et al., 1995), which have demonstrated the short-term impact of specific teaching strategies. The finding pertaining the mediating role of harsh teaching in study III was therefore of particular interest. The long-term causal impact of teacher reprimands was for the first time demonstrated in a randomized controlled trial.

The findings with regard to the impact of positive parenting and teaching practices may be of even further theoretical interest, considering the paucity of empirical support from experimental studies. With few exceptions (Martinez & Forgatch, 2001), the mediating effect of positive parenting practices has been non-significant or weak in comparison to the impact of negative practices (Beauchaine et al., 2005; Eddy & Chamberlain, 2000; Fossum et al., 2009; Ogden & Amlund Hagen, 2008). Accordingly, the mediating effect of parental praise and incentives was non-significant when tested together with harsh and inconsistent parenting in the exploratory analysis in study I. As argued in the introduction, the empirical support for the role of positive parenting practices may require additional measures and other methods than investigation of direct linear links to child EBP. Several routes may offer a way forward in pursuit of this issue. First, the validity of measures of positive parenting and teaching need to be considered. For example, Van Acker et al. (1996) demonstrated that teacher praise in general was provided non-contingently to students with EBP. Thus, even if the

teachers provide more praise, the effect is not certain without control for contingencies. In future studies of positive parenting and teaching practices, this issue needs consideration in the design of measures. It has to be ensured that the measures tap parent and teacher behaviors that actually function as positive reinforcement of prosocial child behaviors.

Second, in line with the theoretical propositions reviewed in the introduction (Strand, 2000), the effects of positive parenting and teaching may operate indirectly via the mechanism of behavioral momentum. In this theoretical framework, positive parenting and teaching could be defined as establishing operators for prosocial child behaviors, and conversely as abolishing operators of child EBP (Michael, 2004). Establishing and abolishing operators are defined as environmental factors that affect the potential of related triggers and reinforcers. For example, positive parenting may weaken the triggering potential of subsequent coercive parenting, resulting in lower levels of child EBP. According to this model, the effects of positive practices would operate indirectly on child EBP, via fewer opportunities for negative adult and/or child behaviors. This was supported in the exploratory analysis in study I, in which positive parenting practices mediated the intervention effect on negative parenting practices. Unfortunately, limitations of the measures of teacher praise, as discussed in study III, restricted the possibility to conduct corresponding analysis of indirect effects in that study. Future studies investigating the role of positive parenting and teaching practices should consider the theoretical viewpoint of Strand (2000) in pursuit of indirect effects. So far, this has not been tested explicitly in studies of parent practices.

In an attempt to include a wider context in the analyses of behavioral interactions, Strand (2000) points to matching theory, in which the relative frequency of reinforcement for competing behaviors is considered. According to matching theory, a child would be less inclined to initiate coercive interactions in a context with high relative frequency of positive interactions. That is, the probability for a certain behavior is not just dependent upon the direct reinforcing contingencies for that behavior, but also on occurrence and reinforcement of other behaviors. The recent development of coercion theory by Patterson and colleagues is also an example of a theoretical framework with focus on the wider context (Granic & Patterson, 2006). Moment-to-moment reciprocal behavioral sequences between parents and children are observed and analyzed within the theory. It suggests, among other things, that the rigidity/flexibility of such patterns matter, besides the absolute levels of parent and child behaviors. In support of the theory, it has for example been found that parents' ability to shift strategy in coercive interactions distinguishes participants who responded to BPT from non-responders (Granic et al., 2007). In line with their reasoning, parental flexibility/rigidity is an example of a contextually based outcome measure with bearing on positive parenting practices.

To conclude, in pursuit of the role of positive parenting and teaching, the traditional method of analyzing mediation of intervention effects may need to be supplemented by other methods. Some of the routes proposed above require moment-to-moment observation of interactions. Such assessments can for example illuminate the function of behaviors and enables a better account of contextual factors. In a way, it makes sense that functionally based behavioral interventions (e.g., BPT and BTT), should be evaluated through research methods that rest on a contextual theoretical framework.

Besides the analyses of parenting and teaching practices, there were two findings with theoretical bearing worth mentioning. First, the fact that the level of homework fidelity fully mediated the intervention effects in the direct comparison between BPT-P and BPT-S in study I was surprising at first glance. However, in review of the content of the BPT-P manual, it is clear that a large part of the session time is devoted to homework assignment and follow-up. Thus, the result supports earlier research reviewed in the introduction that stresses the importance of adherence to interventions (Nock & Ferriter, 2005).

Second, in study I and III, basically none of the variables that were tested as potential moderators of intervention effects turned out to be significant. This was surprising, for example in consideration of the theoretical and empirical claims of interaction between family adversity and parenting reviewed in the introduction (e.g., Reyno & McGrath, 2006). A specific finding worth noting was that the age of the participating children in study I did not moderate the intervention effects. In contrast, a comparable Norwegian intervention study of BPT found strong moderating effect of child age (Ogden & Amlund Hagen, 2008). In that study, older children did not respond to the intervention. Furthermore, the participants were referred to service within the social services, as opposed to study I, which included self-referred participants. As reviewed in the introduction, the impact of family adversity and neighborhood adversity grows in adolescence. Maybe, child age is a risk factor for non-response in families with heavier problem load.

## Challenges in going to scale

The empirical studies in this thesis showed that evidence-based interventions effectively could be implemented with limited costs and resources. This does not, however, imply that these interventions easily could be disseminated at a large scale with impact at the population level. Despite the impressive development the last decades within the fields of prevention and intervention research, have the population rates of conduct disorder, antisocial personality disorder and violent crime not been reduced (Dodge, Coie, & Lynam, 2006). The blunt question is if it really is possible to have an impact at the

population level through large-scale dissemination of interventions targeting individual children and youth? There is no definite answer to that question, but one way forward is to be aware of the challenges involved in going to scale.

First, the identification of high-risk children through screening processes are often too strict and exclude cases that later develop serious problems. For example, in the Fast Track preventive intervention (Conduct Problems Prevention Research Group, 2002, 2007), the lifetime reduction in CD in the high-risk group was an impressive 50%. Still, the children in the high-risk group who eventually developed CD only represented 17.5% of all cases, meaning that most children who eventually developed CD belonged to the large group of children who were not identified as high-risk in kindergarten. The screening processes applied in the studies of the thesis were not standardized and relied on brief ratings from single informants. In going to scale, problems of low sensitivity and specificity in early screening has to be considered.

Second, study I and III relied on self-referred participants. Non-consenting families might generally be less motivated to participate in interventions and represent a new group of treatment ‘failures’ during at-scale implementation.

Third, even though efforts were made to evaluate the interventions of the thesis under real world conditions, this goal can never be completely fulfilled. For example, in most studies the researchers go to great lengths to optimize adherence to intervention protocol and to retain participants. Such efforts are often lacking in community implementation, leading to lower quality implementation and higher rates of non-response (Iovanne et al., 2009; Dodge, 2001; Tolan & Dodge, 2005). In future studies, it would be informative to evaluate the effects of ongoing community services that apply the interventions in this thesis. In such studies, it is crucial to include moderator analyses of drop-out and non-response to learn which families succeed and which fail in community service.

Fourth, the general level of community resources impacts the ability to effectively intervene (Tolan & Gorman-Smith, 1997). Will the educational, financial, and organizational resources of a community be sufficient to scale up interventions with maintained quality? If not, how can this be achieved? These issues are not solved through more intervention trials, but rather through natural experiments studying the effects of different organizational strategies across communities. Still, the limitation of costs and resources in the interventions of this thesis is an important advantage that will increase the possibility for dissemination in communities with limited recourses.

Finally, a challenge in lowering population rates of EBP through interventions delivered to individuals is that these problems partially are caused and maintained by community level factors such as poor neighborhoods, socioeconomic status, peer deviance, and discrimination

against specific groups (Dodge et al., 2006). Individual-level interventions may ‘work around’ or ‘work with’ community risk factors but cannot easily alter them. This points to the importance of tackling population level problems through both individual intervention and efforts to build community resilience. This almost goes without saying, but the important implication for researchers is to evaluate the short term cost-effectiveness as well as long term cost-utility of efforts at different levels. Such analyses are important underpinnings for policy makers in deciding how to allocate resources in the pursuit of public health. The findings in this thesis could for example be related to effectiveness and costs of community level efforts such as lower-size classrooms, improved day-care, or financial aid for parental leave.

## Implications for future studies

The findings in this thesis have several implications for future research, some of which already have been mentioned. A general implication is the need for independent replications, especially considering that the researchers who were involved in the development of the intervention programs also conducted the studies.

The first study was one of the few randomized effectiveness studies of BPT. Considering the gap in reported effect sizes between this study and the Norwegian study of PMTO (Ogden & Amlund Hagen, 2008), further effectiveness studies are needed and such studies need to explore cost-effectiveness as well as differential effects depending upon the targeted population (i.e., clinical vs. self-referred community samples). Also, future studies of the interventions in study I need to include independent observations as outcome measure instead of just relying on parent ratings.

The promising results in the second study calls for a randomized trial with a design that specifically can determine if the enhancements in the program offer advantages over the regular version of the program. In light of the modest reported effects in previous studies of enhanced parent training, as reviewed in the introduction, more studies that disentangle the effects of specific intervention components are called for. Also, studies need to be undertaken that provide more information on referral procedures and matching of interventions to the needs of the participants. For which families are enhanced efforts called for? Should these families be identified through assessment procedures, or is stepped care a better choice?

The implications for future studies with respect to the third study need to be considered in relation to the paucity of randomized trials of individual behavior management in schools. The issue is not whether BTT have effects on student behavior, which has been shown in numerous single-subject experiments (e.g., Busse et al., 1995). The crucial issue is if the general

effects on student behaviors are meaningful and sustained when these strategies are implemented in ways that enables large-scale dissemination (i.e., standardized and cost-effective teacher training programs). The third study in this thesis, together with the study by Iovanne et al. (2009), are to our knowledge the only randomized trials addressing this issue. Therefore, further randomized studies need to be conducted and those studies specifically have to address the issue of optimal standardization. What form and amount of consultation is optimal in terms of cost-effectiveness? How can the rather complicated FBA-procedure be further simplified? To what extent do highly trained consultants need to be involved in the training process? Should a specific set of strategies be part of the standardized program, as they are in BPT? How can intervention effects be maintained when students change classrooms or teachers?

## Conclusion

This thesis includes three studies in which three unique interventions were evaluated. The interventions were based on earlier research and inspired by other evidence-based intervention models. Alongside the development and evaluation of the interventions, a national organization has been built with the capacity to disseminate the programs at a larger scale with sustained quality. There were two main reasons for developing new programs, instead of implementing already existing interventions. First, because most established parent and teacher programs have been developed in North America, it was expected that Swedish teachers and parents would have difficulties accepting some of the intervention procedures. To ensure high acceptability and consequently adherence to the interventions, culturally adapted programs seemed to be necessary. Second, most established programs have specific guidelines and requirements regarding copyright, training and implementation. To achieve the aim of evaluating interventions that were limited in costs and possible to implement with less qualified staff, a high degree of flexibility in terms of implementation procedures was imperative.

In conclusion, cheap is good! The strong intervention effects found in the empirical studies support the expected benefits of using interventions that are culturally adapted and that employ implementation models that require limited resources. In several ways, the interventions were designed and implemented in ways that counter many of the challenges in going to scale. With proper replications, the findings presented in this thesis hold promise to improve access to evidence-based interventions for children with externalizing behavior problems.

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# References

- Achenbach, T. M., & Edelbrock, C. S. (1984). Psychopathology of childhood. *Annual Review of Psychology, 35*, 227-256.
- Ackerman, B. P., Brown, E., & Izard, C. E. (2003). Continuity and change in levels of externalizing behavior in school of children from economically disadvantaged families. *Child Development, 74*, 694-709.
- Adams, M. S., & Evans, T. D. (1996). Teacher disapproval, delinquent peers, and self-reported delinquency: A longitudinal test of labeling theory. *The Urban Review, 28*, 199-211.
- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)*. Washington, DC: American Psychiatric Association.
- American Psychological Association (2006). Evidence-based practice in psychology. *American Psychologist, 61*, 271-285.
- Arseneault, L., Moffitt, T. E., Caspi, A., Taylor, A., Rijdsdijk, F. V., Jaffee, S., Ablow, J. C., and Measelle, J. R. (2003). Strong genetic effects on cross-situational antisocial behavior among 5-year-old children according to mothers, teachers, examiner-observers, and twins' self-reports. *Journal of Child Psychology and Psychiatry, 44*, 832-848.
- Axberg, U., Johansson Hanse, J., & Broberg, A. G. (2008). Parents' description of conduct problems in their children - A test of the Eyberg Child Behavior Inventory (ECBI) in a Swedish sample aged 3-10. *Scandinavian Journal of Psychology, 49*, 497-505.
- Barkley, R. (1997). *Defiant children. A clinician's manual for assessment and parent training* (2nd ed.). New York, NY: The Guilford Press.
- Barlow J, Coren E, Stewart-Brown S. (2007). Parent-training programmes for improving maternal psychosocial health. *Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. No.: CD002020. DOI: 10.1002/14651858.CD002020.pub2
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bates, J. E., Pettit, G. S., Dodge, K. A., & Ridge, B. (1998). The interaction of temperamental resistance to control and parental discipline in the prediction of children's externalizing problems. *Developmental Psychology, 34*, 982-995.
- Beaman, R., & Wheldall, K. (2000). Use of approval and disapproval in the classroom. *Educational Psychology, 20*, 431-446.
- Beauchaine, T. P., Webster-Stratton, C., & Reid, M. J. (2005). Mediators, moderators, and predictors of 1-year outcomes among children treated for early-onset conduct problems: A latent growth curve analysis. *Journal of Consulting and Clinical Psychology, 73*, 371-388.
- Bergan, J. R., & Kratochwill, T. R. (1990). *Behavioral consultation and therapy*. New York: Plenum Press.

- Blair, R. J. R., Peschardt, K. S., Budhani, S., Mitchell, D. G. V., & Pine, D. S. (2006). The development of psychopathy. *Journal of Child Psychology and Psychiatry*, *47*, 262-275.
- Blood, E., & Neel, R. S. (2007). From FBA to implementation: A look at what is actually delivered. *Education and Treatment of Children*, *30*, 67-80.
- Bradley, R., Doolittle, J., Lopez, F., Smith, J., & Sugai, G. (2007, January 30). *Discipline: Improved understanding and implementation*. OSEP Part B Regulations Regional Implementation Meeting: Building the Legacy IDEA 2004, Washington, DC.
- Bradshaw, C. P., Reinke, W. M., Brown, L. D., Bevans, K. B., & Leaf, P. J. (2008). Implementation of school-wide positive behavioral interventions and support (PBIS) in elementary schools: observations from a randomized trial. *Education and treatment of children*, *31*, 1-26.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., Fergusson, D., Horwood, J. L., Loeber, R., Laird, R., Lynam, D. R., Moffitt, T. E., Pettit, G. S., & Vitaro, F. Developmental Trajectories of Childhood Disruptive Behaviors and Adolescent Delinquency: A Six-Site, Cross-National Study. *Developmental Psychology*, *39*, 222-245.
- Burke, J. D., Loeber, R., White, H. R., Stouthamer-Loeber, M., & Pardini, D. A. (2007). Inattention as a key predictor of tobacco use in adolescence. *Journal of Abnormal Behavior*, *116*, 249-259.
- Burke, J. D., Pardini, D. A., & Loeber, R. (2008). Reciprocal relationships between parenting behavior and disruptive psychopathology from childhood through adolescence. *Journal of Abnormal Child Psychology*, *36*, 679-692.
- Burnett, P. C. (2002). Teacher praise and feedback and students' perceptions of the classroom environment. *Educational Psychology*, *22*, 5-16.
- Burns, G. L., & Patterson, D. R. (2000). Factor structure of the Eyberg Child Behavior Inventory: A parent rating scale of oppositional defiant behavior toward adults, inattentive behavior, and conduct problem behavior. *Journal of Clinical Child & Adolescent Psychology*, *29*, 569-577.
- Burt, A. S., Krueger, R. F., McGue, M., and Iacono, W. (2003). Parent • child conflict and the comorbidity among childhood externalizing disorders. *Archives of General Psychiatry*, *60*, 505-513.
- Busse, R. T., Kratochwill, T. R., & Elliott, S. N. (1995). Meta-Analysis for Single-Case Consultation Outcomes: Applications to Research and Practice. *Journal of School Psychology*, *33*, 269-285.
- Campbell, S. B., Shaw, D. S., Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers risk for later maladjustment. *Development and Psychopathology*, *12*, 467-488.
- Campbell, T. C. (2005). An introduction to clinical significance: An alternative index of intervention effect for group experimental designs. *Journal of Early Intervention*, *27*, 210-227.
- Caspi, A., Taylor, A., Moffitt, T. E., and Plomin, R. (2000). Neighborhood deprivation affects children's mental health: Environmental risks identified using a genetic design. *Psychological Science*, *11*, 338-342.
- Caspi, A., Henry, B., McGee, R.O., Moffitt, T.E., & Silva, P.A. (1995). Temperamental origins of child and adolescent behavior problems: From age three to age fifteen. *Child Development*, *66*, 55-68.
- Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I., Taylor, A., and Poulton, R. (2002). Evidence that the cycle of violence in maltreated children depends on genotype. *Science*, *297*, 851-854.

- Caspi, A., Moffitt, T. E., Morgan, J., Rutter, M., Taylor, A., Arseneault, L., Tully, L., Jacobs, C., Kim•Cohen, J., and Polo•Tomas, M. (2004). Maternal expressed emotion predicts children's antisocial behavior problems: Using MZ•twin differences to identify environmental effects on behavioral development. *Developmental Psychology, 40*, 149-161.
- Chamberlain, P., & Reid, J. B. (1987). Parent observation and report of child symptoms, *Behavioral Assessment, 9*, 97-109.
- Chronis, A. M., Lahey, B. B., Pelham, W. E., Hall Williams, S., Baumann, B. L., Kipp, H., Jones, H. A., & Rathouz, P. J. (2007). Maternal depression and early positive parenting predict future conduct problems in young children with Attention-Deficit/Hyperactivity Disorder. *Developmental Psychology, 43*, 70-82.
- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18*, 557-570.
- Colder, C. R., Lengua, L. J., Fite, P. J., Mott, J. A., & Bush, N. R. (2006). Temperament in context: Infant temperament moderates the relationship between perceived neighborhood quality and behavior problems. *Journal of Applied Developmental Psychology, 27*, 456-467.
- Conduct Problems Prevention Research Group. (2002). Evaluation of the first three years of the Fast Track prevention trial with children at high risk for adolescent conduct problems. *Journal of Abnormal Child Psychology, 30*, 19-35
- Conduct Problems Prevention Research Group (2007). Fast track randomized controlled trial to prevent externalizing psychiatric disorders: findings from grades 3 to 9. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 1250-1262.
- Conger, R. D., Wallace, L. E., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology, 38*, 179 - 193.
- Conners, C. K. (1990). *Conners rating scales manual, Conners teacher rating scale, Conners parent rating scales, instruments for use with children and adolescents*. North Tonawanda, NY, Multihealth Systems.
- Conroy, M. A., Clark, D., Fox, J. J., & Gable, R. A. (2000). Building competence in FBA: Are we headed in the right direction? *Preventing School Failure, 44*, 169-174.
- Costin, J., & Chambers, S. M. (2007). Parent management training as a treatment for children with oppositional defiant disorder referred to a mental health clinic. *Clinical Child Psychology and Psychiatry, 12*, 511-524.
- Côte, S. M., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: A nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology, 34*, 71-85.
- Criss, M. M., Pettit, G. S., Bates, J. E., Dodge, K. A., & Lapp, A. L. (2002). Family adversity, positive peer relationships, and children's externalizing behavior: A longitudinal perspective on risk and resilience. *Child Development, 73*, 1220-1237.
- Cummings, E. M., Keller, P. S., & Davies, T. (2005). Towards a family process model of maternal and paternal depressive symptoms: exploring multiple relations with child and family functioning. *Journal of Child Psychology and Psychiatry, 46*, 479-489.
- Dadds, M. R., Perry, Y., Hawes, D. J., Merz, S., Riddell, A. C., Haines, D. J., Solak, E., & Abeygunawardane, A. I. (2006). Attention to the eyes and fear-recognition deficits in child psychopathy. *British Journal of Psychiatry, 189*, 280-281.

- Dadds, M. R., Schwartz, S., & Sanders, M. R. (1987). Marital discord and treatment outcome in behavioral treatment of child conduct disorders. *Journal of Consulting and Clinical Psychology, 55*, 396-403.
- David-Ferdon, C., & Kaslow, N. J. (2008). Evidence-Based Psychosocial Treatments for Child and Adolescent Depression. *Journal of Clinical Child & Adolescent Psychology, 37*, 62-104.
- Day, L., & Reznikoff, M. (1980). Preparation of children and parents for treatment at a children's psychiatric clinic through videotaped modeling. *Journal of Consulting and Clinical Psychology, 48*, 303-304.
- De Los Reyes A., & Kazdin A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: a critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*, 483-509.
- DeGarmo, D. S., Patterson, G. R., & Forgatch, M. S. (2004). How do outcomes in a specified parent training intervention maintain or wane over time? *Prevention Science, 5*, 73-89.
- DeGarmo, D. S., & Forgatch, M. (2005). Early development of delinquency within divorced families: Evaluating a randomized preventive intervention trial. *Developmental Science, 8*, 229-239.
- Denham, S. A., Renwick, S. M., & Holt, R. W. (1991). Working and Playing Together: Prediction of Preschool Social-Emotional Competence from Mother-Child Interaction. *Child Development, 62*, 242-249.
- Devilley, G. J., & Borkovec, T. D. (2000) Psychometric properties of the credibility/expectancy questionnaire. *Journal of Behavior Therapy and Experimental Psychiatry, 31*, 73-86.
- Dionne, G. (2005). Language development and aggressive behavior. In R. E. Tremblay, W. M. Hartup, & J. Archer (Eds.), *Developmental origins of aggression*. New York: Guilford Publications.
- Dishion, T. J., Shaw, D. S., Connell, A., Gardner, F., Weaver, C., & Wilson, M. (2008). The Family Check-Up with high-risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. *Child Development, 79*, 1395-1414.
- Dobbs, J., & Arnold, D. H. (2009). Relationships between preschool teachers' reports of children's behavior and their behavior toward those children. *School Psychology Quarterly, 24*, 95-105.
- Dodge, K.A. (2001). The science of youth violence prevention: Progressing from developmental psychopathology to efficacy to effectiveness to public policy. *American Journal of Preventive Medicine, 20*, 63-70.
- Dodge, K. A. (2002). Mediation, moderation, and mechanisms in how parenting affects children's aggressive behavior. In J. G. Borkowski, S. L. Ramey, & M. Bristol-Power (Eds.), *Parenting and the child's world: Influences on academic, intellectual and social development* (pp. 215-229). Mahwah, NJ: Erlbaum.
- Dodge, K. A. (2009). Community intervention and public policy in the prevention of antisocial behavior. *Journal of Child Psychology and Psychiatry, 50*, 194-200.
- Dodge, K. A., Coie, J. D., & Lynam, D. (2006). Aggression and anti-social behavior. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 719-788). New York: Wiley.
- Donaldson, S. I., Christie, C. A., & Mark, M. M. (2008). *What counts as credible evidence in applied research and evaluation practice?* Newbury Park, CA: Sage.

- Dopkins Straight, A., & Neitzel, C. (2003). Beyond parenting: Coparenting and children's classroom adjustment. *International Journal of Behavioral Development, 27*, 31-40.
- Dretzke, J., Davenport, C., Frew, E., Barlow, J., Stewart-Brown, S., Bayliss, S., Taylor, R., Sandercock, J., & Hyde, C. (2009). The clinical effectiveness of different parenting programmes for children with conduct problems: a systematic review of randomized controlled trials. *Child and Adolescent Psychiatry and Mental Health, 3*:7.
- DuPaul, G. J., Power, T. J., McGoey, K. E., Ikeda, M. J., & Anastopoulos, A. D. (1998). Reliability and validity of parent and teacher ratings of Attention-Deficit/Hyperactivity Disorder symptoms. *Journal of Psychoeducational Assessment, 16*, 55-68.
- Eddy, J. M., & Chamberlain, P. (2000). Family management and deviant peer association as mediators of the impact of treatment condition on youth antisocial behavior. *Journal of Consulting and Clinical Psychology, 68*, 857-863.
- Eyberg, S. M., & Pincus, D. (1999). *Eyberg Child Behavior Inventory (ECBI) and Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R)*. Professional manual. Odessa, FL: Psychological Assessment Resources.
- Eyberg, S. M. (2003). Parent-Child Interaction Therapy. In T. H. Ollendick & C. S. Schroeder (Eds.), *Encyclopedia of Clinical Child and Pediatric Psychology* (pp. 446-447). New York: Plenum.
- Eyberg S. M., Nelson, M. M., & Boggs, S. R. (2008). Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child & Adolescent Psychology, 37* (1), 215-237.
- Faraone, S. V., Perlis, R. H., Doyle, A. E., Smoller, J. W., Goralnick, J. J., Holmgren, M. A., Sklar, P., 2005. Molecular genetics of attention-deficit/hyperactivity disorder. *Biological Psychiatry, 57*, 1313-1323.
- Farrington, D.P. (1995). The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge study in delinquent development. *Journal of Child Psychology and Psychiatry, 36*, 929-964.
- Farrington, D. P., & Loeber, R. (1998). Transatlantic replicability of risk factors in the development of delinquency. In P. Cohen, C. Slomkowski, & L.M. Robins (Eds.), *Where and when: The influence of history and geography on aspects of psychopathology* (pp. 299-329). Mahwah, NJ: Lawrence Erlbaum.
- Farrington, D. P., Tofti, M. M., & Coid, J. W. (2009). Development of adolescence-limited, late-onset, and persistent offenders from age 8 to age 48. *Aggressive Behavior, 35*, 150-163.
- Fernandez, M.A., & Eyberg, S.M. (2005). Keeping families in once they've come through the door: Attrition in Parent-Child Interaction Therapy. *Journal of Early and Intensive Behavior Intervention, 2*, 207-212.
- Fixsen, D. L., Naoom, S. F., Blasé, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature* (Florida Mental Health Institute Publication No. 231). Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network.
- Flay, B. R., & Collins, L. M. (2005). Historical review of school-based randomized trials for evaluating problem behavior prevention programs. *The ANNALS of the American Academy of Political and Social Sciences, 599*, 115-146.
- Foley, D, Wormley, B., Silberg, J., Maes, H., Hewitt, J., Eaves, L., and Riley, B. (2004). Childhood adversity, MAOA genotype, and risk for conduct disorder. *Archives of General Psychiatry, 61*, 738-744.

- Forgatch, M. S., & DeGarmo, D. S. (2002). Extending and testing the social interaction learning model with divorce samples. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 235-256). Washington DC: American Psychological Association.
- Forster, M., & Karlberg, M. (2005). *COMET. En manual för skolpersonal* ® *grundskolans år 1 till 5*. [COMET. A manual for elementary school teachers]. FoU-rapport 2005:12. Unit for Research and Development, The City of Stockholm's executive Office.
- Fossum, S., Mørch, W-T., Handegård, B. H., Drugli, M. B., & Larsson, B. (2009). Parent training for young Norwegian children with ODD and CD problems: Predictors and mediators of treatment outcome. *Scandinavian Journal of Psychology, 50*, 173-181.
- Foster, E. M., Olchowski, A. E., & Webster-Stratton, C. H. (2007). Is stacking intervention components cost-effective? An analysis of the Incredible Years Program. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 1414-1424.
- Gardner, F. (1987). Positive interaction between mothers and children with conduct problems: Is there training for harmony as well as fighting? *Journal of Abnormal Child Psychology, 15*, 283-293.
- Gardner, F., Ward, S., Burton, J., & Wilson, C. (2003). Joint play and the early development of conduct problems in children: A longitudinal observational study of preschoolers. *Social Development, 12*, 361-379.
- Gardner, F., Burton, J., & Klimes, I. (2006). Randomized controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: Outcomes and mechanisms of change. *Journal of Child Psychology and Psychiatry, 47*, 1123-1132.
- Gardner, F., Shaw, D. S., Dishion, T. J., Burton, J., & Supplee, L. (2007). Randomized trial of a family-centered approach to preventing conduct problems: Linking changes in proactive parenting to boys' disruptive behavior in early childhood. *Journal of Family Psychology, 21*, 398-406.
- Goodman, R. (1999). The extended version of the Strengths and Difficulties Questionnaire as a guide to child psychiatric caseness and consequent burden. *Journal of Child Psychology and Psychiatry, 40* (5), 791-799.
- Gorman-Smith, D., & Loeber, R. (2008). Are Developmental Pathways in Disruptive Behaviors the Same for Girls and Boys? *Journal of Child and Family Studies, 14*, 15-27.
- Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review, 113*, 101-131.
- Granic, I., O'Hara, A., Pepler, D., & Lewis, M. D. (2007). A dynamic systems analysis of parent-child changes associated with successful "real-world" interventions for aggressive children. *Journal of Abnormal Child Psychology, 35*, 845-857.
- Hahlweg, K., Heinrichs, N., Kuschel, A., & Feldmann, M. (2008). Therapist-assisted, self-administered bibliotherapy to enhance parental competence: Short- and long-term effects. *Behavior Modification, 32*, 659-681.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationship and the trajectory of students' school outcomes through eighth grade. *Child Development, 72*, 625-638.

- Harrist, W. W., Pettit, G. S., Dodge, K. A., & Bates, J. E. (1994). Dyadic Synchrony in Mother-Child Interaction: Relation with Children's Subsequent Kindergarten Adjustment. *Family Relations, 43*, 417-424.
- Hartman, R. R., Scott, A., & Webster-Stratton, C. (2003). A growth curve analysis of parent training outcomes: Examining the influence of child risk factors (inattention, impulsivity, and hyperactivity problems), parental and family risk factors. *Journal of Child Psychology and Psychiatry, 44*, 388-398.
- Heiervang, E., Goodman, A., & Goodman, R. (2008). The Nordic advantage in child mental health: separating health differences from reporting style in a cross-cultural comparison of psychopathology. *Journal of Child Psychology and Psychiatry, 49*, 678-685.
- Heiervang, E., Stormark, K. M., Lundervold, A. J., Heimann, M., Goodman, R., Posserud, M. B., Ullebø, A. K., Plessen, K.J., Bjelland, I., Lie, S.A., & Gillberg, C. (2007). Psychiatric disorders in Norwegian 8- to 10-year-olds: An epidemiological survey of prevalence, risk factors, and service use. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 438-447.
- Hinshaw, S. P. (1987). On the distinction between attentional deficits/hyperactivity and conduct problems/aggression in child psychopathology. *Psychological Bulletin, 101*, 443-463.
- Hinshaw, S. P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127 - 155.
- Hinshaw, S. P. (2002). Process, mechanism, and explanation related to externalizing behavior in developmental psychopathology. *Journal of Abnormal Child Psychology, 30*, 431-446.
- Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions, 11*, 133-144.
- Hughes, J. N., Cavell, T. A., & Willson, V. (2001). Further support for the developmental significance of the quality of the teacher-student relationship. *Journal of School Psychology, 39*, 289-301.
- Hymel, S. (1986). Interpretation of peer behavior: Affective bias in childhood and adolescence. *Child Development, 57*, 431-445.
- Individuals With Disabilities Education Act of 2004, 20 U.S.C. 1401-82 (2004).
- Ingoldsby, E. M., Shaw, D. S., Winslow, E., Schonberg, M., Gilliom, M., & Criss, M. M. (2006). Neighborhood Disadvantage, Parent-Child Conflict, Neighborhood Peer Relationships, and Early Antisocial Behavior Problem Trajectories. *Journal of Abnormal Child Psychology, 34*, 303-319.
- Iovannone, R., Greenbaum, P. E., Wang, W., Kincaid, D., Dunlap, G., & Strain, P. (2009). Randomized controlled trial of the Prevent-Teach-Reinforce (PTR) tertiary intervention for students with problem behaviors: Preliminary outcomes. *Journal of Emotional and Behavioral Disorders, 17*, 213-225.
- Jaffee, S. R., Moffitt, T. E., Caspi, A., Taylor, A., and Arseneault, L. (2002). The influence of adult domestic violence on children's internalizing and externalizing problems: An environmentally informative twin study. *Journal of the American Academy of Child Adolescent Psychiatry, 41*, 1095-1103.
- Jaffee, S. R., Caspi, A., Moffitt, T. E., and Taylor, A. (2004). Physical maltreatment victim to antisocial child: Evidence of an environmentally-mediated process. *Journal of Abnormal Psychology, 113*, 44-55.

- Johnston, C., Pelham, W. E., Crawford, J. J., & Atkins, M. S. (1988). A psychometric study of positive and negative nominations and the pupil evaluation inventory. *Journal of Abnormal Child Psychology*, *16*, 617-626.
- Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2009). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, *36*, 567-589.
- Kazdin, A. E. (1997). Practitioner review: Psychological treatments for Conduct Disorder in children. *J. Child. Psychol. Psychiat*, *38*, 161-178.
- Kazdin, A. E. (1998). Conduct disorder. In T. Kratochwill and R. Morris (Ed.), *The practice of child therapy* (3rd ed.) New York: Pergamon Press.
- Kazdin, A. E., & Wassell, G. (1998). Treatment completion and therapeutic change among children referred for outpatient therapy. *Professional Psychology: Research and Practice*, *29*, 332-340.
- Kazdin, A. E. (1999). The meanings and measurement of clinical significance. *Journal of Consulting and Clinical Psychology*, *67*, 332-339.
- Kazdin, A. E., & Whitley, M. K. (2003). Treatment of parental stress to enhance therapeutic change among children referred for aggressive and antisocial behavior. *Journal of Consulting and Clinical Psychology*, *71*, 504-515.
- Kazdin, A. E. (2005). *Parent management training: Treatment for oppositional, aggressive and antisocial behavior in children and adolescents*. New York: Oxford University Press.
- Kazdin, A. E. (2008). Evidence-based treatments and delivery of psychological services: Shifting our emphases to increase impact. *Psychological Services*, *5*, 201-215.
- Kearney, C. A. (2008). School absenteeism and school refusal behavior in youth: A contemporary review. *Clinical Psychology Review*, *28*, 451-471.
- Kellam, S. G., Ialongo, N., & Mayer, L. S. (1994). The course and malleability of aggressive behavior from early first grade into middle school: Results of a developmental epidemiologically-based preventive trial. *Journal of Child Psychology and Psychiatry*, *35*, 259- 281.
- Kennedy, J. H. (1992). Relationship of maternal beliefs and childrearing strategies to social competence in preschool. *Child Study Journal*, *22*, 39-60.
- Kessler, R. C. Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 593-602.
- Kim-Cohen, J., Moffitt, T. E., Taylor, A., Pawlby, S. J., & Caspi, A. (2005). Maternal depression and children's antisocial behavior. *Archives of General Psychiatry*, *62*, 173-181.
- Kling, Å., Forster, M., Sundell, K., & Melin, L. (in press). A randomized controlled effectiveness trial of parent management training with varying degree of therapist support. *Behavior Therapy*.
- Knutson, J. F., DeGarmo, D. S., & Reid, J. B. (2004). Social Disadvantage and Neglectful Parenting as Precursors to the Development of Antisocial and Aggressive Child Behavior: Testing a Theoretical Model. *Aggressive Behavior*, *30*, 187-205.
- Kraemer, H. C., Kazdin, A. E., Offord, D. R., Kessler, R. C., Jensen, P. S., & Kupfer, D. J. (1997). Coming to terms with the terms of risk. *Archives of General Psychiatry*, *54*, 337-343.
- Kratochwill, T. R., Bergan, J. R., Sheridan, S. M., & Elliot, S. N. (1998). Assumptions of behavioral consultation: After all is said and done more had been done than said. *School Psychology Quarterly*, *13*, 63-80.

- Krueger, R. F., Hicks, B. M., Patrick, C. J., Carlson, S. R., Iacono, W. G., & McGue, M. (2002). Etiologic connections among substance dependence, antisocial behavior and personality: Modeling the externalizing spectrum. *Journal of Abnormal Psychology, 111*, 411-424.
- La Greca, A. M., Silverman, W. K., & Lochman, J. E. (2009). Moving beyond efficacy and effectiveness in child and adolescent intervention research. *Journal of Consulting and Clinical Psychology, 77*, 373-382.
- Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*, 1373-1400.
- Ladd, G. W., & Burgess, K. B. (2001). Do relational risks and protective factors moderate the linkages between childhood aggression and early psychological and school adjustment? *Child Development, 72*, 1579-1601.
- Ladd, G. W. (2006). Peer rejection, aggressive or withdrawn behavior, and psychological maladjustment from ages 5 to 12: An examination of four predictive models. *Child Development, 77*, 822-846.
- Lahey, B. B., Loeber, R., Burke, J. D., & Applegate, B. (2005). Predicting Future Antisocial Personality Disorder in Males From a Clinical Assessment in Childhood. *Journal of Consulting and Clinical Psychology, 73*, 389-399.
- Laible, D. J. (2004). Mother-Child Discourse Surrounding a Child's Past Behavior at 30 Months: Links to Emotional Understanding and Early Conscience Development at 36 Months. *Merrill-Palmer Quarterly, 50*, 159-180.
- Laird, R. D., Criss, M. M., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2008). Parents' Monitoring Knowledge Attenuates the Link Between Antisocial Friends and Adolescent Delinquent Behavior. *J Abnorm Child Psychol, 36*, 299-310.
- Lane, K. L., Weisenbach, J. L., Phillips, A., & Wehby, J. H. (2007). Designing, implementing, and evaluating function-based interventions using a systematic, feasible approach. *Behavioral Disorders, 32*, 122-139.
- Lansford, J. E., Criss, M. M., Pettit, G. S., Dodge, K. A., Bates, J. E. (2003). Friendship Quality, Peer Group Affiliation, and Peer Antisocial Behavior as Moderators of the Link Between Negative Parenting and Adolescent Externalizing Behavior. *Journal of Research on Adolescence, 13*, 161-184.
- Larsson, B., Fossum, S., Clifford, G., Drugli, M., Handegård, B., & Mørch, W. (2008). Treatment of oppositional defiant and conduct problems in young Norwegian children. Results of a randomized controlled trial. *European Child Adolescent Psychiatry, 18*, 42-52.
- Larsson, H., Viding E., Rijdsdijk, F. V., Plomin, R. (2008). Relationships Between Parental Negativity and Childhood Antisocial Behavior over Time: A Bidirectional Effects Model in a Longitudinal Genetically Informative Design. *Journal of Abnormal Child Psychology, 36*, 633-645.
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*, 309-337.
- Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatments: Confirmation from meta-analysis. *American Psychologist, 48*, 1181-1209.
- Lisspers, J., Nygren, A., & Söderman, E. (1997). Hospital Anxiety and Depression Scale (HAD): Some psychometric data for a Swedish sample. *Acta Psychiatr Scand, 96*, 281-286.
- Little, R. J. A. & Rubin, D. B. (2002). *Statistical analysis with missing data* (2nd ed.) New York: Wiley.

- Liu, J. (2004). Childhood externalizing behavior: Theory and implications. *Journal of Child and Adolescent Psychiatric Nursing, 17*, 93-103.
- Lochman, J. E. (2004). Contextual factors in risk and prevention research. *Merrill-Palmer Quarterly, 50*, 311-325.
- Loeber, R., Burke, J. D., Lahey, B. B., Winters, A. & Zera, M. (2000). Oppositional defiant and conduct disorder : a review of the past 10 years, Part I. *Journal of the American Academy of Child and Adolescent Psychiatry 39*, 1468-1484.
- Loeber, R., Pardini, D., Homish, D. L., Wei, E. H., Crawford, A. M., Farrington, D. P., et al. (2005). The prediction of violence and homicide in young men. *Journal of Consulting and Clinical Psychology, 73*, 1074-1088.
- Loeber, R., Pardini, D. A., Stouthamer-Loeber, M., & Raine, A. (2007). Do cognitive, physiological, and psychosocial risk and promotive factors predict desistance from delinquency in males? *Development and Psychopathology, 19*, 867-887.
- Loeber, R., Burke, J., & Pardini, D. A. (2009). Perspectives on oppositional defiant disorder, conduct disorder, and psychopathic features *Journal of Child Psychology and Psychiatry, 50*, 133-142.
- Lundahl, B. W., Tollefson, D., Risser, H. J., & Lovejoy, M. C. (2008). A meta-analysis of father involvement in parent training. *Research on Social Work Practice, 18*, 97-106.
- Lunkenheimer, E. S., Dishion, T. J., Shaw, D. S., Connell, A. M., Gardner, F., Wilson, M. N., & Skuban, E. M. (2008). Collateral Benefits of the Family Check-Up on Early Childhood School Readiness: Indirect Effects of Parents' Positive Behavior Support. *Developmental Psychology, 44*, 1737-1752.
- Lynam, D. R., Caspi, A., Moffitt, T. E., Wikstrom, P. O. H., Loeber, R., & Novak, S. (2000). The interaction between impulsivity and neighborhood context on offending: The effects of impulsivity are stronger in poorer neighborhoods. *Journal of Abnormal Psychology, 109*, 563-574.
- Maccoby, E. E. (1992). The role of parents in the socialization of children: An historical overview. *Developmental Psychology, 28*, 1006-1017.
- Maddox, S. J., & Prinz, R. J. (2003). Scool bonding in children and adolescents: Conceptualization, assessment, and associated variables. *Clinical Child and Family Psychology Review, 6*, 31-49.
- Malmberg M., Rydell A. M., & Smedje H. (2003). Validity of the Swedish version of the Strengths and Difficulties Questionnaire (SDQ-Swe). *Nordic Journal of Psychiatry, 57*, 357-63.
- Mandel, H. P. (1997). *Conduct disorder and underachievement: Risk factors, assessment, treatment, and prevention*. New York: John Wiley & Sons.
- Markie-Dadds, C., & Sanders, M. R. (2006). A controlled evaluation of an enhanced self-directed behavioural family intervention for parents of children with conduct problems in rural and remote areas. *Behaviour Change, 23*, 55-72.
- Martinez, C. R., & Forgatch, M. S. (2001). Preventing problems with boys' noncompliance: effects of a parent training intervention for divorcing mothers. *Journal of Consulting and Clinical Psychology, 69*, 416-428.
- Maughan, B., Rowe, R., Messer, J., Goodman, R. & Meltzer, H. (2004). Conduct disorder and oppositional defiant disorder in a national sample: developmental epidemiology. *Journal of Child Psychology and Psychiatry 45*, 609-621.
- McCabe, K. M., Lucchini, S. E., Hough, R. L., Yeh, M., & Hazen, A. (2005). The relation between violence exposure and conduct problems among adolescents: A prospective study. *American Journal of Orthopsychiatry, 75*, 575-584.
- Medway, F. J., & Updyke, J. F. (1985). Meta-analysis of consultation outcome studies. *American Journal of Community Psychology, 13*, 489-505.

- Meier, M. H., Slutske, W. S., Arndt, S., & Cadoret, R. J. (2008). Impulsive and callous traits are more strongly associated with delinquent behavior in higher risk neighborhoods among boys and girls. *Journal of Abnormal Psychology, 117*, 377-385.
- Metropolitan Area Child Study Research Group (2002). A cognitive-ecological approach to preventing aggression in urban settings: Initial outcomes for high-risk children. *Journal of Consulting and Clinical Psychology, 70*, 179-194.
- Metropolitan Area Child Study Research Group, & Gorman-Smith, D. (2003). Effects of teacher training and consultation on teacher behavior towards students at high risk for aggression. *Behavior Therapy, 34*, 437-452.
- Meyer, J. M., Rutter, M., Silberg, J. L., Maes, H., Simonoff, E., Shillady, L. L., Pickles, A., Hewitt, J. K., and Eaves, L. J. (2000). Familial aggregation for conduct disorder symptomatology: The role of genes, marital discord, and family adaptability. *Psychological Medicine, 30*, 759-774.
- Michael, J. (2004). *Concepts and principles of behavior analysis*. Kalamazoo, MI: Association for Behavior Analysis.
- Miner, J. L., & Clarke-Stewart, K. A. (2008). Trajectories of externalizing behavior from age 2 to age 9: Relations with gender, temperament, ethnicity, parenting, and rater. *Developmental Psychology, 44*, 771-786.
- Moffitt, T. E. (1993). "Adolescence-limited" and "lifecourse-persistent" antisocial behavior: Developmental taxonomy. *Psychological Review, 100*, 674-701.
- Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology, 13*, 355-375.
- Moffitt, T. E. (2005a). The New Look of Behavioral Genetics in Developmental Psychopathology: Gene-Environment Interplay in Antisocial Behaviors. *Psychological Bulletin, 131*, 533-554.
- Moffitt, T. E. (2005b). Genetic and Environmental Influences on Antisocial Behaviors: Evidence from Behavioral-Genetic Research. *Advances in Genetics, 55*, 41-104.
- Moffitt, T. E., Arseneault, L., Jaffee, S. R., Kim-Cohen, J., Koenen, K. C., Odgers, C. L., Slutske, W. S., & Viding E. (2008). Research Review: DSM-V conduct disorder: research needs for an evidence base. *Journal of Child Psychology and Psychiatry, 49*. 3-33.
- Morawska, A., & Sanders, M. R. (2006). Self-administered behavioural family intervention for parents of toddlers: Effectiveness and dissemination. *Behaviour Research and Therapy, 44*, 1839-1848.
- Morgan, A. B., & Lilienfeld, S. O. (2000). A meta-analytic review of the relation between antisocial behavior and neuropsychological measures of executive function. *Clinical Psychology Review, 20*, 113-136.
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75*, 33-52.
- Murray, D. M., & Hannan, P. J. (1990). Planning for the appropriate analysis in school-based drug-use prevention studies. *Journal of Consulting and Clinical Psychology, 58*, 458-468.
- Murray, D. M. (1998). *Design and analysis of group-randomized trials*. New York: Oxford University Press.
- Mytton J., DiGiuseppi C., Gough D., Taylor R., Logan S. (2006). School-based secondary prevention programmes for preventing violence. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No.: CD004606. DOI: 10.1002/14651858.CD004606.pub2.

- Nelson, J. R., & Roberts, M. L. (2000). Ongoing reciprocal teacher-student interactions involving disruptive behaviors in general education classrooms. *Journal of Emotional and Behavioral Disorders, 8*, 27-37.
- NICHD Early Child Care Research Network (2004). Trajectories of physical aggression from toddlerhood to middle childhood. *Monographs of the Society for Research in Child Development*. Serial No. 278, Vol. 69, 4.
- Nigg J. T., Willcutt, E. G., Doyle, A. E., & Sonuga-Barke, J. S. (2005). Causal heterogeneity in attention-deficit/hyperactivity disorder: Do we need neuropsychologically impaired subtypes? *Biological Psychiatry, 57*, 1224 - 1230.
- Nix, R. L., Bierman, K. L., & McMahon, R. J. (2009). How attendance and quality of participation affect treatment response to parent management training. *Journal of Consulting and Clinical Psychology, 77*, 429-438.
- Nock, M. K. (2003). Progress review of the psychosocial treatment of child conduct problems. *Clinical Psychology: Science and Practice, 10*, 1-28.
- Nock, M. K., & Ferriter, C. (2005). Parent Management of Attendance and Adherence in Child and Adolescent Therapy: A Conceptual and Empirical Review. *Clinical Child and Family Psychology Review, 8*, 149-166.
- Nock, M. K., & Kazdin, A. E. (2005). Randomized controlled trial of a brief intervention for increasing participation in parent management training. *Journal of Consulting and Clinical Psychology, 73*, 872-879.
- Noell, G. H., Witt, J. C., Slider, N. J., Connell, J. E., Gatti, S. L., Williams, K. L., Koenig, J. L., & Resetar, J. L. (2005). Treatment implementation following behavioral consultation in schools: A comparison of three follow-up strategies. *School Psychology Review, 34*, 87-106.
- Obel, C., Heiervang, E., Rodriguez, A., Heyerdahl, S., Smedje, H., Sourander, A., Guethmundsson, O.O., Clench-Aas, J., Christensen, E., Heian, F., Mathiesen, K.S., Magnusson, P., Njarethvik, U., Koskelainen, M., Ronning, J.A., Stormark, K.M., & Olsen, J. (2004). The Strengths and Difficulties Questionnaire in the Nordic countries. *European Journal of Child and Adolescent Psychiatry, 13*, S32-S39.
- Ogden, C. L., Moffit, T. E., Broadbent, J. M., Dickson, N., Hancox, R. J., Harrington, H., Poulton, R., Sears, M. R., Thomson, W. M., & Caspi, A. (2008). Female and male antisocial trajectories: From childhood origins to adult outcomes. *Development and Psychopathology, 20*, 673-716.
- Ogden, T., Forgatch, M S., Askeland, E., Patterson, G. R., & Bullok, B. M. (2005). Implementation of parent management training at the national level: The case of Norway. *Journal of Social Work Practice, 19*, 317-329.
- Ogden, T., & Amlund Hagen, K. (2008). Treatment effectiveness of parent management training in Norway: A randomized controlled trial of children with conduct problems. *Journal of Consulting and Clinical Psychology, 76*, 607-621.
- Oosterlaan, J., Logan, G. D., & Sergeant, J. A. (1998). Response inhibition in AD/HD, CD, comorbid AD/HD+CD, anxious and normal children: A meta-analysis of studies with the stop task. *Journal of Child Psychology and Psychiatry, 39*, 411-426.
- Oosterlaan, J., Scheres, A., & Sergeant, J. A. (2005). Which executive function deficits are associated with AD/HD, ODD/CD and comorbid AD/HD+ODD/CD? *Journal of Abnormal Child Psychology, 31*, 69-85.
- Pallant, J. F., & Tennant, A. (2007). An introduction to the Rasch measurement model: An example using the Hospital Anxiety and Depression Scale (HADS). *British Journal of Clinical Psychology, 46*, 1-18.

- Pardini, D., Obradovic, J., & Loeber, R. (2006). Interpersonal Callousness, Hyperactivity/Impulsivity, Inattention, and Conduct Problems as Precursors to Delinquency Persistence in Boys: A Comparison of Three Grade-Based Cohorts. *Journal of Clinical Child and Adolescent Psychology, 35*, 46-59.
- Parpal, M. & Maccoby, E. E. (1985). Maternal responsiveness and subsequent child compliance. *Child Development, 56*, 1326-1334.
- Patterson, G. R. (1976). *Living with children: New methods for parents and teachers* (revised). Champaign, IL: Research Press.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Patterson, G. R., Capaldi, D., & Bank, L. (1991). An early starter model for predicting delinquency. In D. Pepler & K. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 139-168). Hillsdale, NJ: Erlbaum.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys*. Eugene, OR: Castalia.
- Patterson, G. R., Forgatch, M. S., Yoerger, K. L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development and Psychopathology, 10*, 531-547.
- Patterson, G. R., DeGarmo, D. S., & Knutson, N. (2000). Hyperactive and antisocial behaviors: Comorbid or two points in the same process? *Development and Psychopathology, 12*, 91-106.
- Patterson, G. R., DeGarmo, D. S., & Forgatch, M. S. (2004). Systematic changes in families following prevention trials. *Journal of Abnormal Psychology, 32*, 621-633.
- Patterson, G. R. (2005). The Next Generation of PMTO Models. *The Behavior Therapist, 28*, 25-32.
- Pedersen, S., Vitaro, F., Barker, E. D., & Borge, A. I. H. (2007). The timing of middle-childhood peer rejection and friendship: linking early behavior to early-adolescent adjustment. *Child Development, 78*, 1037-1051.
- Pelham, W. E., & Fabiano, G. A. (2008). Evidence-based psychosocial treatments for Attention-Deficit-Hyperactivity Disorder. *Journal of Clinical Child & Adolescent Psychology, 37*, 184-214.
- Pennington, B. F., & Ozonoff, S. (1996). Executive functions and developmental psychopathology. *Journal of Child Psychology and Psychiatry, 37*, 51-87.
- Pennington, B. F. (2005). Toward a New Neuropsychological Model of Attention-Deficit/Hyperactivity Disorder: Subtypes and Multiple Deficits. *Biological Psychiatry, 57*, 1221-1223.
- Petras, H., Schaeffer, C., Ialongo, S., Muth'en, B., Lambert, S., Poduska, J., Kellam, S., 2004. When the course of aggressive behavior in childhood does not predict antisocial outcomes in adolescence and adulthood: an examination of potential explanatory variables. *Developmental Psychopathology, 16*, 919-941.
- Pettit, G. S., Bates, J. E., & Dodge, K. A. (1997). Supportive parenting, ecological context, and children's adjustment: A seven-year longitudinal study. *Child Development, 68*, 908-923.
- Pratt, M. W., Green, D., MacVicar, J., & Bountrogianni, M. (1992). The mathematical parent: parental scaffolding, parenting style, and learning outcomes in long-division mathematics homework. *Journal of applied developmental psychology, 13*, 17-34.
- Project CHARLIE manual* (1987). Edina, Minnesota: Storefront/Youth Action.
- Raaijmakers, M. A. J., Smidts, D. P., Sergeant, J. A., Maassen, G. H., Posthumus, J. A., van Engeland, H., & Matthys, W. (2008). Executive Functions in Preschool Children with Aggressive Behavior: Impairments in Inhibitory Control. *Journal of Abnormal Child Psychology, 36*, 1097-1107.

- Raine, A., Moffitt, T. E., Caspi, A., Loeber, R., Stouthamer-Loeber, M., & Lynam, D. (2005). Neurocognitive impairments in boys on the life-course persistent antisocial path. *Journal of Abnormal Psychology, 114*, 38-49.
- Raine, A. (2008). From Genes to Brain to Antisocial Behavior. *Current Directions in Psychological Science, 17*, 323-328.
- Reid, J. B., Patterson, G. R., & Snyder, J. J. (Eds.). (2002). *Antisocial behavior in children and adolescents: A developmental analysis and the Oregon Model for Intervention*. Washington, DC: American Psychological Association.
- Reid, M. J., Webster-Stratton, C., & Hammond, M. (2007). Enhancing a classroom social competence and problem-solving curriculum by offering parent training to families of moderate- to high-risk elementary school children. *Journal of Clinical Child and Adolescent Psychology, 36*, 605-620.
- Rescorla et al. (2007). Behavioral and emotional problems reported by parents of children ages 6 to 16 in 31 societies. *Journal of Emotional and Behavioral Disorders, 15*, 130-142.
- Reyno, S. M., & McGrath, P. J. (2006). Predictors of parent training efficacy for child externalizing behavior problems - a meta-analytic review. *Journal of Child Psychology and Psychiatry, 47*, 99-111.
- Rhee, S. H., and Waldman, I. D. (2002). Genetic and environmental influences on antisocial behavior: A meta-analysis of twin and adoption studies. *Psychological Bulletin, 128*, 490-529.
- Riggins-Caspers, K. M., Cadoret, R. J., Knutson, J. F., & Langbehn, D. (2003). Biology- environment interaction and evocative biology- environment correlation: Contributions of harsh discipline and parental psychopathology to problem adolescent behaviors. *Behavior Genetics, 33*, 205-220.
- Romeo, R., Byford, S., & Knapp, M. (2005). Annotation: Economic evaluations of child and adolescent mental health interventions: A systematic review. *Journal of Child Psychology and Psychiatry, 46*, 919-930.
- Rudolph, K. D., & Asher, S. R. (2000). Adaptation and maladaptation in the peer system: Developmental processes and outcomes. In A. J. Sameroff, M. Lewis, & Z. Miller (Eds.), *Handbook of developmental psychopathology* (pp. 157-175). New York: Kluwer.
- Rutter, M., & Maughan, B. (2002). School effectiveness findings 1979-2002. *Journal of School Psychology, 40*, 451-475.
- Rutter, M., & Silberg, J. (2002). Gene-environment interplay in relation to emotional and behavioral disturbance. *Annual Review of Psychology, 53*, 463-490.
- Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-positive parenting program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68*, 624-640.
- Sanders, M., & McFarland, M. (2000). Treatment of depressed mothers with disruptive children: A controlled evaluation of cognitive behavioral family intervention. *Behavior Therapy, 31*, 89-112.
- Sanders, M. R., & Turner, K. M. T. (2005). Reflections on the challenges of effective dissemination of behavioural family intervention: Our experience with the Triple P - Positive Parenting Program. *Child and Adolescent Mental Health, 10*, 158-169.
- Sanders, M. R., Bor, W., & Morawska, A. (2006). Maintenance of treatment gains: A comparison of enhanced, standard, and self-directed Triple P-Positive Parenting Program. *Journal of Abnormal Child Psychology, 35*, 983-998.

- Sasso, G. M., Conroy, M. A., Peck-Stichter, J., & Fox, J. J. (2001). Slowing down the bandwagon: The misapplication of functional assessment for students with emotional or behavioral disorders. *Behavioral Disorders, 26*, 282-296.
- Satterfield, J. H., Faller, K. J., Crinella, F. M., Schell, A. M., Swanson, J. M., & Homer, L. D. (2007). A 30-Year Prospective Follow-up Study of Hyperactive Boys With Conduct Problems: Adult Criminality. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 601-610.
- SBU (2009). *Computer guided training for children with ADHD [Datorstödd träning för barn med ADHD]*. Stockholm: Statens beredning för medicinsk utvärdering (SBU); 2009. SBU Alert-rapport nr 2009-05. ISSN 1652-7151.
- Schrepferman, L., & Snyder, J. (2002). Coercion: The link between treatment mechanisms in behavioral parent training and risk reduction in child antisocial behavior. *Behavior Therapy, 33*, 339-359.
- Scott, T. M., Bucalos, A., Liaupsin C. J., Nelson, C. M., Jolivet, K., & Deshea, L. (2004). Using functional behavior assessment in general education settings: Making a case for effectiveness and efficiency. *Behavioral Disorders, 29*, 300-323.
- Scott, T. M., Anderson, C. M., & Spaulding, S. A. (2008). Strategies for developing and carrying out functional assessment and behavior intervention planning. *Preventing School Failure, 52*, 39-49.
- Scourfield, J., Van den Bree, M., Martin, N., and McGuffin, P. (2004). Conduct problems in children and adolescents: A twin study. *Archives of General Psychiatry, 61*, 489-496.
- Séguin, J. R., Nagin, D., Assaad, J., & Tremblay, R. E. (2004). Cognitive-neuropsychological function in chronic physical aggression and hyperactivity. *Journal of Abnormal Psychology, 113*, 603-613.
- Serbin, L., and Karp, J. (2003). Intergenerational studies of parenting and the transfer of risk from parent to child. *Current Directions in Psychological Science, 12*, 138-142.
- Shaw, D. S. & Winslow, E. B. (1997). Precursors and correlates of antisocial behavior from infancy to preschool. In D. M. Stoff, J. Breiling, & J. Maser (Eds.), *Handbook of antisocial behavior* (pp. 148-158). New York: Wiley.
- Silver, R. B., Measelle, J. R., Armstrong, J. M., Essex, M. J. (2005). Trajectories of classroom externalizing behavior: Contributions of child characteristics, family characteristics, and the teacher-child relationship during the school transition. *Journal of School Psychology, 43*, 39-60.
- Silverman, W. K., Pina, A. A., & Wiswesvaran, C. (2008). Evidence-Based Psychosocial Treatments for Phobic and Anxiety Disorders in Children and Adolescents. *Journal of Clinical Child & Adolescent Psychology, 37*, 105-130.
- Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 31*, 351-380.
- Snyder, J. J. & Patterson, G. R. (1995). Individual differences in social aggression: A test of a reinforcement model of socialization in the natural environment. *Behavior Therapy, 26*, 371-391.
- Snyder, J. J., Schrepferman, L., & St. Peter, C. (1997). Origins of antisocial behavior: Negative reinforcement and affect dysregulation of behavior as socialization mechanisms in family interaction. *Behavior Modification, 21*, 187-215.

- Snyder, J., Prichard, J., Schrepferman, M., Patrick, M. R., & Stoolmiller, M. (2004). Child impulsiveness-inattention, early peer experiences, and the development of early onset conduct problems. *Journal of Abnormal Child Psychology*, *32*, 579-594.
- Snyder, J., Cramer, A., Afrank, J., & Patterson, G. R. (2005). The Contributions of Ineffective Discipline and Parental Hostile Attributions of Child Misbehavior to the Development of Conduct Problems at Home and School. *Developmental Psychology*, *41*, 30-4.
- Socialstyrelsen (2009). *Barn- och ungdomspsykiatri - vård på olika villkor. Rapport från nationell tillsyn*. Stockholm: Rapport.
- Sonuga-Barke E. J. S. (2005). Causal models of attention-deficit/hyperactivity disorder: from common simple deficits to multiple developmental pathways. *Biological Psychiatry*, *57*, 1231-1238.
- Sorlie, M-A., & Ogden, T. (2007). Immediate impact of PALS: A school-wide multi-level programme targeting behaviour problems in elementary school. *Scandinavian Journal of Emotional Research*, *51*, 471-492.
- Stage, S., & Quiroz, D. (1997). A meta-analysis of interventions to decrease disruptive classroom behavior in public education settings. *School Psychology Review*, *26*, 333-368.
- Statistics Sweden (2006). *Children and their families 2006*.
- Statistics Sweden (2008a). Description of the population in Sweden 2008.
- Statistics Sweden (2008b). Educational attainment of the population 2008.
- Stefanatos, G. A., & Baron, I. S. (2007). Attention-Deficit/Hyperactivity Disorder: A Neuropsychological Perspective Towards DSM-V. *Neuropsychological Review*, *17*, 5-38.
- Stoolmiller, M. (2001). Synergistic interaction of child manageability problems and parent-discipline tactics in predicting future growth in externalizing behavior for boys. *Developmental Psychology*, *37*, 814-825.
- Strand, P. S. (2000). Responsive parenting and child socialization: Integrating two contexts of family life. *Journal of Child and Family Studies*, *9*, 269-281.
- Sugai, G., Horner, R. H., Dunlap, G., Hieneman, M., Lewis, T. J., Nelson, C. M., Scott, T., Liaupsin, C., Sailor, W., Turnbull, A. P., Turnbull, H. R., Wickham, D., Wilcox, B., & Ruef, M. (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive behavior Interventions*, *2*, 131-143.
- Sundell, K., & Kraft, Y. (2002). *Femteklassares kunskap, attityder och erfarenhet av tobak, alkohol och andra droger*. [Fourth-graders knowledge, attitude and experience of tobacco, alcohol and other substances]. FoU-rapport 2002:1. Unit for Research and Development, The City of Stockholm's executive Office.
- Sweet, M. A., & Appelbaum, M. I. (2004). Is Home Visiting an Effective Strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development*, *75*, 1435 - 1456.
- Szapocznik, J., Perez-Vidal, A., Brickman, A., Foote, F. H., Santisteban, D., Hervis, O., et al. (1988). Engaging adolescent drug abusers and their families in treatment: A strategic structural systems approach. *Journal of Consulting and Clinical Psychology*, *56*, 552-557.
- Tein, J-Y., Sandler, I. N., MacKinnon, D. P., & Wolchik, S. A. (2004). How did it work? Who did it work for? Mediation, moderation, and mediation of moderated preventive intervention for children of divorce. *Journal of Consulting and Clinical Psychology*, *72*, 617-624.
- Thorell, L. B. (2009). The Community Parent Education Program (COPE): Treatment effects in a clinical and a community-based sample. *Clinical Child Psychology and Psychiatry*, *14*, 373-387.

- Tolan, P. H., & Gorman-Smith, D. (1997). Treatment of juvenile delinquency: Between punishment and therapy. In D. Stoff, J. Brieling, & J.D. Maser (Eds.), *Handbook of antisocial behavior* (pp. 405-415). New York: John Wiley.
- Tolan, P. H., & Dodge, K. A. (2005). Children's mental health as a primary care and concern: A system for comprehensive support and service. *American Psychologist, 60*, 601-614.
- Trentacosta, C. J., Hyde, L. W., Shaw, D. S., & Cheong, J-W. (2009). Adolescent Dispositions for Antisocial Behavior in Context: The Roles of Neighborhood Dangerousness and Parental Knowledge. *Journal of Abnormal Psychology, 118*, 564-575.
- Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development, 77*, 72-88.
- Turner, K. M. T., & Sanders, M. R. (2006). Help when it's needed first: A controlled evaluation of brief, preventive behavioral family intervention in a primary care setting. *Behavior Therapy, 37*, 131-142.
- Wahler, R. G., Castellani, M. E., Smith, G. D., & Keathley, E. A. (1996). Solitary behavior and friendly social activity: Differential gateways for conduct problem versus normal child-mother dyads. *Journal of Clinical Child Psychology, 25*, 238-245.
- Van Acker, R., Grant, S. H., & Henry, D. (1996). Teacher and student behavior as a function of risk for aggression. *Education and Treatment of Children, 19*, 316-334.
- Van Acker, R., Boreson, L., Gable, R. A., & Potterton, T. (2005). Are we on the right course? Lessons learned about current FBA/BIP practices in schools. *Journal of Behavioral Education, 14*, 35-56.
- Van den Hoofdakker, B. J., Van der Veen-Mulders, L., Sytema, S., Emmelkamp, P. M., & Nauta, M. H. (2007). Effectiveness of behavioral parent training for children with ADHD in routine clinical practice: A randomized controlled study. *Journal of American Academic Child & Adolescent Psychiatry, 46*, 1263-1271.
- Van den Oord, E. J., & Rispens, J. (1999). Differences between school classes in preschoolers' psychosocial adjustment: Evidence for the importance of children's interpersonal relations. *Journal of Child Psychology and Psychiatry, 40*, 417-430.
- Van Leeuwen, K. G., Mervielde, I., Braet, C., & Bosmans, G. (2004). Child personality and parental behaviors as moderators of problem behavior: Variable- and person-centered approaches. *Developmental Psychology, 40*, 1028-1046.
- Vaughn, B. E., Bost, K. K., van IJzendoorn, M. H. (2008). Attachment and temperament: Additive and interactive influences on behavior, affect, and cognition during infancy and childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, Research and Clinical Applications*. New York: Guilford Press.
- Webster-Stratton, C. (1994). Advancing videotape parent training: A comparison study. *Journal of Consulting and Clinical Psychology, 62*, 583-593.
- Webster-Stratton, C. (1996). Early intervention with videotape modeling: Programs for families of children with oppositional defiant disorder or conduct disorder. In E. S. Hibbs & P. S. Jensen (Eds.), *Psychosocial treatments for child and adolescent disorders: Empirically-based strategies for clinical practice* (pp. 435-474). Washington, DC: American Psychological Association.
- 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., & Hammond, M. (1998). Conduct problems and level of social competence in Head Start children: Prevalence, pervasiveness and associated risk factors. *Clinical Child and Family Psychology Review*, *1*, 101-124.
- Webster-Stratton, C., Reid, M. J., & Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology*, *30*, 283-302.
- Webster-Stratton, C., & Reid, M. J. (2003). The Incredible Years Parents, Teachers, and Children Training Series: A multifaceted treatment approach for young children with conduct problems. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 224-240). New York: Guilford Press.
- Werba, B. E., Eyberg, S. M., Boggs, S. R., & Algina, J. (2006). Predicting Outcome in Parent-Child Interaction Therapy. *Behavior Modification*, *30* (5), 618-646.
- Werthamer-Larsson, L., Kellam, S. G., & Wheeler, L. (1991). Effect of classroom environment of shy behaviour, aggressive behaviour and concentration problems. *American Journal of Community Psychology*, *19*, 585- 602.
- Viding, E., Blair, J. R., Moffitt, T. E., and Plomin, R. (2005). Psychopathic syndrome indexes strong genetic risk for antisocial behavior in 7•year•olds. *Journal of Child Psychology and Psychiatry*, *46*, 592-597.
- Viding, E., Jones, A. P., Frick, P. J., Moffit, T. E., & Plomin, R. (2008), Heritability of antisocial behaviour at 9: do callous-unemotional traits matter? *Developmental Science*, *11*, 17-22.
- Willcutt, E. G., Doyle, A. E., Nigg, J. T., Faraone, S. V., & Pennington, B. F. (2005). Validity of the executive function theory of attention-deficit/hyperactivity disorder: A meta-analytic review. *Society of Biological Psychiatry*, *57*, 1336-1346.
- Wilson, S. J., & Lipsey, M. W. (2007). School-based interventions for aggressive and disruptive behavior. Update of a meta-analysis. *American Journal of Preventive Medicine*, *33*, 130-143.
- Young, S. E., Friedman, N. P., Miyake, A., Willcutt, E. G., Corley, R. P., Haberstick, B. C., & Hewitt, J. K. (2009). Behavioral Disinhibition: Liability for Externalizing Spectrum Disorders and Its Genetic and Environmental Relation to Response Inhibition Across Adolescence. *Journal of Abnormal Psychology*, *118*, 117-130.



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