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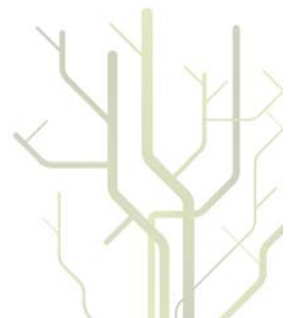
Mental health promotion in young children

**Parents as a key to the identification and reduction of risk for
development of disruptive behavior problems**



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1. Summary

The main aim of this dissertation was threefold. First, to establish norms for a psychometric inventory used to assess behavior problems. The project presents the first Norwegian standardization of an assessment tool specifically designed to measure childhood conduct problems. Norwegian norms for the Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980) based on data obtained from a random population sample ($N = 4063$) of children in the age range of four to twelve years are presented. The sample was drawn from rural and urban areas within three Norwegian town districts. Clinical and research advantages of having a properly standardized assessment tool for this specific subclass of childhood psychiatric problems in Norway are discussed.

The second aim of this dissertation was to evaluate the effects of a short PT intervention to test whether a lower “dosage” of PT can be used to reduce risk factors related to development of childhood behavior problems. Data were obtained from parents in a RCT on PT for children aged 2 to 8 years ($N = 186$) at pre, post and one year follow up. The results showed significant differences in changes in the two groups, regarding reductions in harsh parenting and child behavior problems, strengthening positive parenting and parent’s sense of competence. The effects regarding parenting and parents’ perception of their satisfaction and efficacy all lasted through one-year follow up. These findings suggests that a shortened version of a well-structured parenting intervention, the Incredible Years program, implemented in primary care at community level, seems to be a sound way to reduce harsh parenting, and to strengthen positive parenting and parents’ sense of competence, in an effort to reduce important risk factors related to the development of early childhood behavior problems.

The third aim of this dissertation was to explore characteristics of parents who signed up for parenting classes as well as their own reasons for participation. A substantial amount of research has revealed clear socio-economic differences in parental help-seeking behavior in a way where parents with higher socio-economic status more often seek help.

However, researchers have also suggested that giving parent training to *all* parents in a nonstigmatizing fashion would enhance the effectiveness of such programs. Data were obtained from parents in a study on parent training for children aged 2 to 8 years ($N = 189$), and a follow up survey on these parents ($N = 118$). Results showed that parents in our study had high education, were married, and employed in full time jobs. The mean age of the children was under 4 years, and their Intensity and Problem scores on ECBI were higher than the Norwegian mean scores for their age group. Aspects of parent stress, parental concern, and parenting practices predicted the ECBI Intensity scores to a rather large extent. It seems to be the case, that parents with high SES risk factors may not come forward to participate in face-to-face self-recruitment mental health promotion interventions, even if the parenting intervention is offered at a time suitable for parents, is free of charge, and is offered in a nonstigmatizing way.

2. Abbreviations used in this thesis

CD:	Conduct disorder
DBP:	Disruptive behavior problems
ODD:	Oppositional defiant disorder
IY:	Incredible Years
S-IY:	Short version of the Incredible years program
PT:	Parent training
ECBI:	Eyberg Child Behavior Inventory
PSOC:	Parenting Sense of Competence
PSI-SF:	Parenting Stress Index-Short Form
PSI Total:	Parenting Stress Index Total
PPI:	Parenting Practices Interview.
SES:	Socio-economical status

3. List of papers

1. **Reedtz, C.**, Bertelsen, B., Lurie, J. I. M., Handegård, B. H., Clifford, G., & Mørch, W. T. (2008). Eyberg Child Behavior Inventory (ECBI): Norwegian norms to identify conduct problems in children. *Scandinavian Journal of Psychology*, *49*, 31-38.

2. **Reedtz, C.**, Handegård, B. H., & Mørch, W-T. (In press). Promoting positive parenting practices in primary care: Outcomes in a randomized controlled risk reduction trial. *Scandinavian Journal of Psychology*.

3. **Reedtz, C.**, Martinussen, M., Jørgensen, F. W., Handegård, B. H., & Mørch, W. T. (2010). Parents Seeking Help in Child Rearing: Who are they and how do their children behave? *Submitted for publication*.

4. Introduction

Socio-emotional and behavioral problems are common in young children (Campbell, 1995; Costello, Egger, & Angold, 2005). Recent studies of the prevalence of behavioral disorders in the United States suggest a lifetime prevalence at about 10% (Foster, Olchowski, & Webster-Stratton, 2007), and estimates from a recent British survey indicate that 15% of five-year-olds has oppositional defiant behavior (Hutchings & Lane, 2005). Parenting behaviors influence the development of socio-emotional and behavioral problems in children (Hutchings & Lane, 2005), and the context of dysfunctional family interactions, such as harsh and inconsistent parenting styles, are significant risk factors for child maltreatment and a variety of other undesirable outcomes related to children's socio-emotional and behavioral development (Bauer & Webster-Stratton, 2006; Foster, Prinz, Sanders, & Shapiro, 2008; Gardner, Sonuga-Barke, & Sayal, 1999; Granic & Patterson, 2006). The quality of parenting a child receives is considered to be the most potent but also the most modifiable risk factor contributing to the development of behavioral and emotional problems in children (Morawska, Winter, & Sanders, 2009).

However, in the efforts of preventing and treating behavioral problems in the youngest children, researchers, clinicians and care providers in Scandinavia have experienced that it has been difficult to reach children under six years of age. Statistics from Norwegian outpatient clinics in child and adolescent mental health shows that less than 14% of the patients in these clinics are younger than six years of age (Andersson, Ose, & Sitter, 2005). Also internationally, the rates of intervention services for young children with behavioral health needs remain low (Ellingson, Briggs-Gowan, Carter, & Horwitz, 2004; Sayal, 2006; Weitzman & Leventhal, 2006) despite the existence of several evidence-based interventions introduced to the practice field during the last decade (Brestan & Eyberg, 1998; Fossum, Handegård, Martinussen, & Mørch, 2008; Jane-Llopis, Barry, Hosman, & Patel, 2005; Nock, 2003). In addition, most parent training programs are delivered as treatment of serious conduct problems or as preventive interventions for high-risk children with some symptoms of behavioral disorders. Universal prevention

approaches searching to improve parental competence among normal children at the community level are not common.

Failing to prevent development of behavioral problems in young children has serious costs, since early onset tends to predict more severe, long-lasting problems and a poorer outcome for the child (Loeber, Burke, Lahey, Winters, & Zera, 2000). The main goal of making this dissertation was to standardize and develop norms for an assessment tool used in screening children for behavior problems as well as to evaluate the possible health promotive effects of a shortened evidence based parenting program in a normal population.

4.1 Development of disruptive behavior problems

The development of DBP is a complex process where individual factors and factors related to the child's proximal and distal environment are interacting. There is broad agreement that the development of such behaviors are best understood within a transactional model in which genetic, psychological and social factors interact (Sameroff, 2006). The intensity of DBP and its outcome will vary as a function of multiple factors in the child and the family environment (Campbell, 1995).

The study of the development of DBP encompasses many theoretical perspectives (i.e., behavioural, cognitive, social), and also different disciplines (i.e., psychology, sociology, epidemiology) (Granic & Patterson, 2006). The causal mechanisms that underlies the development and maintenance of such behaviors are also varied; for example temperament, parenting, peer-relationships, and psychophysiology. However, parenting discipline practices, and specifically poor parent-child interactions, have long been recognized as one of the central causal factors implicated in the development and maintenance of DBP (Lewis, Granic & Lamm, 2006; Kazdin, 1997). This understanding of the phenomenon was founded on the work of Gerald Patterson and his colleagues and their extensive research to understand the development of aggressive and antisocial behaviors (Kazdin, 2005). In the 1960s these scientists at Oregon Social Learning Center

started collecting observations of child-parent interactions and patterns of specific parenting practices in natural settings. This work led to the development of what is called coercion theory. Granic and Patterson (2006) describe the theory this way:

“ In its most basic form, coercion theory is a model of the behavioural contingencies that explain how parents and children mutually “train” each other to behave in ways that increase the probability that children will develop aggressive behaviour problems and that parents’ control over these aversive behaviour problems will decrease. These interchanges are characterized by parental demands for compliance, the child’s refusal to comply and his or hers escalating complaints, and finally the parent’s capitulation. Coercive interactions are the fundamental behavioral mechanisms by which aggression emerges and stabilizes over development.” (Granic & Patterson, 2006).

Following this line of research and theorizing, numerous studies through the past fifty years, have showed that parenting practices play a significant role in the development and improvement of DBP (Kazdin, 1997). That is not to say that negative parenting is the cause itself, the only cause, or a necessary cause in the development of such behaviors. Furthermore, it is not to say that negative parenting is the only influence that can be affected to change DBP. However, some of the most important advances in the field of treating and preventing DBP come from the field of social learning approaches to parenting processes (Granic & Patterson, 2006; Hutchings & Lane, 2005). There seems to be agreement that the impact of coercion theory is equally evident in both the understanding of the development of DBP and in the evaluation of treatment and prevention programs.

Based on the promising outcomes produced in parent training interventions, researchers in this field are now developing new models which aim at integrating moment-to-moment interactions repeated over many occasions, which are at the root of coercive theory, with psychobiological factors in infancy and emotional and cognitive processes in parent-child

and peer relationships. For example, researchers are searching for brain mechanisms of emotion regulation in children and relating them to research on DBP (Lewis, Granic & Lamm, 2006). Patterson and his colleagues have proposed a comprehensive model of antisocial development where important risk factors, their relations to each other and additional mechanisms of interest are synthesized into a broad scheme (Granic & Patterson, 2006).

4.1.1 Risk and resiliency

A risk factor is defined as a factor which raises the probability for negative developmental outcomes. However, the concept says little about the mechanism behind the development of psychopathology, and is therefore probabilistic in its nature. Most risk factors extend to a wide range of outcomes, and are not specific to single diagnostic categories (Shannon, Beauchaine, Brenner, Neuhaus, & Gatzke-Kopp, 2007). For example, in addition to increasing the risk for mood disorders among offspring, maternal depression also increases risk for conduct problems, delinquency, and antisocial behavior.

Protective factors or resiliency are factors which reduces the likelihood for negative developmental outcomes in a life situation with adverse risk exposure. This means that variables may be considered protective factors if they interact with an early risk factor and mitigate the link between the risk factor and a negative outcome (Vitaro, Brendgen, Larose, & Tremblay, 2005). There is broad agreement that risk and protective factors can be categorized in three broad categories; individual, parental and family, and contextual (Kvello, 2008).

4.1.2 Individual risk and protective factors

Powerful risk factors for disruptive behaviors can be traced to birth and before (Reid, Eddy, Fetrow, & Stoolmiller, 1999). Several prenatal risk factors, such as mothers' adjustment, mothers' physical and mental health, substance abuse and genetic risk factors, put offspring at risk for low birth weight, irritable temperament and cognitive

deficits in infancy and later childhood. These characteristics of a child are strongly associated with the occurrence of DBP in childhood.

A child's temperament has been emphasized as an important individual risk factor for psychiatric disorders later in childhood, also for DBP (Egger & Angold, 2006). Temperament is often defined as individual differences in reactivity and regulation that are constitutional, present early in life, and relatively stable (Thomas & Chess, 1977), but also plastic to maturation and experience (Nigg, 2006). Temperament theory and research the last decade has mapped distinct pathways between temperament and child psychopathology (Nigg, 2006), and relevant to this thesis, broad temperament dimensions have been shown to be concurrently associated with problematic behaviors in preschoolers (Egger & Angold, 2006). Temperamental traits related to aspects of attention, impulsiveness, and negative emotionality (frustration, intolerance, and being "hot-tempered") are of special interest with regard to the development of disruptive behavior problems. Nigg (2006) postulates that antisocial behaviors follows a developmental path where the child is characterized by what is called strong approach responding. In consistence with the transactional perspective of development of psychopathology, a difficult temperament provides vulnerability to psychopathology. For example, difficult temperament may increase risk for DBP under high risk conditions but have little effect under low risk conditions. On the other hand, easy temperament may protect against disruptive behavior problems under high risk conditions (resiliency effect) but have little effect under low risk conditions (Nigg, 2006). In the case of DBP; the process of developing these problems may start with early characteristics of the child (i.e., neurobiological mechanisms of emotion regulation, temperament) (Lewis, Granic, Lamm, 2006) leading to differential responses from caregivers, which in turn contributes to social interaction patterns that lead to disruptive behavior problems (Snyder, Reid, & Patterson, 2003). Low IQ, academic difficulties, and poor school achievement are also important individual risk factors.

In addition to easy temperament, individual protective factors are related to normal and high IQ, prosocial behavior and good school achievements. Secure attachment between

the child and its caregiver is often also considered an individual protective factor, even though attachment describes the relation between the child and its caregiver. For adopted children and children in foster care, the quality of their attachment may put them at risk or serve as a protective factor.

4.1.3 Parenting and family risk and protective factors

It is widely accepted that multiple risk factors contribute to the development and maintenance of DBP in children (Campbell, Shaw, & Gilliom, 2000). Externalizing behavior problems in children have been consistently linked to adverse family conditions such as low income, poor maternal education, early childbearing, marital conflict and coercive and punitive parenting styles (Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). During infancy and early childhood, the most important contributors to the development of DBP are related to the interaction between the child and its parents in home settings (Reid, Eddy, Fetrow, & Stoolmiller, 1999; Keller, Spieker, & Gilchrist, 2005). Parent characteristics such as substance abuse, stress, social isolation and depression after the child is born; represent a set of risk factors that may interact with those represented by the infant (i.e temperament) to produce social interactional difficulties between parent and child (Reid, Eddy, Fetrow, & Stoolmiller, 1999). Adverse family conditions and high risk parent characteristics may also represent risk factors for the child in the absence of individual risk factors in the child. For example, maternal depression has been found to negatively affect children's social, behavioral, emotional and cognitive development (Goodman & Gotlieb, 1999).

Also, as described previously, parenting behaviors influence the development of DBP (Hutchings & Lane, 2005), and the context of dysfunctional family interaction, such as harsh and inconsistent parenting styles are established as significant risk factors to development of such problems (Bauer & Webster-Stratton, 2006; Gardner, Sonuga-Barke, & Sayal, 1999). At the same time, parenting strategies such as warmth, consequent limit-setting, cognitive stimulation and positive involvement have been

shown to predict later school achievement above and beyond children's characteristics (Vitaro et al., 2005), and to be important protective factors against development of DBP.

The quality of attachment between the child and its caregivers has also been consistently linked to different parenting styles. In the early interaction with its caregivers the child develops generalized expectations on how she or he will be met by others in different situations (Keller, Spieker, & Gilchrist, 2005). Based on these early experiences she or he will form an internal working model of how she or he will be met in interactions with others when she or he signals physical, emotional and social needs. Insecure attachment is not causing a behavioral disorder, but attachment history is suspected to operate as a risk or protective factor influencing behavior in the context of other risks (Keller, Spieker, & Gilchrist, 2005). Insecure attachment has been shown to significantly increase the risk for DBP, and disorganized attachment has predicted persistent DBP in several studies (Greenberg, 1999; Greenberg, Speltz, DeKlyen, & Jones, 2001). Secure attachment has consistently proven to be a protective factor, in high- as well as low risk contexts. The mechanism behind this outcome may be that children with a secure attachment, who view themselves as worthy of care (experience-dependent expectancies), and competent in attaining it, may be more likely to elicit emotional support in their effort to cope with stressful events or chronic exposure to one or several risk factors. Secure attachment is by this process thought to buffer the effects of a negative environment (Keller, Spieker, & Gilchrist, 2005).

4.1.4 Risk and protective factors in the context

Children today are socialized and educated both in their families and at school. This implies that children may be at risk from conditions related to the family as well as day care and school settings. Examples of day care and school settings that represent risk for children with early onset DBP are poor connection between school and family (Webster-Stratton & Taylor, 2001), high pupil-teacher rate, ineffective classroom management skills on the part of the teacher, peer-rejection, academic failure, and deviant peers (Webster-Stratton & Reid, 2003a; Webster-Stratton, Reid, & Hammond, 2004). Contrary

to these factors, a highly autonomous child-centered classroom environment is considered to represent a protective factor, and to foster positive attitudes toward school by kindergarten (Vitaro et al., 2005). A child-centered teacher management style is thought to bond disruptive children to school and to compensate for or moderate disruptive children's risk of poor school achievement and later school dropouts (Vitaro et al., 2005).

Low socioeconomic status, poverty and living in a neighborhood of poverty and danger, exposure to violence, victimization and deviant peers are risk factors for early onset DBP at the societal level (Farrington, 2005).

4.2 Prevalence of disruptive behavior problems

The prevalence of behavioral problems among children from 4-12 years in Norway is about 2-3% (Heiervang et al., 2007; Reedtz et al., 2008), and approximately the same in Sweden (Axberg, Hansson, & Broberg, 2008). APA estimates the prevalence of ODD to between 2 to 16%, and the prevalence of CD between 6% and 16% for boys, and between 2% and 9% in girls (American Psychiatric Association, 1994). An American study reveals that 7% to 24 % of 2- to 3-years-old children have social-emotional or behavior problems (Briggs-Gowan, Carter, Skuban, & Horwitz, 2001).

4.3 Assessment of behavior problems

More than 30 years ago, Robinson, Eyberg and Ross (1980) criticized the field of assessment in child and adolescent psychiatry for being far too eager to use assessment tools without first obtaining standardized norms for each instrument. Unfortunately, this critique has been valid throughout the nineteen nineties (Bilenberg, 1999), and the beginning of the 20th century as well. Advances in child behavioral assessment has been seriously hampered by a failure to develop well standardized and widely used measures of child and family characteristics (Mash & Terdal, 1997). Young children most often depend on their parents for identification of behavioral problems, and for seeking help for such problems. In the Scandinavian countries universal public health approaches have

been widely used to establish contact with all children and their families, and to be able to prevent difficulties in the children's development. Even though this is a very strong pathway to reach *all* children, there is much evidence that child behavior problems amenable to early intervention are often unidentified by the public health care system (Glascoe, 2000; Sayal, 2006; Weitzman & Leventhal, 2006). There is an international call for improved practices regarding screening and referral for children's psychosocial problems and mental illness (Hacker, Myagmarjav, Harris, Suglia, Weidner, & Link, 2006). There are several ways of gathering parental information about a child's emotional and behavioral wellbeing, and a combination of good screening tools and questions about parental concern are often found to elicit very sensitive and specific information which predicts true psychosocial problems and psychiatric disorders (Briggs-Gowan & Carter, 2008; Ellingson et al., 2004; Glascoe & Dworkin, 1995; Hacker et al., 2006). At the time this study started there were no properly standardized assessment instruments specifically aimed at identifying children with conduct problems.

4.4 Prevention of disruptive behavior problems

It is evident that early-onset DBP in childhood is a major risk factor for the development of academic, social, and psychiatric problems (Ferguson, 1998; Webster-Stratton, 1998), such as underachievement at school, poor social skills, poor problem solving, delinquency, violence, and substance abuse later in life (Briggs-Gowan & Carter, 2008; Côté et al., 2006; Foster & Jones, 2005; Patterson, Degarmo, & Knutson, 2000). The prognoses for those who display DBP in their preschool years are worse than for those presenting symptoms later (Moffitt, 1993; Scott, Spender, Dooland, Jacobs, & Aspland, 2001), and evidence suggests early intervention (prior to age 8) may be beneficial and can hinder the escalation of childhood DBP (Bauer & Webster-Stratton, 2006).

There is an international call for mental health promotion and mental disorder prevention. Mental health, also for young children, has come onto the political agenda, and there is now a momentum for new developments in the mental health field regarding policy, research and practice (Barry & Jenkins, 2007). It has been acknowledged that early onset disruptive

behavior problems have serious costs for both individuals and families, as well as the society as a whole. A number of international organizations, such as the WHO and EU, are now stimulating their member countries to collaborative action in the field of promoting mental health and preventing mental disorders. Supporting parenting and the early years of life is posed as the first of ten action areas in the European policy (Janè-Llopis & Anderson, 2005), and the government of Norway have also had a strong focus on prevention of DBP throughout the last decade.

There has been an ongoing debate on what is the distinction between prevention, early intervention and treatment (Offord, 2000). The most widely used prevention framework in the mental health area is the one proposed by Caplan in 1964, and this classification system divides between primary, secondary and tertiary prevention initiatives (Barry & Jenkins, 2007; Offord, 2000). This framework has been criticized because it makes a clear distinction between the presence (secondary and tertiary prevention) or absence (primary prevention) of a disorder, and thus making treatment equivalent to secondary and tertiary prevention. A more recent prevention framework was posed by Mrazek and Haggerty (1994). Their model was drawn as a half circle depicting the mental health intervention spectrum; including prevention, treatment, and maintenance. The focus in the prevention part of the spectrum is on the target group for the preventive initiative, and as such the model makes a clearer distinction between prevention and treatment. In this framework, universal prevention describes initiatives targeting the general population, selective prevention describes initiatives targeting high-risk groups, and indicated prevention describes initiatives targeting high-risk individuals or groups with some early symptoms of a mental disorder.

During the last decade health promotion has also been introduced as a central concept within the field of mental health (Saxena, Jané-Llopis, & Hosman, 2006; Sturgeon, 2006). In accordance with this, Barry and Jenkins (2007) introduced a new model of the mental health intervention spectrum, and in this model they build on the work of Mrazek and Haggerty. Barry and Jenkins suggest a continuation of the half circle in to a full circle to depict the model. The new part of the model includes strategies for mental health promotion. Health promotion has been defined by the WHO (1986) as “the process of enabling people to

increase control over, and improve, their health". In the Ottawa Charter for Health Promotion (WHO, 1986) principles of health promotion practice are stated, and these are based on an empowering, participative and collaborative process, which aims to increase control over health and its determinants. Current conceptualizations of preventions have moved towards a classifications system including health promotion, and researchers are centering on who is offered the initiative or intervention (Offord, 2000).

Within this new understanding of different preventive activities in different target groups, there are also different conceptual models in the understanding of risk and protective factors for mental health problems (Barry & Jenkins, 2007). The most widely used approach in the field of DBP is The Risk Reduction Model. This model draws on findings from treatment research and adapts intervention techniques from cognitive-behavioral and social learning approaches, among others.

Applied to preventive interventions, The Risk Reduction Model aims at reducing risk factors which may be modified and at strengthening protective factors (Barry & Jenkins, 2007). Current research points to the fact that several risk and protective factors are common to many dysfunctional states. It is therefore of great importance to focus on risk factors common for several negative developmental outcomes and protective factors common for positive developmental outcomes, rather than the specific risk factors related to specific disorders. Prevention and promotion elements are often present within the same programs, involving similar activities and producing different but complementary outcomes (Saxena, Jané-Llopis, & Hosman, 2006).

There is strong evidence that preventive interventions can result in reduction of risk and the strengthening of protective factors related to the first onset of mental health problems. Researchers have proposed that a useful approach for preventive interventions is an approach that focuses at groups of risks and protective factors. The result of different preventive interventions, when applying this conceptual approach, is a reduction of risk factors associated with a specific outcome, rather than a reduction of the outcome itself. In the field of disruptive behavior problems this means that the goal of a preventive strategy would be to

reduce central risk factors for developing DBP, rather than reducing the overall prevalence of DBP. The results of preventive efforts will also differ depending of the population or group the intervention is implemented for. Researchers have proposed that the effects of preventive interventions is likely to be reducing risk factors for those at greatest risk, whereas the effects of the same intervention for those at lower risk may be strengthening protective factors (Sturgeon, 2007). This draws attention to the interweaving effects of promotive and preventive aspects of an intervention.

As stated above, many health promoting and preventive interventions are derived from empirically validated treatments of different psychosocial and behavioral problems among children. Let us now turn to the strongest approaches in treating children with diagnosed behavior problems, such as ODD and CD.

4.5 Treating behavior problems

The most effective treatment programs available are those based on social learning principles (Sanders, Turner, & Markie-Dadds, 2002), and these programs highlight parents' role as children's interactive partners, instructors and providers of social activities and opportunities for their children. The use of parent training to treat and prevent childhood ODD and CD is based on theories of child development that put parents in the role as the child's most important socialization agents. Our understanding of how parents influence the development of disruptive behavior problems owes much to the work of Gerald Patterson and his colleagues (Biglan & Taylor, 2000). There is now overwhelming evidence that inadequate parental monitoring and parenting practices characterized by high levels of harsh and inconsistent discipline predicts the development of antisocial behavior both in childhood and in adolescence (Biglan & Taylor, 2000). As described above, coercion theory has been the most influential approach in understanding the development of behavior problems in childhood. Furthermore, the behaviorally based interventions that Patterson's work led to, have provided strong evidence that these interventions are effective in treating children with high levels of DBP (Hutchings & Lane, 2005).

Several parent training programs have established efficacy in reducing such behavioral problems in children (Kaminski, Valle, Filene, & Boyle, 2008). Typically in parent training interventions, the parents meet with a therapist who teaches them to use specific procedures to alter interactions with their child. Parents are taught to promote pro-social behavior by using positive parenting practices such as attention to pro-social behaviors, praise, parental warmth, token rewards, and mild punishment such as ignoring, loss of privileges and brief time outs from reinforcement. At the same time parents are taught to decrease deviant behaviors by reducing negative parenting practices such as critical and hostile responses, and coercive punishment. Treatment sessions often include active role-playing, practice, feedback, therapist and group members modeling and therapist guidance to develop the skills parents are taught to use at home (Kazdin, 1997). In a meta-analytic review, Kaminsky and colleagues (Kaminski et al., 2008), found that overall, the program components associated with the largest effects are strengthened positive parent-child interactions and emotional communication skills, and requiring parents to practice new skills with their children throughout the parents training.

4.6 Rationale for intervening in families to reduce risk factors related to DBS and promote pro-social behaviors in young children

One program which has achieved status as an exemplary "Blueprints" program by the US Office of Juvenile Justice Delinquency Prevention is The IY program developed by Carolyn-Webster-Stratton (Larsson, Fossum, Clifford, Drugli, Handegård, & Mørch, 2009). The efficacy of this program for 3-8 year old children with ODD and CD has been systematically evaluated in a series of studies. Seven independent replications from USA (Spaccarelli, Cotler, & Penman, 1992), Ireland (Connolly, Sharry, & Fitzpatrick, 2001), Canada (Taylor, Schmidt, Pepler, & Hodgins, 1998), Sweden (Axberg, Hansson, & Broberg, 2007), two in the UK (Gardner, Burton, & Klimes, 2006; Scott et al., 2001), and the last one in Norway (Larsson et al., 2009) have shown PT to reduce ODD and CD in children significantly more than waiting-list control conditions. The improvements obtained in these studies have been

found to be well maintained at 6, 12 months and three years later (Scott, 2005; Webster-Stratton, 1990), five to six years later (Drugli, Larsson, Fossum, & Mørch 2010) and 10-15 years later (Webster-Stratton & Reid, 2003b). Carolyn Webster-Stratton and her colleagues have also conducted prevention studies with children from the Head Start population, and these studies also show preventive effects of the IY program (Webster-Stratton & Hammond, 1998; Webster-Stratton, Reid, & Hammond, 2001). The content of The IY program is based on a relational framework where parents' improve their parenting skills through practice with their child, paralleled by role play and discussion in groups of parents. Parents meets in groups for 12-14 weekly sessions which covers play, praise, rewards, effective limit setting, ignoring and timeouts.

The intervention in study 2 was a shortened version of the original IY program. Only the first half of the program (the first six meetings in the Basic IY program) was offered to the parents. The new program taught parents positive disciplinary strategies (play, praise and rewards) and the original manual was followed for the six first sessions of the Basic IY program. This was done to test whether a lower “dosage” of the program can be used to reduce important risk factors (i.e., harsh parenting practices, low sense of efficacy and low satisfaction in the parenting role) and strengthen central resiliency factors (i.e. positive parenting practices, high sense of efficacy and high satisfaction in the parenting role), related to development of childhood behavior problems. This approach is derived out of the Risk Reduction Model.

4.7 Parents seeking help in child rearing

Throughout the last decade there has been a considerable focus on the issue of how to reach the population in need of interventions to prevent and treat mental health problems. At the same time as health promotion, early detection, prevention and treatment of DBP in preschool children should be of high priority in any efforts to reduce the prevalence of such problems, parents experience barriers in seeking help with such problems in their child (Pavuluri, Luk, & McGee, 1996; Sayal, 2006; Weitzman & Leventhal, 2006). It is a common assumption that those who really need intervention do not come forward. In

addition to this, there is an international call for improved practices regarding screening and referral for children's psychosocial problems and mental illness (Hacker et al., 2006).

To our knowledge there are few studies focusing on parents perceptions of why they seek help by health professionals in primary care. In the third study in this dissertation the main aim was to explore characteristics of parents who signed up for parenting classes as well as their own reasons for participation.

5. Objectives of the thesis

This thesis is divided into three studies, and the overall aims were thus threefold.

- The main aim in study 1 was to develop Norwegian norms for the ECBI; a tool that may be used for screening purposes, for identification of children and families in need of intervention, and a tool for evaluating the effects of treatment and prevention efforts. The ECBI has proven to be a useful measure for identifications of disruptive behavior problems and for evaluating treatment outcome. The ECBI has been translated into several different languages including Chinese, German, Japanese, Russian, Spanish, Swedish, and Norwegian. However, it has not been standardized in Norway, and Norwegian norms have been lacking.
- The aim of study 2 was to evaluate the health promotive effects of a shortened version of a well-validated treatment- and prevention program developed in the US; the IY Basic program. This was done in order to examine whether a lower “dosage” of PT can be used to reduce risk factors related to development of childhood behavior problems.
- The main aims in study 3 were to explore characteristics of parents who signed up for parenting classes as well as their own reasons for participation. Whether and which characteristics of parents can be used to predict ECBI scores in small children was also addressed.

6. Summary of the studies

6.1 Summary of study 1 - Eyberg Child Behavior Inventory (ECBI) - Norwegian norms to identify conduct problems in children

6.1.1 Objectives

The main aim in study 1 was to develop normative data for the ECBI in Norway.

6.1.2 Participants

Approximately 7300 questionnaires were distributed to parents of children age 4-12 attending kindergartens or schools in the sampling area. The sampling area consisted of three towns and four municipalities in mid and northern Norway (Tromsø, Trondheim, Kristiansund, Molde, Averøy, Surnadal, and Sunndal), and both rural and urban areas within the town districts were chosen. A total of 4371 questionnaires were completed by any of the parents (66.8% mothers, 8.8% fathers, 23.7% mother and father together, and 0.6% others) and returned, yielding a total return rate of 60%.

6.1.3 Assessment

The ECBI provides a list of 36 problem behaviors commonly reported by parents of children with conduct problems. The inventory assesses behavior on two dimensions, the frequency of the behavior and its identification as a problem. The frequency ratings range from 1 (never) to 7 (always), and are summed to yield an overall problem behavior Intensity score ranging from 36 to 252. The problem identification measure requires the parent to circle “yes” or “no” in response to the question “Is this behavior a problem for you?” The total Problem Score (between 0 and 36) is calculated by summing the number of problems indicated. The ECBI was translated and backtranslated, and approved by

Psychological Assessment Resources (PAR). In order for the parents to be able to participate in the project the children were required to score under the 90th percentile on ECBI Intensity, applying Norwegian norms (Reedtz et al, 2008). A score under the 90th percentile is under a score of 119 for girls and 126 for boys on the ECBI Intensity scale.

6.1.4 Statistics

One-way ANOVA's was used to test whether the ECBI differences on categorical variables with more than two levels. Multiple regression analysis was used to analyse the effect of gender and age on the Intensity and Problem scores. When comparing two groups on continuous dependent variables, t-tests were used, and Cohen's d (Cohen, 1988) was used as a measure of the effect size in this case. We used the Kolmogorov-Smirnov test (KS-test) when testing whether the Intensity scores and Problem scores followed a normal distribution. The amount of missing data on specific answers ranged from 0 to 0.7 % for 32 of 36 questions on the Intensity scale, and from 2-5 % for all questions on the Problem scale.

6.1.5 Results

Cronbach's alpha for the ECBI Intensity scale was .93, and for the ECBI Problem scale .89. The mean ratings for each of the 36 items of the ECBI Intensity scores ranged from 1.2 to 3.7 on seven-point Likert-type scales. The Problem Scores ranged from 0 to 34. The mean Problem score was 3.1 ($SD = 4.5$). The mean Intensity score for the sample was 89.9 ($SD = 24.6$). The mean Intensity scores for boys was higher than for girls. The 90th percentile has been used a cutoff score in a clinical study in Norway (Larsson et al., 2008), and was meaningful in differentiating between diagnosed children and children who did not meet the criteria for a ODD or CD diagnosis. Two multiple regression analyses were conducted in order to evaluate the predictive effects of gender and age on the Intensity and Problem scores. For both Intensity and Problem scores no interaction between age and gender was found. For Intensity scores, this analysis revealed a significant effect for gender ($t(4060) = 6.2, p < .001$). The gender difference adjusted for age is 4.7 points such that boys exhibited more problem behaviors than girls. A one year

increase in age yield an estimated decrease in the Intensity score of 2.0 points ($t(4060) = -12.3, p < 0.001$), such that older children exhibited less problem behaviors than younger children. For problem scores this analysis revealed a significant effect for gender ($t(4060) = -3.8, p < .001$). The gender difference adjusted for age is 0.5 points such that parents of boys characterized their child as more problematic than parents of girls.

6.2 Summary of study 2 - Promoting positive parenting practices in primary care: Outcomes in a randomized controlled risk reduction trial.

6.2.1 Objectives

The main aim in study 2 was to evaluate the effects of S-IY in reducing risk factors related to development of childhood behavior problems in a randomized controlled trial.

6.2.2 Participants

A total of 269 families volunteered to participate in the study. Almost one fourth of these; a total of 58 children (22%) were excluded from the study due to ECBI Intensity scores above the 90th percentile. This procedure was used for ethical reasons, and families excluded from the intervention study were offered the full 12 to 14 weeks Basic IY program. Of the remaining 211 families a total of 22 families (10%) terminated their participation in the initial phase of the study. Parents of 189 children between 2-8 years volunteered to participate in the study. The children were 112 boys (59%), and 77 girls (41%). The mean age of the children was 3.95 ($SD = 1.63$) for boys, and 3.81 ($SD = 1.13$) for girls. Both the mother and father responded in 112 cases (59%), only the mother responded in 74 cases (39%), and only the father responded in 3 cases (2%). The term parents will be used even though the analyses are based on mothers' responses ($N = 186$).

To investigate to which extent the sample in the current study ($N = 186$) was different from the 22 families who terminated their participation, we compared the two samples on all variables measured in the study. There were no significant differences in demographic information or the scores on the selected measures.

6.2.3 Assessment

The selection of questionnaires consisted of three different assessment instruments in addition to questions about the demographical variables child's gender, age, how many children the parents have, the selected child's birth order, and parents' birth year, marital status, employment status, education and who completed the questionnaire. These included the ECBI (Intensity scale; Robinson, Eyberg, & Ross, 1980), the PPI (Harsh parenting and Positive parenting scale; Webster-Stratton, Reid, & Hammond, 2001), the PSOC (Efficacy and Satisfaction scale; Johnston & Mash, 1989). Assessments were carried out pre-intervention, post-intervention and at one-year follow-up, using standardized measures.

6.2.4 Intervention

The IY intervention program developed by Carolyn Webster-Stratton at the parenting clinic, University of Washington, is a manualized and video-based training program for parents of young children with conduct problems (Webster-Stratton & Reid, 2003a). Parents assigned to S-IY condition were divided into groups of 10–12 parents. The S-IY was led by two group leaders and during six weeks parents met weekly for two hour sessions at a public health care center. The group leaders led discussions regarding central aspects of parenting on the basis of the video vignettes, role plays and homework. The program taught parents positive disciplinary strategies (play, praise and rewards) and the original manual was followed for the six first sessions of the Basic IY program.

6.2.5 Statistics

Group comparisons on demographic variables were done with ANOVA or Chi-square tests, depending on whether the variables were continuous or categorical. To test whether the intervention group and the control group changed differently from pre to post, from pre to follow-up, and from post to follow-up, we used ANCOVA using the pre-test as

covariate in all analyses (Rausch, Maxwell, & Kelley, 2003). Effect sizes were calculated using Cohen's partial eta square (η^2) (Cohen, 1988).

6.2.6 Results

Group differences in change from pre-test to post-test

Group differences in change on parenting. The ANCOVA shows that the two groups changed significantly different from pre to post on PPI - Positive parenting. The intervention group showed a larger positive change from pre to post than the control group. The two groups also changed significantly different from pre to post on PPI Harsh discipline, as the intervention group showed a larger drop in harsh discipline from pre to post than the control group.

Group differences in change on parent characteristics. The two groups changed significantly different from pre to post on PSOC Satisfaction and PSOC Efficacy. The intervention group showed higher satisfaction change from pre to post and larger efficacy change from pre to post than the control group.

Group differences in change on child behavior. The two groups changed significantly different from pre to post on ECBI Intensity, as the intervention group showed larger reduction of behavior problems change from pre to post than the control group.

Group differences in change from pre-test to follow up

Group differences in change on parenting. The two groups changed significantly different from pre to one year follow-up on PPI Positive parenting. The intervention group showed a larger positive change from pre to one year follow-up than the control group. The two groups also changed significantly different from pre to one year follow-up on PPI Harsh discipline, as the intervention group showed a larger drop in harsh discipline from pre to one year follow-up than the control group.

Group differences in change on parent characteristics. The two groups changed significantly different from pre to one year follow-up on PSOC Satisfaction. The intervention group showed higher satisfaction change from pre to one year follow-up than the control group.

Group differences in change from post-test to follow-up

To test whether the magnitude of the intervention effects are the same at the post-test and the follow-up an ANCOVA was performed on the difference score covarying the pre-test (Rausch, Maxwell, & Kelley, 2003).

Group differences in change on parenting. The two groups did not change significantly different from post test to one year follow-up on PPI Positive parenting and PPI Harsh discipline. From this we can infer that the intervention group still showed more positive parenting and a larger drop in harsh discipline than the control group at one year follow-up.

Group differences in change on parent characteristics. The two groups did not change significantly different from post to one year follow-up on PSOC Satisfaction. Hence, the intervention group still showed higher satisfaction than the control group at one year follow-up.

6.3 Summary of study 3 - Parents Seeking Help in Child Rearing: Who are they and how do their children behave?

6.3.1 Objectives

The main aim of study 3 was to explore characteristics of parents who signed up for parenting classes as well as their own reasons for participation. Whether and which characteristics of parents can be used to predict ECBI scores in small children were also examined.

6.3.2 Participants

Families who had a 2-8 year old child were recruited from the city of Tromsø (about 900 children are born every year) through posters in kindergartens and schools, advertisements in newspapers, and invitations sent by postal mail to approximately 3000 families of children aged three to five years. If there was more than one child between two to eight years in the household, the youngest was selected as the target child in the study. Parents of 189 children between two to eight years volunteered to participate in the study. The children were 112 boys (59%), and 77 girls (41%). The second part of the study included a survey where parents were asked about their reasons for participation in the initial study. Parents of 118 children were included.

6.3.3 Assessment

The selection of questionnaires consisted of four different assessment instruments in addition to questions about the demographical variables child's gender, age, how many children the parents have, the selected child's birth order, and parents' birth year, marital status, employment status, education and who completed the questionnaire. The children were first screened with the ECBI Intensity scale. Parents confidence on being a parent were evaluated with PSOC (Johnston & Mash, 1989); consisting of the subscales PSOC

Efficacy and PSOC Satisfaction. Parents stress were measured by using PSI-SF (Abidin, 1995). The PSI-SF is a 36 item self report measure of parenting stress, derived from the full version Parenting Stress Index. Parenting practices were measured by using the Harsh Discipline subscale in the questionnaire PPI (Webster-Stratton, Reid, & Hammond, 2001). In addition to these standardized scales we developed a new scale to measure parents' reasons for participating in the project and for their help seeking behavior. This questionnaire consisted of twelve questions and was developed to assess parents' reasons to participate in child rearing classes/PT.

6.3.4 Statistics

Correlations were calculated using Pearson's correlation coefficient. Independent samples t-test was used for comparing the sample to national norms on continuous variables. Effect sizes (Hedges' $g = (M_1 - M_2) / SD_{pooled}$) were calculated and evaluated using Cohen's criteria (Cohen, 1988) for small (0.2), medium (0.5) and large (0.8) effects. A Principal Component analysis (Varimax rotation) was performed to examine the scale developed for measuring parents' reasons for participation. Repeated measures ANOVA were used to compare the parents' reasons for participation. A Multiple Regression analysis in was performed to examine if it was possible to predict child behavior based on parent variables. Effect sizes (R-square) for a set of variables were evaluated using Cohen's criteria (Cohen, 1988) for small (2 %), medium (13 %) and large (26 %) effects. A p-value < .05 indicated a statistically significant result.

6.3.5 Results

Demographics

The majority of families in this sample had mothers working full time (61%), were two-parent families (80 %), consisted of one or two children (79%), and the child participating in the project was the first born child (55%). The parents in this study had education at bachelor level or higher (78%), 29% at bachelor level and 49% with a Master degree or Ph.D. The mean age for the children in the study was 3.95 ($SD = 1.45$); 4.05 ($SD = 1.63$) for boys, and 3.81 ($SD = 1.13$) for girls.

ECBI scores

Measures of child behavior resulted in an average Intensity score on the ECBI at 103.3 ($SD = 16.7$), and an average Problem score on the ECBI at 5.9 ($SD = 5$). The norm for Norwegian children on the ECBI Intensity scores is 93.0 ($SD = 23.6$), and on the ECBI Problem scores 3.2 ($SD = 4.5$). The difference between the Norwegian norm (Reedtz et al., 2008) and the scores in our sample is significant (Intensity: $t = 7.7, p < .001$; Problem: $t = 7.1, p < .001$), and of medium size according to Cohen's criteria (1988) for the Intensity score (Hedges' $g = 0.44$) and the Problem score (Hedges' $g = 0.60$).

Reasons to participate for the parents

In the Principal Component analysis three factors were extracted based on an inspection of the Scree plot. The factors were labeled; Parental Concern (5 items, $\alpha = .82$), Motivation to Learn (3 items, $\alpha = .42$), and Own/Other's opinion (3 items, $\alpha = .42$). The results of the repeated measures ANOVA evaluating parents' reasons for participation indicated significant differences between the three scales ($F(2, 115) = 516.29, p < .001$). When examining individual items a total of 39 of the parents (35%) reported concern about their children's behavior, 105 parents' (94%) reported that they wanted to learn more about child development, and only 4 parents (4%) reported that others thought they needed it.

Correlations between child behavior and parent characteristics

Child behaviors measured by ECBI Intensity and ECBI Problem correlated significantly with the variables PSOC Satisfaction, PSOC Efficacy, PSI Total, PPI Harsh discipline and the factor Parental Concern.

Regression analysis

To test which variables predicted the ECBI Intensity scores, a Multiple Regression analysis was conducted. Independent variables were: PPI - Harsh discipline, PSI Total, PSOC Satisfaction, PSOC Efficacy as well as parents' perceived reasons for participation, including Parental concern, Motivation to learn and Own/others opinion. Demographic

variables such as marital status, education, and employment status were not included in this analysis. Our final model consisted of the following three significant predictors explaining 23 % of the variance in ECBI Intensity: parental stress (Standardized coefficient $\beta = .29, p < .01$), parental concern ($\beta = .20, p < .05$) and harsh discipline ($\beta = .17, p < .05$). Repeating this procedure for ECBI Problem, the best model consisted of the predictors Parental stress ($\beta = .33, p < .01$), and PSOC Satisfaction ($\beta = -.31, p < .01$), explaining together 33 % of the variance in the variable ECBI Problem.

7. General discussion

7.1 Discussion of the main findings in study 1 - Eyberg Child Behavior Inventory (ECBI): Norwegian norms to identify conduct problems in children

The results indicated that the ECBI is a psychometrically sound measure of behavior problems in children between the ages of four and twelve in Norway. There were no differences between the three samples (Tromsø, Trondheim, and Møre and Romsdal). These findings indicate that the distribution of conduct problem behaviors is roughly the same in the three sample regions. Tests also indicated that the ECBI has good internal consistency. Problem behaviors were found to be slightly more frequent among boys than among girls. This is consistent with other studies of the prevalence of conduct problems in children (Burns & Patterson, 1991; Burns & Patterson, 2000; Eyberg & Ross, 1978; Moffitt & Caspi, 2001; Robinson, Eyberg, and Ross, 1980; Romano, Tremblay, Vitaro, Zoccolillo, and Pagani, 2001). Age had a significant effect on behavior problems; mean Intensity Scores indicated that the frequency of problem behavior declined as age increased. This is also consistent with previous findings (Kratzer & Hodgins, 1997; Robinson, Eyberg, and Ross, 1980). Across the sample, the Intensity score was normally distributed. Taken together with the reasonably large standard deviations of each item, this indicates that the ECBI is sensitive to a broad range of behavioral differences. The moderately high return rate (60%) and the lack of differences between the Tromsø, Trondheim and Møre and Romsdal samples suggested that the results from the present standardization can be applied in screening procedures throughout Norway. However, the norms presented here might not be valid for certain relatively autonomous sub-cultures of the Norwegian population.

7.1.1 Limitations

This study might be criticized for the lack of information about the characteristics of the children who did not participate. It is possible that some of these children were experiencing

problems, and therefore would have increased the scores for both genders. It is also possible that the families who participated included more families who experienced more problem behaviors in their children. Completing the ECBI may function as a way to “ventilate” their experiences, and families who experience more problem behaviors in their child may be in need of this kind of “airing their problems”. However, the participation rate in the Tromsø and Trondheim sample differed substantially (77% to 56%) from the Møre and Romsdal sample, and still, no differences were found between the two samples. This indicates that there are no reasons to assume that the families who did not participate differ significantly from the children who are included in the study. Another limitation is that this study does not provide test-retest data. However, this has been done in several other studies, and the test-retest properties of the ECBI are so far well documented (Axberg, Hansson, & Broberg, 2007; Burns & Patterson, 1991; Burns & Patterson, 2000; Eyberg, 1992; Eyberg & Robinson, 1983; McMahon & Estes, 1997; Robinson, Eyberg, & Ross, 1980). The gender differences in the present study suggest that the cutoff point for girls should be set lower than the one for boys. Equal cutoffs for girls and boys may have several implications, and needs to be addressed in screening, diagnostic assessment and evaluating prevention and treatment outcomes.

7.2 Discussion of the main findings in study 2 - Promoting positive parenting practices in primary care: Outcomes in a randomized controlled risk reduction trial.

In the present study, the effectiveness of a shortened version of the Basic IY program was examined using a randomized controlled trial including 186 children aged 2-8 years. Families were self-recruited from the general population. The results showed significant differences in changes in the two groups, regarding reductions in harsh parenting (moderate to large effects) and child behavior problems (small effects), strengthening in positive parenting (large effects) and parent’s sense of competence (small effects). The difference in child behavior was present at post-test, but was not present at one-year follow up, whereas the effects regarding parenting and parent’s sense of competence all lasted through one-year follow up.

There are several ways to interpret the results, and the most obvious is related to the behavior of the children. The children in our study were compared to a representative sample in Norway, and we found that the mean score in this trial was approximately 10 points above the norm. This represents a medium difference according to Cohen's criteria, and children in our sample exhibited significant higher scores on the ECBI Intensity scale than the norm for their age groups (Reedtz, Bertelsen, Lurie, Handegard, Clifford, & Mørch, 2008). Also, 35% of the parents in this prevention project reported parental concern for their child's behavior as an important reason to participate (Reedtz, Martinussen, Jørgensen, Handegård, & Mørch, 2010). As the sample in the present study were somewhat skewed, the potential for improvement in child behavior was larger than in a normal distribution of children. However, only a few children in the study had ECBI scores close to the clinical cutoff point, and because the children were all within the normal range we did not expect to find major changes as a result of the parent-training. The lack of effect on the ECBI at one-year follow-up supports this assumption. The lasting changes in parenting may thus be explained by the experience of being a parent (i.e. parent satisfaction and parent efficacy), rather than changes in their children's behavior. Coercive interactions between parent and child is recognized as a fundamental mechanism by which behavior problems emerges and are sustained over time (Granic & Patterson, 2006; Kazdin, 1997). Following this theorizing, Gardener and colleagues (1999) proposed that timing of parental strategies is important, and that positive parental strategies would be more effective when used before child misbehavior, and before a pattern of coercion between the parent and child has occurred (Gardner, Sonuga-Barke, & Sayal, 1999). In accordance with this assumption, we propose that the age of the children (timing in life) and the fact that they did not have diagnosable behavior problems (timing related to low levels of coercion in the family) are important factors contributing to the effects observed in this study.

A frequent prediction and commonly held belief is that it is difficult to demonstrate an overall beneficial effect in universal preventive strategies, because most members of any given populations will display few or none of the types of behavior to be prevented (Offord, 2000). The findings of this study suggest that significant and stable changes in

parenting can be gained as a result of parent skills training, not only in treatment and prevention programs targeting children with behavioral problems, but also in the general population. A universal public-health approach to the promotion of parenting skills seems crucial to the promotion of good mental health in children. Such an approach should support parenting practices that promote childhood mental health and address risk factors for socio-emotional and behavioral problems (Herrman, Saxena, & Moodie, 2005).

7.2.1 Limitations

Interpretation of the results introduced several methodological problems, of which the most important relate to the study design. Families with children, who had high ECBI scores, and therefore the potential to change much, were excluded from the study. The children in the study tended not to need the intervention to improve their behavior and were expected to change very little as a result of the intervention. This design makes it impossible to draw inferences about the preventive effects of the program on children's behavioral problems in a truly universal population.

Another important limitation is that we only examined child behavior based on parents' perceptions, excluding other informants. There is evidence to suggest a correlation between self-report measures of parents and that of observers (Zubrick, Ward, Silburn, Lawrence, Williams, & Blair, 2005). These correlations are by no means perfect, but they do give us a certain degree of confidence in parents self-reports. However, observations of parent-child interactions are needed to further increase the confidence in the results. The sample is also based on parental self-recruitment and is rather homogenous. This also restricts us from generalizing the results to a true normal population.

Furthermore, the study suffered from a rather large attrition from pre- to post-intervention and follow-up. This may reduce the validity of the results, although Bingham's imputation method, which we used, has been shown to give more accurate estimates than mean substitution in cases where data are missing at random. The higher attrition percentage in the control group is likely to be related to the parents' lack of motivation to

fill out an extensive questionnaire when no intervention was received. We lack data on why families in the intervention group dropped out after parent training, and this also limits the scope of our study results.

7.3 Discussion of the main findings in study 3 - Parents Seeking Help in Child Rearing: Who are they and how do their children behave?

Overall, the children in our sample lived in families with high socio-economic status. Parents in our sample represented two-parent families (80%), where many worked full time (61%), and they had higher education (49% have a Master or Ph. D degree). This represented a higher education level compared to the overall Norwegian figures, where 20% have education at bachelor level, and only 6% have education at Master degree level or a Ph. D (Statistics Norway, 2008). This finding supports findings from other research that families with high socio-economic status are more likely to sign up for face-to-face parent training (Morawska & Sanders, 2006).

Some 35% of the parents in this study reported parental concern for their child's behavior as an important reason to participate. This may relate to the finding that the children in our study exhibited higher scores on the ECBI Intensity and Problem scale than the Norwegian norm. When comparing the scores on the ECBI in this sample with a representative sample in Norway (Reedtz et al., 2008), the mean score in this study was approximately 10 points above the norm which represents a medium difference according to Cohen's criteria. The parents in our sample may have observed, correctly, that their children had some behavior problems; they both had the resources to take action and the motivation to participate in a project to strengthen the family situation. The finding that parents recruiting themselves have children with elevated ECBI scores is consistent with research on self-administered parenting interventions (Calam, Sanders, Miller, Sadhnani, & Carmont, 2008). In several studies on the Triple P series within a public health approach, most of the recruited parents had EBCI scores in the clinical range.

Aspects of parent stress, parental concern, and parenting practices predicted the ECBI Intensity scores to a rather large extent and these findings support the assumption that these variables are related to the behavior of the child.

An interesting result was that the recruited families had much younger children than those usually referred to treatment or community services for behavioral problems in Norway (Andersson, Ose, & Sitter, 2005). Of the 189 children represented in the study, 79% were four years or younger, and a total of 89% of the children were under 6 years, and had not started elementary school at the time of assessment. This finding supports the general notion that an intervention integrated in primary care services will recruit families with younger children than those children who are referred to mental health services at second or third tier level.

The results are interesting and raise several important questions for researchers and policymakers in the work of implementing community based mental health promotive and preventive interventions addressing mental health in young children. Parents characterized by high SES risk factors may not come forward to participate in face-to-face self-recruitment preventive interventions. This seems to be true even if the parenting intervention is offered at a time suitable for parents, is free of charge, and is offered in a nonstigmatizing way.

7.3.1 Limitations

The most important limitation in this study is the difference in sample size in the two waves of the survey. Also, we have only examined child behavior based on parents' perceptions, not other informants. The Cronbach's alpha for two of the scales measuring reasons to participate in parent training were rather low in our study. This may partly explain the lack of findings related to these scales. Future studies should improve the psychometric properties for these scales. Finally, the data presented in this study is cross sectional, and cannot be used to evaluate changes in child behavior over time. However, we are conducting a longitudinal follow up study on the effects on the parenting

intervention. This provides us with the opportunity to examine the development of the children over time.

7.4 Conclusions and future directions

Developments in Norway during the last decade clearly indicate an increase in occurrences of mental illness for adults, adolescents, and children (The Norwegian Department of Health, 2002). Provision of services has not kept pace with these developments, and services have been lacking at all levels: Preventive measures are too weak, and the services available from the municipalities have been too few, accessibility to specialized services has not been good enough, hospitalization are often too short, and discharges often lacks sufficient planning and monitoring after discharge. Prevention of mental health problems in childhood and adolescence has been one of the major strategies to overcome these problems in the mental health sector. Specifically; health promotion, universal, selective and indicative prevention, seems to be the most promising way to reach children in need of interventions to prevent mental disorders that may develop in early age and continue as they grow older (Davis, 2002; Farmer, Compton, Burns, & Robertson, 2002; Gottfredson, 2001; Webster-Stratton & Hammond, 1998; Campbell, 1995; Campbell, Shaw, & Gilliom 2000).

Internationally, there has been considerable debate during the last few years over the research-practice gaps in child mental health (McLennan, Wathen, MacMillan, & Lavis, 2006). The ultimate goal in the field of preventing mental health problems in children would be to implement evidence-informed practice and policy in all communities and make interventions available to all children and families who are in need of preventive interventions. The research-practice gaps described addresses the lack of evidence-informed community services and that communities fail to offer services when evidence-informed interventions are available. In the work of developing evidence-informed interventions and implementing these in the community services it is of great importance to include instruments to identify children at risk for developing mental health problems. However, practitioners experience barriers to implement the use of standardized

assessment tools to identify emotional and behavioral problems in children, and parents are not routinely asked about their concerns (Glascoe, 2003). Related to this; the main advantages in using the ECBI are that it is easy to administer, easy to score, and easy to interpret. The ECBI gives professionals a very concrete foundation for discussions with parents, and having established Norwegian norms gives the advantage of being able to categorize children in need of preventive efforts or treatment. Throughout Norway there are now some psychosocial interventions available, aimed at health promotion, reducing risk factors and preventing DBP. Utilizing the ECBI to screen children will give valid information about who needs referrals to interventions. An important question often asked by policymakers in prevention of mental health problems is: Are those who utilize the services really in need of preventive intervention? The assumption is often that those who really need it do not come forward, and hence the challenge is; how do we reach the families and children in real need of preventive interventions? Given the knowledge that there is a high degree of stability of DBP in very young children and that early-onset DBP in childhood is a major risk factor for the development of several academic, social, and psychiatric problems (Briggs-Gowan & Carter, 2008; Côté et al., 2006; Webster-Stratton, 1998), it is important to implement strategies to identify these children as early as possible.

Few studies so far have focused on what characterizes families participating in self-recruiting preventive interventions in Scandinavia. Knowledge on *who* we are reaching also informs us of who we are *not* reaching in community-based universal preventive efforts. This is essential to find ways to reach those most in need of such efforts. Based on the results from this project parents characterized by high SES risk factors may not come forward to participate in self-recruitment preventive interventions. This seems to be true even if the parenting intervention is offered at a time suitable for parents, is free of charge, and is not stigmatizing the family. Coming up with other ways of recruiting these families' remains an important challenge in efforts related to reducing risk factors and preventing DBP in small children. We propose that health care workers routinely should ask for information about parental concern from parents, *and* implement screening procedures at obligatory primary care visits at age three to six years. Implementing

procedures for early identification of children at risk is the foundation for all selective and indicative preventive interventions in both primary and specialist health care.

One general known disadvantage of health screening is that screening tools have the power to discover problem behaviors and needs for preventive efforts also in cases where there are no interventions available in the nearby region of families. In these cases it might be frustrating for the family to know that their child needs something that they cannot get him or her. Hopefully, new tools in screening children's behaviors will put pressure to all health care workers so that they take steps to add specific competence to their services. This will enable them to promote mental health in young children and to serve those families who need preventive efforts related to risk factors or DBP in their children.

In Norway, and the rest of Scandinavia, primary care visits have long traditions and much preventive work is offered by these services. Public health nurses and general practitioners meet and know all families in the community, and all families follow programs addressing physical health, nutrition and vaccinations for their children. It has been emphasized that within this public health perspective universal approaches have higher impact among the initially higher risk portion of the population, than among lower risk persons (The Norwegian Department of Health, 2002). Results from research on preventive interventions during the last decade have supported this notion (Kellam & Langevin, 2003). Kellam and Langevin (2003) argues that the first step in the process of developing prevention and treatment services for a community is to develop universal interventions. Selective and indicative interventions or treatment are then designed for individuals in need of more help. Contrary to this, a common prediction and commonly held belief is that it is hard to demonstrate an overall beneficial effect in universal preventive strategies; because most members of the populations will exhibit none or little of the behavior to be prevented. However, even though we had a non-clinical sample in this study, we had moderate to strong effects on the measures related to parenting and parents' sense of competence in child rearing. This implies, as have been proposed by researchers; that there is no reason to believe that positive parenting strategies are more

effective in treatment of children with conduct disorder, than in prevention (Kaminski et al., 2008). Furthermore, demographic variables, such as maternal age, maternal level of education, and single-parent families has been shown to *not* predict treatment outcomes in the US (Beauchaine, Webster-Stratton, & Reid, 2003b), in the United Kingdom (Scott, 2005), and in Norway (Fossum, Mørch, Handegård, Drugli, & Larsson, 2008). This may also help us to understand the results in universal mental health promotion and prevention trials and who will profit from participating in such interventions.

The results from evaluating the S-IY program suggests that a shortened version of a structured parenting intervention, the IY program, implemented in primary care at community level, is an effective way to reduce harsh parenting, strengthen positive parenting and parents' sense of competence. The effect of increased positive parenting in this study supports that a change in parenting skills is a core component in effective parent training (Gardner, Burton, & Klimes 2006; Kaminski et al., 2008). We propose that families with more social resources have a tendency to be more pro-active than parents with lower social resources and that their resources implicate a strong motivation to learn and a strong ability to profit from a universal parent training program. Our results implicate that given normal or higher social resources in the parents, low dosages of parent training in a non-clinical group of children have the potential to strengthen parents' child rearing practices in a way that may reduce important risk factors for the development of early childhood behaviors problems. Treatment research indicates that demographical variables as those measured in this project may not predict poorer outcomes of parent training in families at higher risk, and this might hold true for preventive initiatives as well. Further research to explore whether a risk reduction strategy in the general population have the potential to reduce the prevalence of early childhood DBP is needed.

8. References

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Paper I - III

Paper 1

Paper 2

Paper 3

