A Meta-Analysis of the Interventions Targeting Preschool Children with Externalizing Behaviors and an Intervention Program for Turkish Preschool Children

By

Evlin Rafe

A Thesis Submitted to the
Graduate School of Social Sciences
in Partial Fulfillment of the Requirements for
the Degree of

Master of Arts

in

Psychology

Koc University

June 2006

Koc University

Graduate School of Social Sciences

This is to certify that I have examined this copy of a master's thesis by

Evlin Rafe

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by the final
examining committee have been made.

Committee Members:

_____

Nazlı Baydar, Ph. D. (Advisor)

_____

Çiğdem Kağıtçıbaçı, Ph.D.

_____

Sevda Bekman, Ph. D.

_____

Institute of Social Sciences, Director

Date: _____

STATEMENT OF AUTHORSHIP

This thesis contains no material which has been accepted for any award or any other degree or diploma in any university or other institution. It is affirmed by the candidate that, to the best of her knowledge, the thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed Evlin Rafe

ABSTRACT

This study examined the effectiveness of the interventions targeting preschool children with externalizing behaviors. It also delineated the characteristics of the interventions that influenced the effectiveness level of the interventions. Third, the effectiveness of these interventions on negative parenting behaviors was examined and the characteristics of the interventions that influenced their effectiveness on negative parenting were delineated. Finally, a preventive intervention program targeting the externalizing behaviors of preschool age children in Turkey was proposed. The meta-analysis was conducted with 54 intervention conditions. As a result of the meta-analysis, on average the interventions were effective in reducing externalizing behaviors and the effect size was medium. The intervention type (i.e. universal/selected, indicated or diagnosed), the domain of the intervention (i.e. parents, children and teachers) and the method used (i.e. problem-solving, discipline techniques) in the intervention were identified as the characteristics that were most important in influencing the effectiveness of interventions. For universal/selected interventions, daily child training using a problem-solving approach was effective. For indicated populations, parent training teaching discipline techniques and improving parent-child relationship was effective. For diagnosed populations, all interventions were highly effective. The interventions were also effective on negative parenting behaviors. Finally, a parent training program targeting a Turkish indicated population to be conducted in groups on weekly basis for 20 weeks was proposed.

Keywords: Meta-analysis, review, externalizing behaviors, intervention, prevention, preschool children

ÖZET

Bu çalışmada okul öncesi çocukların dışa yönelim sorunlarını hedef alan müdahale programlarının,bu davranışlar üzerindeki etki düzeyi incelenmiştir. Ayrıca, bu çalışmada programların hangi özelliklerinin etki düzeyi üzerinde belirleyici rol oynadığı incelenmiştir. Üçüncü olarak bu programların olumsuz ebeveyn davranışları üzerindeki etki düzeyi ve programların hangi özelliklerinin etki düzeyi üzerinde etkili rol oynadığı incelenmiştir. Son olarak da Türkiye'deki okul öncesi çocukların dışa yönelim sorunlarına yönelik önleyici bir müdahale programı önerilmiştir. Meta-analiz çalışması 54 müdahale program koşulu ile yapılmıştır. Çalışma sonuçlarına gore, müdahale programlarının ortalama etkisi orta düzeydedir. Program tipinin (evrensel, risk altında veya tanı almış), programın hedef alanının (domain; ebeveynler, çocuklar veya öğretmenler) ve kullanılan yöntemlerin (problem çözme becerileri, disiplin teknikleri) programın etki düzeyi üzerinde en etkili özellikler oldukları bulunmuştur. Evrensel popülasyondaki çocuklarda, günlük uygulanan ve çocuklara problem-çözme becerileri kazandıran programların, risk altındaki (indicated) çocuklarda ebeveynlere yönelik disiplin teknikleri öğreten ve ebeveyn-çocuk ilişkisini geliştiren programların etkili olduğu bulunmuştur. Müdahale programlarının olumsuz ebeveyn davranışları üzerinde de etkili olduğu bulunmuştur. Son olarak, Türkiye'deki dışa yönelim bozukluğu geliştirme riski taşıyan (indicated) okul öncesi çocukların ebeveynlerine yönelik, gruplar halinde haftalık olarak uygulanacak ve 20 hafta sürecek bir program önerilmiştir.

Anahtar Sözcükler: Meta-analiz, dışsallaştırma sorunları, müdahale programları, önleme programları, okul öncesi çocuklar

DEDICATION

To My Family

ACKNOWLEDGEMENTS

In the last two years, the production of this thesis was such a learning experience in my life and now it is time to thank those people who had contributions in this part of my life.

First of all, I owe special thanks to my advisor Assoc. Prof. Nazlı Baydar for being with me in this process during the whole two years. I would like to thank her for her endless support, encouragement, patience in teaching me so much and believing in me at my difficult times. Her input to this thesis has been enormous and without her presence and knowledge, this thesis would not be possible.

Next, I would like to thank my committee members Prof. Dr. Çiğdem Kağıtçıbaşı and Prof. Dr. Sevda Bekman for their contributions, comments and praises on my work.

Then, I would like to my valuable classmates for their support and giving me the strength to carry on at my difficult times, even when they were mostly at a long-distance in my second year. I especially would like to thank Sevda Bahtiyar, Bahar Köymen, Banu Hantal, Serap Yavuz, Tilbe Göksun and Miri Besken for their friendship and for all we have shared together.

I would like to thank to my special friends from Hacettepe University, Yeliz Kındap, Müjde Peksaygılı, Saadet Akgün and Pınar Öztürk for being with me, being so valuable, their great support from wherever they have been.

Finally, I would like to thank to family for their support and encouragement, and their patience during this thesis and always believing in me……

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

In this Master's thesis, a quantitative review (i.e. meta-analysis) of the interventions for externalizing problems which targeted preschool children was conducted. This extensive review (i) explored whether the interventions were effective for this group of children, (ii) delineated the attributes of the interventions that were more effective, and (iii) identified the types of interventions that were most effective. An additional aim of this Master's thesis was to draw conclusions from the meta-analysis for an intervention program to be implemented for Turkish preschool children, and to design a pilot preventive intervention for a group of children in Turkey who were at risk for future externalizing problems.

The review was conducted, because the reviews that already existed on this topic had some limitations and drawbacks. First of all, the reviews covering the interventions that targeted the externalizing behaviors at this age were qualitative rather than quantitative (see Stormont, 2002; Joseph & Strain, 2003). Although, these reviews were informative about diverse intervention programs, they did not really reveal to what extent each intervention was effective and they did not provide any basis for comparison among the interventions that had different approaches. Moreover, these reviews could not categorize the interventions

according to their specific attributes in order to find what attributes were associated with lower or higher effects. They were only able to compare the effectiveness of the interventions as a whole. For example, they commented on whether a specific intervention program was effective or not, but they did not comment on whether this effectiveness was common among all interventions of a given type or a given target population or a given domain of intervention.

Second, several meta-analyses that were conducted with the interventions for children with externalizing problems preferred to focus on either one method or approach to changing behaviors, such as social skills trainings or they focused on a specific target domain of intervention, such as parents or children. These reviews examined the interventions that targeted children at an age range between preschool and adolescence, as opposed to focusing on only one developmental period (Rothbaum & Weisz, 1994; Lösel & Beelmann, 2003). The limitation of these reviews was that they were not able to compare the interventions which had different approaches to changing behaviors or targeted different domains. They missed the point that the interventions that combined multiple techniques or targeted multiple domains could be the most effective ones, and they missed the opportunity to find out the best practices.

Another shortcoming of these reviews was that comparing children with externalizing behaviors at such wide age ranges may not have provided accurate information that indicated

the relative effectiveness of programs, since the externalizing behaviors are qualitatively distinct in different developmental periods (Campbell, 1998; cited in Stormont, 2002). As an example to these reviews, Weisz, Weiss, Alicke & Klotz (1987) compared the effect of psychotherapies on children and adolescents. A different quantitative review examined the school based interventions exclusively (Wilson, Lipsey & Derzon, 2003). Still, another study has only compared the effects of social skills trainings as interventions for antisocial behaviors (Lösel & Beelmann, 2003). These meta-analyses have all compared the interventions that targeted the developmental periods from preschool to adolescence. Despite the limitations, some successful meta-analyses that focused on a specific aspect of an intervention provided important information regarding how and in what conditions these interventions were effective.

The current meta-analysis was quite extensive in the sense that it covered the interventions targeting all of the domains that might have been influential on the externalizing behaviors and it covered interventions that used a wide range of different methods. Yet, it was quite focused, because it only examined the interventions targeting children in the preschool period, within which the child characteristics and the externalizing behaviors are similar and they are distinct from other developmental periods. This approach allowed us to get the information regarding the characteristics of the interventions that were most effective on decreasing or preventing the externalizing behaviors for preschool children.

In this study, three different groups of variables were examined which were considered as potentially influential on the effectiveness of interventions: intervention study characteristics, intervention program characteristics and the evaluation factors. The intervention study characteristics were the publication date of the intervention study, the country where the intervention was conducted, the SES level and the race/ethnicity composition of the evaluated sample. The intervention characteristics were the intervention tGype, domain and the group type of the intervention, length and intensity of the intervention and intervention methods. The evaluation factor considered in this study was the design and control condition of the study.

One of the most important intervention program characteristics was the target domain of the intervention which could be child, parents or teachers. Another closely linked characteristic that was analyzed was the type of the intervention. The population consisted of universal, selected, indicated or diagnosed population. Another question to be answered was whether the length of the interventions influenced the outcome significantly and whether there was an ideal length for high effectiveness. As well as the length of the intervention, the intensity of the intervention was a concern in this study. This characteristic referred to how frequently a target person or group was intervened. Finally, one very important intervention characteristic was the methods to be used in the interventions. The relationship between the methods applied to children, parents and children were examined.

Important intervention study characteristics were the race/ethnicity composition and the SES level of the evaluation sample, the country where the study was conducted. All interventions were not as effective on all SES levels and cultural contexts. Thus, the effectiveness of the interventions on children coming from different SES levels and cultures were evaluated.

Among the evaluation factors, the design and the control group of the study was an important characteristic. In this meta-analysis whether an experimental or quasi experimental design with different types of control was effective on the intervention outcomes was examined.

In line with the results of the meta-analysis conducted within the framework described, conclusions regarding the most effective interventions and the characteristics that contributed to their effectiveness were drawn. In accordance with these results, lessons were drawn for an intervention in Turkey. An intervention program was designed on the basis of the findings from the meta-analysis.

Chapter 2

LITERATURE REVIEW

2.1 Significance of the Study

2.1.1 Importance of Externalizing Behaviors as Targets for Intervention

The externalizing behaviors of children are important as a target of intervention. There are several reasons for this. The primary importance of intervention to preschool children with externalizing behaviors is because these behaviors are highly prevalent among preschool children. In addition to its prevalence the occurrence of these behaviors have important consequences in the other domains of the child's life and more importantly, if these behaviors persist at high levels, they lead to more serious problems in adolescence and adulthood, such as delinquency and drug abuse. Therefore, reducing externalizing behaviors at early ages through interventions leads to the prevention of other problems for the child and in the future for the society.

Definition and Prevalence of Externalizing Behaviors

Externalizing ("acting out") behaviors refer to a constellation of behaviors characterized by aggression, destructiveness, attention problems, impulsivity, hyperactivity (HA) and "delinquent" types of behavior (e.g. Achenbach & Edelbrock, 1978; cited in

McMahon, 1994). Young children with conduct problems show high rates of noncompliant, hostile, and defiant behaviors, often including destructiveness, aggressiveness, and hyperactivity (Schuhmann, Foote, Eyberg, Boggs & Algina, 1998). According to the findings, the most important factors that contributed to the emergence of externalizing behaviors were the child temperament and coercive parenting practices. Although different trajectories regarding how these factors influenced the level of externalizing behaviors were suggested (i.e., Garstein & Fagot, 2003; Coplan, Bowker & Cooper, 2003; Dodge, 2002; Sanson & Rothbart, 1995), all shared the idea that the coercive processes (Patterson, Reid & Dishion, 1992; cited in Webster-Stratton, Reid, & Hammond, 2004) and the stress level in the parent-child relationship (Sanson & Rothbart, 1995) led to increased levels of externalizing behaviors. Moreover, there were some other risk factors for the emergence and increase of externalizing behaviors that were related to the school domain. Poor class management skills of teachers lead to higher levels of aggression and rejection in the classroom. In turn, the externalizing behavior level of the individual child was influenced (Kellam, Ling, Merisca, Brown & Ialongo, 1998). Other than the social factors at school, academic failure and low school readiness were also linked to the externalizing behaviors (Conduct Problems Prevention Research Group, 1992).

US National survey data suggested that the prevalence of aggressive conduct problems in preschool and early school-aged children was 10- 25% (Snyder, 2001; cited in Webster-Stratton, Reid & Hammond, 2004). The incidence of oppositional-defiant disorder was alarmingly high, with reported rates of early-onset conduct problems in young children as high as 35 % for low income families (Webster-Stratton, Hollingsworth & Kolpacoff, 1989). Estimates of prevalence of each of these child behavior problems in the general population

varied widely, from 2% to 16%, and most children referred for clinical services received more than one of these diagnoses (APA, 1994).

Immediate and Long Term Consequences of Externalizing Behaviors

Externalizing behaviors observed at the early ages had two types of consequences. The first type was the problems encountered in other areas of the child's life at the early ages. The children with externalizing problems were likely to have academic difficulties and problems in family and peer relations. The second type was the problems encountered in the future. It was seen that externalizing behaviors at early ages were the single best predictors of serious disruptive problems and adjustment difficulties in adolescence and adulthood (Gauthier, 2003). Also, it was revealed that the externalizing behaviors tended to be persistent up to middle childhood, if not treated. Evidence suggested that without early intervention, behavioral problems such as aggression, oppositional behavior, or conduct problems in young children could become crystallized patterns of behavior by age 8 (Eron, 1990; cited in Webster-Stratton, Reid & Hammond, 2004).

The problems encountered concurrently with the early externalizing behaviors mainly consisted of family, school and peer problems. In fact, it was suggested that parental reactions to children's externalizing behaviors and parents' punitive reactions to children's negative emotions were bidirectional (Eisenberg, Fabes, Shepard, Murphy, Gutrie, Jones, Friedman, Poulin & Maszk, 1997). As coercive parenting increased the level of externalizing behaviors, externalizing behaviors of the child may have elicited more coercive parenting.

Problems in school domain with teachers and peers were observed more often among the children with externalizing behaviors, because their behaviors were disruptive. It was found that the children who were perceived as more deviant by teachers and peers tended to respond in higher rates of verbal or physical aggression (Wood, Cowan & Baker, 2002). They had problems with their teachers, because it was difficult to discipline them and they were noncompliant. It was found that children with externalizing problems had achievement problems at school, too (Conduct problems Prevention Research Group, 1992). It was found that emotional disturbances and academic achievement at school were highly related (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). Moreover, it was seen that a significant portion of children with conduct problems encountered attention problems (Moffitt, 1990). Therefore, it was possible to view the academic achievement problems of children with behavior problems partly as a consequence of their relationship problems with teachers and partly as a consequence of their attention problems.

The second type of consequences of externalizing problems was that serious conduct problems arose in later years. Young preschool and early school-age children with early onset conduct problems were at high risk for developing school drop out, substance abuse, violence and delinquency in later years (Webster-Stratton, 2003). In fact, it was suggested that the two types of consequences of externalizing behaviors were not distinct from each other on a developmental trajectory. In other words, children who had problematic relationships at home and who were rejected by peers had more risk of developing later conduct problems. A significant association existed between poor peer relationships in early childhood, early onset conduct problems, and long-term social and emotional maladjustment (Wood, Cowan & Baker, 2002; Prinstein & La Greca, 2004). Children who showed oppositional defiant disorder

and conduct disorder at early ages were at the greatest risk for drug abuse and delinquency in adolescence and adulthood (Webster-Stratton &Taylor, 2001). In fact, according to the model presented in Webster-Stratton, Taylor (2001) early-onset conduct problems led to problems in other domains of the child's life, which in return led to adolescent substance abuse, violence and delinquency. Early onset conduct disorders led the child to deviant peer groups, influenced the academic achievement of the child, and made the disciplinary practices ineffective.

Importance of Interventions for Reducing Externalizing Behaviors

Research findings regarding from interventions designed and developed/improved over the years that aimed to prevent or reduce externalizing behaviors have shown that the reduction of these behaviors was possible. The interventions that target children, parents and teachers today have the potential to decrease externalizing behaviors by 30% and externalizing behaviors in class by 20% (Webster-Stratton, Reid, 2003).

Long-term effects of interventions were also substantial, alongside their immediate effects. Several follow-up studies showed that the outcomes of the early childhood interventions had an impact on behaviors in adolescence and young adulthood. Tremblay, Pagani-Kurtz, Masse, Vitaro & Pihl (1995) followed up kindergarten boys who attended a two year prevention program, up to middle adolescence. The results indicated that treated boys stayed in school significantly longer than the boys in the control group and they reported significantly less delinquent acts in the yearly assessments.

The findings indicated that the interventions for externalizing behaviors at early ages were important, because interventions targeting children at the early ages were more effective in changing these behaviors and the long term effectiveness of the interventions were also demonstrated. Thus, focusing on the interventions that were conducted in this developmental period was essential for preventing the disruptive effects of externalizing behaviors both at early ages and in the future years.

2.1.2 A History of Interventions for Externalizing Behaviors

Many different interventions have been developed for preschool children with externalizing behaviors. On the basis of better basic research findings on the externalizing behaviors of preschool children and on the basis of better evaluation research findings, some characteristics of the interventions were modified and new components were added. In turn, in some cases better results were obtained and with the developments over the years the diversity of the intervention programs increased.

Some of the earlier interventions were conducted in late 70's. Two clinically validated interventions that were successful in reducing externalizing behaviors were The Program for Academic Survival Skills (PASS; Greenwood, Hops & Walker, 1977) and Contingencies for Learning Academic and Social Skills (Hops & Walker, 1978). In fact, PASS was not designed only for children with externalizing problems, but for improving academic achievement as well. On the other hand, CLASS only targeted children with externalizing problems. These interventions had two common characteristics. The first was that they targeted only one domain of the children's lives, which was the school domain. At that time, not many

interventions for parents or children were conducted in order to reduce or prevent externalizing behaviors and there were not many evaluations. The second common characteristic was that mainly behavioral methods were used in order to modify the behaviors. Mostly reinforcement methods were applied. As children displayed positive behaviors, rewards such as praise or extra time breaks were provided.

Other interventions were designed in the 80's. These programs still continued to target a single domain, rather than intervening at multiple domains. One of the first interventions conducted at this period was "Helping the Noncompliant Child" (Forehand & McMahon, 1981). This program was a parent training program. It was different from the ones above, because it targeted the family, rather than the school. However, still in this program behavioral methods dominated, rather than cognitive methods. Nevertheless, this was a successful intervention, too. Indeed, it is still implemented (Forehand & McMahon, 2003).

Major advances in interventions for externalizing behaviors were achieved in 1990's and 2000's. Many interventions were developed using multiple techniques and most of the successful ones were multimodal. In other words, they intervened in at least two domains, among children, parents and the teachers. Parent-Child Interaction Therapy (1994) was one that intervened in the interaction between the child and the parents which necessitated modifying the behaviors of both the child and the parents. The methods used consisted of behavioral techniques as well as some cognitive ones, such as teaching problem solving skills or behavior regulation skills. Another intervention developed at this period was First step to Success (Walker et al., 1998). Actually, this program was based on a pervious program, CLASS with major modifications. First Step to Success intervened in both parents and the

teachers. This intervention was effective and it was in line with the research that the externalizing behaviors resulted from both family and school factors. Finally, an extensive and effective program was the Incredible Years program. In this program, teachers, parents and the children were intervened in different combinations (parents only; children only; parents and children; parent and teachers; teachers and children; parents, children and teachers). This was also a multi-method program and many different techniques were used for parents, teachers and children. This program yielded clinically significant results as well, which was in line with the research showing that many different factors related to parents, teachers and class conditions could cause externalizing behaviors and in order to reduce externalizing behaviors or to prevent them, an intervention should target all of these factors.

In sum, it was seen that in order to achieve maximum effectiveness, the interventions needed to target more than one domain of the child's life that might have been responsible for the occurrence of the externalizing behaviors. If several environmental factors were related to the externalizing behaviors of children, the best way to resolve externalizing problems would be to modify all of the known environmental factors that led to those externalizing problems. Furthermore, in recent interventions, it was understood that using only simple behavior modification techniques would not be enough to achieve effectiveness or sustain long term beneficial effects, because externalizing behaviors were consequences of some cognitive problems or deficits such as not being able to regulate behaviors or not having adequate problem solving skills. The improvements in this area showed that the interventions targeting externalizing behaviors at the early childhood period were moving in a promising direction.

2.1.3 A Review of Recent Reviews of Interventions for Externalizing Behaviors

As the importance of preventing externalizing behaviors was recognized, many reviews were conducted on these interventions. These reviews revealed some important information regarding whether these interventions were effective, and what characteristics of interventions were important. Previous reviews focused on various aspects of interventions. While some reviews attempted to identify at what developmental period the interventions were more effective, others narrowed the scope of their study to only one domain such as only school-based interventions or to one method, such as only social skills trainings. Also, the reviews tried to identify the differences in the effectiveness of interventions with different intervention types.

Several reviews have examined the difference in the effectiveness level of interventions at different developmental periods (McMahon, 1994; Sheldrick, Kendall & Heimberg, 2001; Stormont, 2002). According to their conclusions, interventions targeting preschool children or preadolescent children were generally more effective. Among school-based interventions targeting externalizing behaviors of children up to 13 years of age, the most effective interventions were the ones targeting children below 5 years of age (Wilson, Lipsey & Derzon, 2003). However, Lösel & Beelmann (2003) found that child-skills trainings were the least effective on preschool children compared to other developmental periods. It was possible that interventions including parents or teachers were necessary at this age group for a high level of effectiveness. Moreover, McMahon (1994) pointed out that preadolescence period and especially preschool period was important for starting an intervention for children

with externalizing behaviors and it was more difficult to decrease externalizing behaviors for older children.

Other reviews examined the effectiveness of interventions targeting different populations. It was consistently found that the interventions targeting universal/selected populations were less effective compared to the interventions targeting diagnosed or indicated populations (Wilson, Lipsey, & Derzon, 2003; Lösel & Beelmann, 2003). This finding was explained by the fact that the baseline externalizing behaviors of the children, in universal/selected interventions were lower compared to the baseline externalizing behavior level of children in the interventions targeting indicated or diagnosed populations.

Previous reviews also tried to identify the best intervention approaches to the externalizing behaviors. Since the reviews focused on one or a limited number of approaches, a conclusion regarding the best methods of reducing externalizing behaviors of preschool children could not be identified by these reviews. Various reviews examined the effectiveness of child training programs. Generally, child training was effective on children with externalizing behaviors in preschool period, only when incorporated as one component of a larger intervention approach. Bullis, Walker, Sprague (2001) conducted a qualitative review that focused on only social skills trainings targeting children and youth. The impact of First Step to Success was encouraging among the social skills trainings that targeted preschool and elementary schools. In the program sharing with peers at school, problem solving, accepting limits, friendship making and developing self-esteem were taught. The effectiveness of the program over other programs was attributed to the additional parent and teacher training components of the program in addition to social skills trainings. Moreover, according to

another review family-based interventions, child skills trainings and interpersonal problem solving approaches were promising approaches for preadolescent children (McMahon, 1994). Joseph & Strain (2003) focused only on social-emotional curricula and the review was limited to interventions targeting children below 6 years of age. Although the studies were not compared, but summarized, it was indicated that Incredible Years (Webster-Stratton, 1990) and First Steps to Success (Walker et al., 1998) were the two studies that were more effective than other studies. While the evidence supported the effectiveness of child training, Lösel & Beelmann (2003) which focused on only child skills training on externalizing behaviors for children found that these interventions were moderately effective on average (effect size between 0.26 - 0.38). Thus, even though some evidence supported the effectiveness of child trainings for children with externalizing behaviors, the findings were not always consistent.

Other reviews examined the effectiveness of parent training programs and compared them to some of the child training programs for externalizing behaviors. Sheldrick, Kendall & Heimberg (2001) compared the effectiveness of Videotape Modeling (VM; Webster-Stratton, 1984), Problem Solving Skills Training (PSST; Kazdin Bass, Siegal, & Thomas, 1989 and Parent –Child Interaction Therapy (PCIT; Eyberg, Boggs, & Algina,1995), VM and PCIT were more effective compared to PSST, so it could be concluded that parent training was found to be more effective in this review for preschool children. According to Brestan & Eyberg (1998) who reviewed the effectiveness of the interventions on externalizing behaviors targeting children and adolescents, the best intervention programs were videotape modeling parent training program and parent training programs based on Patterson and Gullion's (1968) Living with Children program. Thus, parent training was also generally found to be effective in reducing externalizing behaviors.

Another quantitative review examined the school based interventions for externalizing behaviors (Wilson, Lipsey, & Derzon, 2003). According to the findings, on average, the school based interventions had medium effectiveness on externalizing behaviors (an effect size of 0.25). Among the school based programs, counseling and behavioral approaches were the most effective. When the effectiveness of the school-based interventions according to age groups were compared it was seen that among the interventions targeting the preschool to 13 years of age, the most effective ones were the ones that targeted 5 years or younger. Although school-based interventions seemed to be less effective compared to child or parent training programs, they were not compared in a single review, so it was not certain whether school interventions were less effective or not.

In sum, preschool period was found to be a period that interventions targeting children with externalizing behaviors were effective. Moreover, it was seen that interventions were more effective on diagnosed populations compared to universal or selected populations and this was related to the baseline externalizing behavior levels of the sample. Also, it may be concluded that interventions that taught children social skills or child skills training programs were found to be effective for preschool children with externalizing behaviors. In addition, interventions targeting parents were effective, too.

2.1.4 Critique of the Reviews

The reviews conducted on the interventions targeting externalizing behaviors revealed detailed information about the effectiveness level of the interventions that targeted a specific domain or applied one specific method and they had important indications regarding under

what conditions the interventions were effective (e. g. Lösel & Beelmann, 2003; Wilson, Lipsey, & Derzon, 2003). There were several limitations and drawbacks of previous reviews, too. These were the following:

(1) Most the reviews were qualitative rather than being quantitative.

(2) They covered a wide age range, through which externalizing behaviors may be qualitatively different.

(3) They focused on one aspect or component of interventions (i.e. school based interventions, child skills training program programs).

(4) The previous reviews did not focus on the characteristics of the evaluation sample, such as the SES or race/ethnicity of the sample.

(5) For any age range, effectiveness of the program characteristics was evaluated regardless of the intervention type (universal/selected, indicated or diagnosed interventions).

Many of the reviews conducted were qualitative rather than being quantitative (see McMahon, 1994; Brestan & Eyberg, 1998; Sheldrick, Kendall & Heimberg, 2001; Joseph & Strain, 2003). Although these reviews provided good lists of interventions that have been successful, they did not compare the relative effectiveness of these interventions objectively. In these reviews, a common procedure was to set some criteria regarding the effectiveness of an intervention and each intervention was compared against these criteria. As a result, a list of interventions that met certain criteria was obtained. However, these reviews did not reveal any information regarding the intervention in comparison with other interventions and they did not show what characteristics of the interventions led them to be effective or ineffective. Moreover, these reviews were not capable of categorizing the interventions according to their

specific attributes in order to find what attribute(s) were the reason of lower or higher effectiveness. They were only able to compare the effectiveness of the interventions taken as a whole.

Second, many of the reviews, regardless of being qualitative or quantitative, included interventions that targeted a wide age range. Mostly, the age range was as wide as preschool to adolescence (see McMahon, 1994; Brestan & Eyberg, 1998; Lösel & Beelmann, 2003; Wilson, Lipsey & Derzon, 2003). However, interventions for different developmental periods were not comparable, because of two reasons. First, because of the qualitative differences in externalizing behaviors at different developmental periods, interventions applied at different developmental periods would be very different and comparing their relative effectiveness would not be meaningful. Rather than that, comparing the interventions at a specific developmental level would give more meaningful results. The second reason was that the malleability level of externalizing behaviors varied at different developmental periods. As stated before, the externalizing behaviors were established at 8 years of age, so earlier interventions would have been more successful. However, attributing this success or ineffectiveness to the specific intervention program would not accurate.

Third, some reviews focused on only the interventions that targeted one domain, such as school based interventions (see Wilson, Lipsey & Derzon, 2003) or interventions that utilized a specific method, such as social emotional curricula (see Lösel & Beelmann, 2003; Joseph & Strain, 2003) or only parent training (see Dore & Lee, 1999). These reviews revealed whether interventions in one domain or one method were effective in reducing or preventing externalizing behaviors, but they did not have the chance to provide information

regarding the relative effectiveness of interventions that targeted different domains or used different methods. Recently most effective interventions targeted more than one domain and they used more than one method for modifying externalizing behaviors (i.e. Walker et al., 1998; Webster-Stratton, Reid & Hammond, 2004). Thus, the reviews that focused on only one of them missed some of the more effective programs and they did not have the chance to show what combinations might have yielded better outcomes.

Fourth, the reviews of the interventions did not focus on the sample characteristics of the intervention study, which may have been influencing the effects beyond the influence of the program characteristics. Some intervention studies have shown that low SES samples benefited less from the programs (Webster-Stratton & Hammond, 1990; Knapp & Deluty, 1989). Moreover, individuals coming from different race/ethnicity or cultural context could respond differently to the same intervention program, so examining the effectiveness of interventions on different race/ethnicity groups would have revealed whether the interventions should be tailored according to the cultural characteristics of the participants and whether SES had to be taken into consideration while examining the effectiveness level of an intervention program.

Fifth, the effectiveness of the interventions varied according to the intervention type and the severity of the externalizing problems in several reviews. It was seen that universal/selected interventions were lower in effectiveness compared to indicated or diagnosed populations (Wilson, Lipsey, & Derzon, 2003; Lösel & Beelmann, 2003). However, despite the fact that the effectiveness of the interventions according to intervention types was found to differ in these reviews, further investigation of the program effectiveness

was conducted without taking the intervention type into consideration. While delineating the influential characteristics of the programs, the idea that different program characteristics could be differentially effective in different intervention types was not investigated. For example, the length of the intervention required by different populations could be different related to the severity of the externalizing behaviors. Therefore, it is possible that the findings of these reviews may not be generalized to every intervention type.

Although the previous reviews had some drawbacks, they provided important information that might guide future studies. For instance, although the interventions conducted on a wide age range were not really comparable for the reasons mentioned above, if they revealed that the interventions at one developmental period were more effective, then later studies could focus on that developmental period or other studies could investigate the reason behind this finding (whether this resulted from a particular characteristic of the developmental period or the characteristics of interventions designed for that period). Moreover, focusing on the interventions that targeted one domain or one method gave information regarding the particular effect of these interventions. When comparing interventions targeting multiple domains or use multiple methods, we could thus have a baseline for comparing some of our findings. For instance, if social-skills training were found to be effective in reducing externalizing behaviors, then we could infer that the interventions that were effective might have the common characteristic of using social skills training.

This thesis tried to overcome the disadvantages of previous reviews and benefited from their important findings. First of all, this study was a quantitative review and it was complementary to many of the qualitative reviews. Second, it focused only on the preschool

period. Focusing on one developmental period allowed the inclusion of qualitatively comparable programs in the review. Third, the review was quite extensive in the sense that it included interventions that targeted different domains as well as multiple domains. Moreover, interventions that utilized any one technique were not preferred and one of the aims of the study was to reveal the methods and domains associated with the increased effectiveness of programs. In addition, the review examined the influences of the SES and the race/ethnicity of the sample. Finally, the idea that interventions with different characteristics could be more effective for populations with different severity of externalizing behaviors was taken into consideration.

The results of this review have increased our knowledge about what characteristics of interventions were influential on the final child outcomes and what was their relative weight regarding the effectiveness. On the basis of this knowledge, implications for designing an intervention for Turkish children were drawn. An actual intervention was designed in line with the findings of the study.

2.2 Conceptual Model

Many interventions that targeted preschool children with externalizing behaviors have been conducted. All of these interventions used different methods and achieved different levels of effectiveness. Although it was possible to compare the overall effectiveness of each intervention, determining the intervention characteristics that were responsible for differences in effectiveness was difficult. This difficulty arose due to two reasons. First was that each intervention contained multiple factors that could contribute to the specific outcome. The

second reason was that these factors influenced each other and may not have had a direct effect on the outcome. Thus, a multivariate conceptual framework was required in order to represent intervention effectiveness. When analyzing the effects of interventions, both the direct effect of the characteristics of the interventions and the relationships between different characteristics of interventions were taken into consideration. Otherwise, the whole mechanism behind the effectiveness of interventions would not have been captured.

The influences on the intervention outcomes was examined in two models which were the models of (1) study characteristics and, (2) the intervention program characteristics related to the intervention process. In addition to these models, whether using different control groups in designing the intervention study was influential on intervention effectiveness was examined, as a factor associated with evaluation design.

2.2.1 Model 1: Intervention Study Characteristics

There were many different characteristics of the studies conducted to evaluate the intervention programs. The most important study characteristics were the SES level and the race/ethnicity composition of the sample evaluated in the sample, the country where the intervention program was conducted and the publication date of the program evaluation.

The race/ethnicity and the SES of the evaluation sample made up the cultural characteristics of the participants of an intervention. These characteristics were also the indicators of the environmental conditions of the program. When the same intervention was conducted with a low or middle/high SES sample, the effectiveness could vary because the

low SES children could encounter additional risk factors such as high levels of stress due to poverty. Similarly, the same intervention program conducted with a sample from different race/ethnicity could vary in effectiveness due to language problems (e.g. Hispanics) or day-to-day discrimination that could influence the occurrence of externalizing behaviors.

2.2.2 Model 2: Intervention Program Characteristics

There were many different characteristics of interventions for reducing the externalizing behaviors at preschool period that were considered. The most important characteristic was the intervention type. The target population influenced all the characteristics of the program and altogether these determined the effectiveness of an intervention program. Other important program characteristics were the length and the intensity of the program, the target domain and group type of the intervention. The conceptual framework for intervention effectiveness is depicted in Figure 2.2.

When we consider the interactions between intervention characteristics, one of the central components that determined the intervention outcome was the intervention type. Universal, selective, indicated or diagnosed interventions were considered. Universal population consisted of the general public or a population that was not identified on the basis of individual risk. Selective populations were made up of individuals or subgroups whose risk of developing mental disorders was significantly higher than average based on biological or social risk factors. Indicated populations consisted of individuals who were identified as having signs or symptoms or biological markers related to mental disorders, but who did not yet meet diagnostic criteria (Greenberg, Domitrovich, and Bumbarger, 2001). The diagnosed

population contained individuals who met the diagnostic criteria for externalizing problems. DSM- IV specified the disorders that met the diagnostic criteria as attention deficit hyperactivity disorder, oppositional-defiant disorder and conduct disorder (APA, 1994). The evaluation studies conducted with diagnosed samples generally selected their sample according to DSM-IV criteria. Accordingly, the structure of the intervention was different and the effectiveness changed. The characteristics that were posited to be influenced by the target population were the length and intensity of the interventions, the domain of the intervention and the methods used in the intervention. The length and intensity of the intervention would depend on the severity of the externalizing behaviors observed in the target population.

A second central characteristic that was posited to influence other characteristics of interventions as well as intervention effectiveness was the intervention domain. Interventions targeted parents, teachers or the child. The domains targeted by the intervention determined what environmental factors around the child or what characteristic of the child were to be modified. The whole content of the intervention and the methods to be applied would be determined by the domain of the intervention. The methods and content used for parents, children or teachers would not be the same. The domain of the intervention would affect the trainer characteristics, the length and the intensity of the interventions, too.

Although the length and the intensity of the program were posited to be influenced by other factors, they were only expected to influence the program effectiveness. Furthermore, it should be noted that there might not always be a positive linear association of the intensity and length of the intervention with its effectiveness. The optimum levels could empirically be determined for maximum effectiveness.

This complex relation between the variables that influenced the effectiveness of intervention was empirically estimated. Moreover, the relative importance and unique contribution of each variable to the effectiveness provided valuable information for future interventions to be designed and implemented.

2.2.3 Evaluation Factors

Although the characteristics of the interventions were what meaningfully determined their effectiveness, different experimental methods were used in order to quantify the effects of the interventions. Thus, the design of the intervention study was also examined before drawing conclusions regarding the effects of the interventions. The design variable taken into consideration in this meta-analysis was the type of control group used in the study. Taking only the intervention characteristics into account was not considered enough to understand the effectiveness of an intervention.

2.3 Hypotheses

The following hypotheses were tested in this meta-analysis:

Hypothesis 1: On average the interventions on externalizing behaviors are effective, because according to the previous reviews interventions targeting the externalizing behaviors of preschool children were generally found effective (McMahon, 1994; Sheldrick, Kendall & Heimberg, 2001; Stormont, 2002).

Hypothesis 2: The interventions are less effective on low SES groups than they are on high SES groups, because the children and the families in this group carry additional risk factors that might lead to limited malleability through interventions. Although previous reviews conducted on interventions targeting externalizing behaviors of children did not examine the association between the SES level and program effectiveness, some intervention studies have findings supporting this hypothesis (Webster-Stratton & Hammond, 1990; Knapp, & Deluty, 1989).

Hypothesis 3: The interventions are more effective on children with more severe externalizing behaviors, since the children with high levels of externalizing behaviors have higher levels of baseline externalizing behaviors. According to previous reviews, the interventions targeting universal or selected populations, which include children with lower levels of externalizing behaviors, are less effective compared to the interventions targeting indicated or diagnosed populations which include children with higher levels of externalizing behaviors (Wilson, Lipsey & Derzon, 2003; Lösel & Beelmann, 2003).

Hypothesis 4: The intensity of the programs influences the intervention effectiveness, because it may be predicted that when the interventions are implemented more frequently, then the effects may increase since the participants are exposed to more training during a given length of time. Although not many reviews examined the influence of the intensity of the program on intervention effectiveness, Wilson, Lipsey & Derzan (2003) found that the intensity of the school-based interventions is a characteristic that significantly increases the program effectiveness.

Hypothesis 5: The length of the intervention programs influences the intervention effectiveness, because the length of the program determines how much time the participants spend being exposed to the program. However, longer programs are not necessarily more effective programs. There may be a length that optimizes the effectiveness. Although previous reviews did not much examine the influence of the length of the intervention, Maughan, Christiansen, Jenson, Olympia & Clark (2005) found that behavioral parent training programs conducted in 1-5 sessions were more effective compared to longer interventions.

Hypothesis 6: The interventions that target children, parents and teachers are more effective than the interventions that target a single domain or interventions that target a combination of these domains (i.e., parents and children, parents and teachers or children and teachers), because those interventions target all of the problematic domains of the child, therefore, all of the domains of a child's life support a positive change in socio-emotional development. Although none of the reviews compared the effectiveness of the interventions that targeted all of the three domains, some intervention programs that targeted all of these domains (Webster-Stratton, Reid, & Hammond, 2004) and some reviews that compared more than one domain (Bullis, Walker, Sprague, 2001) indicate that multimodal interventions are more effective.

Hypothesis 7: The group type of the intervention program influences intervention effectiveness, because whether the same program is delivered to an individual or a group may have an influence of how much each individual benefits from the same program. Also, the interactions in a group may have an influence on the retention of

the teachings of a program. Maughan, Christiansen, Jenson, Olympia & Clark (2005) found that behavioral parent training programs delivered to individual parents were more effective compared to the ones delivered in parent groups. However, the influence of the group type on child training programs or teacher training programs were not previously investigated.

Hypothesis 8: The methods used by the intervention program influence the intervention effectiveness. Although the domain targeted by the intervention program is influential, it is seen that interventions targeting the same domain may apply different methods. Methods used may make a difference in the effectiveness. For example, among the school-based interventions, the counseling and behavioral approaches were the most effective (Wilson, Lipsey, & Derzon, 2003). Moreover, among the parent training programs, the ones that used video modeling techniques were generally found more effective (Brestan & Eyberg, 1998; Sheldrick, Kendall & Heimberg, 2001).

Hypothesis 9: As the negative parenting practices decrease, the externalizing behaviors are reduced, because the studies regarding the development of the externalizing behaviors indicate that high levels of harsh parenting and a coercive relationship between the parents and children coexist and may lead to externalizing problems (Sanson & Rothbart, 1995). Moreover, the effectiveness of the parent training programs that reduce the level of negative parenting behaviors on the externalizing behaviors of children show that the decrease in negative parenting behaviors lead to a decrease in the externalizing behaviors of children (Sheldrick, Kendall & Heimberg, 2001; Brestan & Eyberg, 1998; Reid, Webster-Stratton & Hammond, 2003).

2.4 Implications and Implementation for Turkish Children

After the meta-analysis was conducted and results regarding the effectiveness of interventions were revealed, some implications for an intervention will be drawn. In this process, as well as the meta-analyses findings, the cultural characteristics of Turkish children and previous interventions implemented in Turkey were the main sources of information. The implications of the meta-analysis for a Turkish case were drawn in the light of the answers to the following questions:

1) Are interventions effective (on average)?
2) What combination of parent/teacher/child intervention leads to the best outcomes?
3) When are group versus individual interventions for children and parents more effective?
4) What characteristics of the interventions are most effective?
5) What is the length of interventions that work best for each domain?
6) What method(s) utilized for teachers, children and parents leads to most improvement in child externalizing behaviors?

The implications for an intervention to be designed in Turkey were drawn from the meta-analysis findings and the previous interventions designed for this age group in Turkey. Since no previous research-based interventions for externalizing behaviors were designed in Turkey, it was only possible to take other interventions implemented for this age as an example. In this respect, the only research based intervention programs were designed and

applied by ACEV. The programs relevant for this thesis were Mother-Child Training program (MOCEP), Fathers Training program and Preschool Parent Student Program (Okulöncesi Veli Çocuk Eğitim Programı, OVÇEP). These interventions targeted both home and school domains. The specific meta-analysis findings regarding an intervention specifically designed for children with externalizing problems were blended with what was already experienced in intervening in these domains.

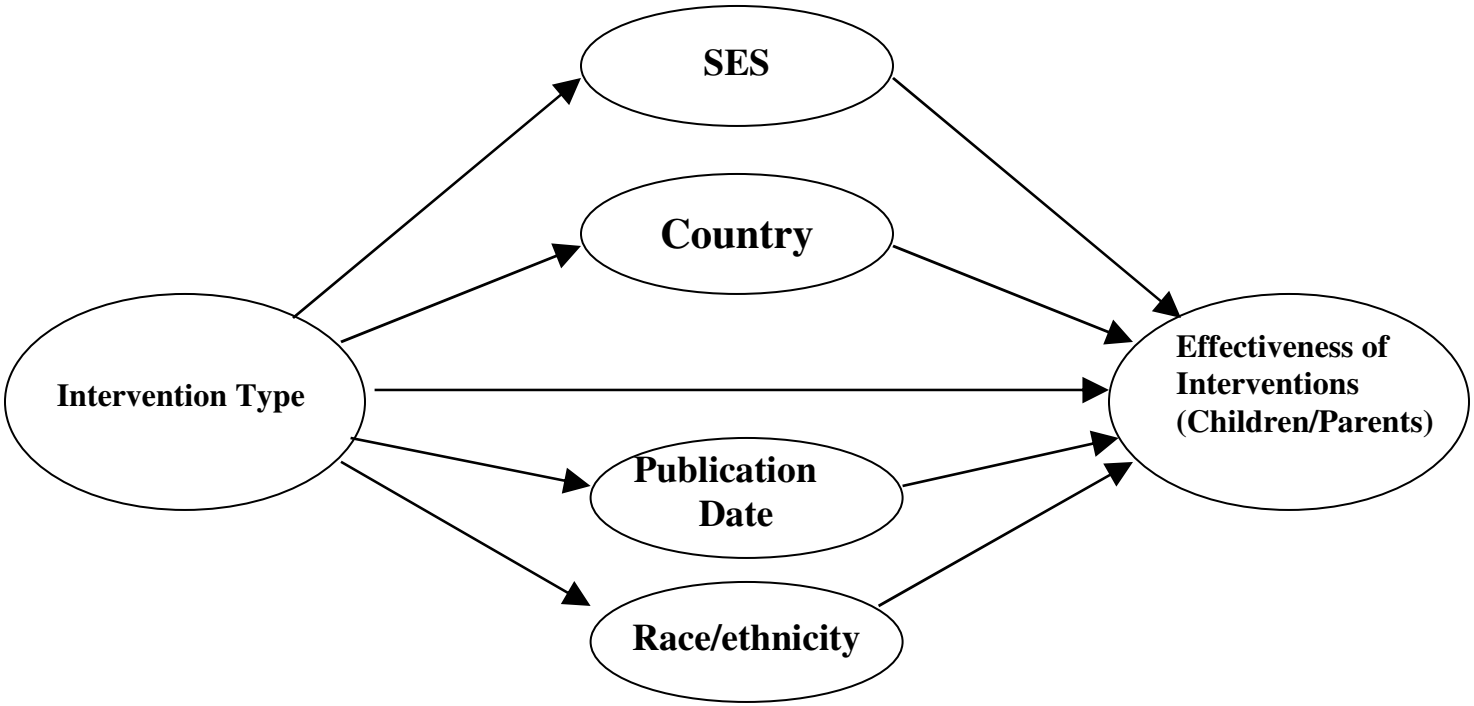

Figure 2.1 Intervention Study Characteristics

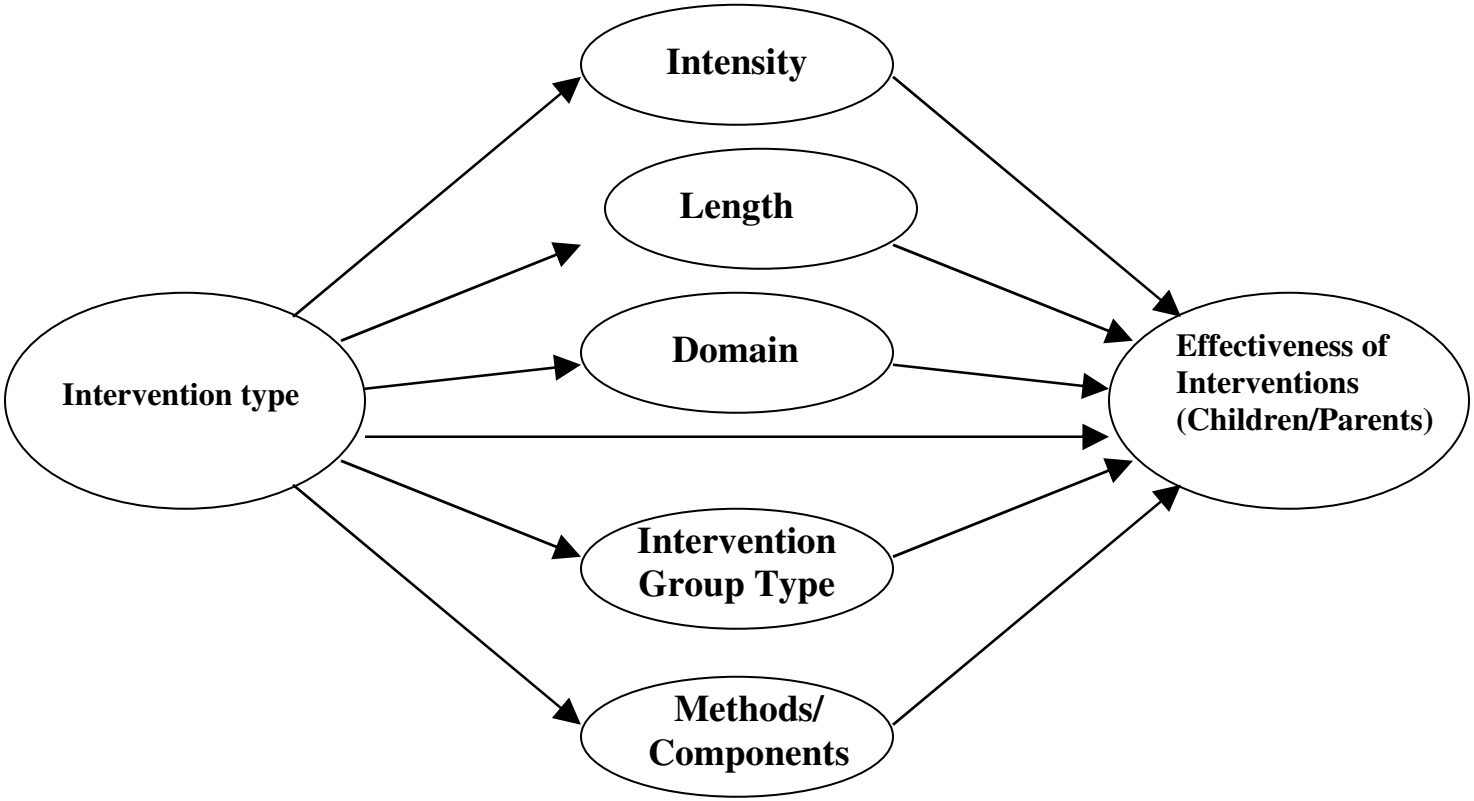

Figure 2.2 Intervention Program Characteristics

Chapter 3

METHOD

In this thesis, a meta-analysis of the intervention programs targeting preschool children with externalizing behaviors was conducted. In this section, the procedures that were carried out for data collection, coding of the studies according to the principles determined, the definition of independent and dependent variables and calculation of effect sizes were explained.

3.1 Data Collection

The studies included in the meta-analysis were retrieved from several electronic databases and Koç University Library. The databases that provided abstracts or citations for the articles from peer-reviewed journals, chapters from books or whole books on social sciences, education or medicine among the databases accessible from Koç University were selected for data collection. Data collection was carried out in the databases and libraries presented in Table 3.1. The search for studies was conduced with the keywords listed in Table 3.2. These keywords were selected in such a way that a large group of studies that reported an externalizing behavior outcome for preschool children could be retrieved from the databases or Koç University Library.

The appendices and reference lists of the selected reviews were also used as sources to find the studies that were included in the meta-analysis. The review articles were listed in Appendix A. The review articles selected included lists of (a) intervention studies targeting broad range of problems of preschool children (including externalizing behavior problems) (b) intervention studies targeting externalizing behavior problems of children from a wide range age or (c) intervention studies targeting externalizing behaviors that implemented a specific method or targeted a specific domain (such as child skills training or parent interventions). From the lists of those intervention studies, the ones that met the selection criteria of this meta-analysis were included.

3.1.1 Criteria for the Selection of Primary Studies

The eligibility criteria for this meta-analysis consisted of criteria related to the study characteristics and methodological characteristics of the study. Among the study characteristics of the interventions the age range of the sample was specified as preschool children (between the ages 3-5). The interventions that included at least one externalizing behavior outcome as a measure were selected. Among those studies, the ones that only used psychosocial interventions were included and the ones that included medical treatments were excluded. Also, the studies published in English or Turkish was included. The studies that were reached from the library or the databases had to be published between the years 1975 to 2004.

The first eligibility criterion among the study characteristics was that the study had to have at least one outcome measuring the effect of the intervention on externalizing behaviors.

As long as the study had one outcome measure of interest, the studies included did not have to have an aim of reducing or preventing externalizing behaviors. In this study, externalizing behaviors were defined as acting out, noncompliance, aggressive or disruptive behaviors. Attention Deficit Hyperactivity Disorder, Conduct Disorder and Oppositional-Defiant Disorder were included as externalizing behavior problems.

The second eligibility criterion was that the intervention sample had to include preschool or kindergarten children (between the ages 3-5). It was assumed that the externalizing behavior problems of this age group were qualitatively different from the externalizing problems of other age groups. Thus, in order to be able to include comparable interventions for externalizing behaviors, the age range was restricted.

Only psycho-social intervention studies were included in the meta-analysis and the medical interventions were excluded. If an intervention study included both psycho-social and medical approaches at the same time, then those studies were also excluded. This study focused on psycho-social interventions, because the medical treatments and psychosocial treatments were effective through different mechanisms. The comparison of these interventions would not be meaningful. In addition, evaluating the effectiveness of the medical treatments on externalizing behaviors required knowledge on neurobiological processes, which was outside the scope of this thesis. The interventions that applied both psycho-social and medical treatments were excluded, because in those intervention studies it was not possible to identify how much of the effect should be attributed to each component of the intervention.

Finally, studies published between the years 1975-2004 were included. Also, the studies included had to be published in English or Turkish. There were two reasons for limiting the publication to these dates: (1) it was not possible to obtain many studies published before the year 1975, and (2) it was seen that the most significant progress in interventions targeting preschool children with externalizing behaviors were made between these years and the most effective interventions were developed during this period (Durlak, Fuhrman & Lampman, 1991).

Table 3.1 *Description of the Databases Included in Data Collection*

Databases	**Description**
Academic Search Premier	Multi-disciplinary database provides full text for more than 4,500 publications, including full text for more than 3,600 peer-reviewed journals. 1975 or further are available for over one hundred journals, and searchable cited references are provided for more than 1,000 titles.
MEDLINE	Provides authoritative medical information on medicine, nursing, dentistry, veterinary medicine, the health care system, pre-clinical sciences, and much more. Created by the National Library of Medicine, contains abstracts from over 4,800 current biomedical peer-reviewed journals.
ERIC	Contains more than 2,200 digests along with references for additional information and citations and abstracts from over 1,000 educational and education-related peer reviewed journals.
Psych Info	From the American Psychological Association (APA), contains more than 2 million citations and summaries of scholarly journal articles, book chapters, books, and dissertations, all in psychology and related disciplines, dating as far back as the 1800s. 97 percent of the covered material is peer-reviewed.
Wiley	Includes 1000 peer-reviewed journals in business, chemistry, computer science, earth and environmental science, education, engineering, law, life sciences, mathematics and statistics, medicine and healthcare, physics and astronomy, polymers and materials science, psychology, social sciences.
JSTORE	Includes many of the core research and society published journals in economics, history, political science, and sociology, as well as in other key fields in the humanities and social sciences. This collection also includes a selection of titles in the more science-oriented fields of ecology, mathematics, and statistics.
SPRINGERLINK (previously known as Kluwer)	More than 1,200 full-text scientific, technical & medical journals SpringerLink is the premier electronic data source from Springer for researchers in biomedicine, life science, clinical medicine, physics, engineering, mathematics, computer science, humanities, and economics.
EJS	EBSCOhost Electronic Journals Service (EJS) is a full-featured, comprehensive gateway to electronic journals under the database including EBSCOhost, ScienceDirect, Blackwell, Wiley.
Proquest	It includes articles from ABI/INFORM, Accounting & Tax, Banking Information Source, Career and Technical Education, Hoover's Company Records, Asian Business, Computing, Education Journals, European Business, Financial Times, Wall Street Journal Europe, Psychology Journals, Religion, Social Science Journals, Telecommunications, PsycARTICLES, PsycINFO
Koç University Library	It includes all the Master's Thesis and PhD dissertations published in Turkey.
YÖK Thesis Catalogue	

Table 3.2

Keywords Used for Article Search

Keywords
Aggression
Attention deficit hyperactivity disorder/ ADHD
Child training
Conduct disorder/CD
Conduct problems
Disruptive behaviors
Externalizing behaviors
Externalizing problems
Intervention
Oppositional defiant disorder/ODD
Parent training
Prevention
Psychological treatment
Psychosocial interventions
Psychotherapy
Teacher training
Treatment
Treatment effectiveness evaluation
Treatment outcomes

As the methodological criteria, the studies had to have an experimental or quasi experimental design, which were evaluated with a controlled clinical trial. In addition, both pre-test and post-test outcomes had to be reported. The reason for using such strict methodological criteria was that in some cases the baseline externalizing levels at the pretest were significantly different for the control and the experimental conditions. In order to prevent the drawback that may have resulted because of the incomparability between experimental and control conditions, both pretest and posttest outcomes were required. In this way, some degree of methodological rigor was assured.

Even though these criteria had the advantage of assuring some degree of methodological rigor, they had disadvantages, too. In the process of data collection, many studies which met the program characteristics criteria were eliminated. This may have created some bias in the sample of included interventions. Since methodologically rigorous studies may have required a higher investment, only those studies with a high amount of funding may have been included. Moreover, most of these studies might have received public funding, thus, the bias may have been towards the studies that were supported by the government.

The government may have preferred to support studies with certain characteristics and may not have supported others. Primarily, the government would likely fund the interventions that were relevant to their concerns, and had the potential for wider implementation. This would exclude interventions with flexible or client driven curricula, interventions that may have had long programs and programs that targeted a very narrow group of families. Moreover, novel approaches that were potentially effective, but whose effectiveness was not yet proven might not have been funded. Those studies that were not funded by the government and conducted with limited budget may not have met all of the methodological criteria. Therefore, these studies could have been under-represented in the meta-analysis.

In addition, if the government was not supportive of the interventions as a policy, more cost-effective interventions may have been funded instead of some more effective interventions that required higher budgets. For example, individual child or individual parent interventions may have been more effective on children with especially elevated externalizing behavior problems, since the interventions may have been more customized according to the needs of each child or family, but these interventions usually required more funds. On the other hand, a group intervention for children or parents could have been more cost and time effective. Moreover, especially for interventions that targeted externalizing behaviors at school domain, the primary concern of the government may have been to eliminate the problems as soon as possible. This may have led to a bias against interventions that took a longer time, but in the long run would be more effective for children. These may have been some factors that influenced which interventions were supported, could meet the eligibility criteria, and thus could be included in this meta-analysis.

Another result of the methodological criteria of selection was that interventions that were conducted in different countries were excluded, since they did not meet the methodological criteria. For example, studies conducted in Taiwan and Spain were excluded. However, these interventions could have different characteristics or outcomes than the interventions in the U.S due their cultural context.

3.1.2 Characteristics of the Sample

As the result of the selection process, 33 studies met the eligibility criteria. The list of the articles included in the study is presented in Appendix B.

If a study included more than one experimental condition, then each experimental condition was treated as if it was a separate study and each experimental condition was compared against the same control condition in that study. If both immediate post-test and follow-up results were reported, only post-test results were included in the analysis. The sample consisted of 17 studies that reported the pretest and immediate post test results and 20 studies that reported pretest, immediate post test and follow-up results. Among these studies, 17 investigated the effectiveness of multiple intervention conditions and 20 investigated the effectiveness of a single intervention condition. The characteristics of the sample of studies are presented in Table 3.3.

3.2 Coding Procedures

After the articles were selected according to the eligibility criteria specified, for each study the characteristics and the findings were coded. The characteristics of interest were selected according to the conceptual model that is presented in section 2.2. The studies were coded by the researcher according to predetermined criteria (see below).

In this meta-analysis, the independent variables were the characteristics of the interventions that were hypothesized to influence the effectiveness of the programs included in the study. The dependent variables were the reported study outcomes that indicated the effectiveness of each program. The dependent variables were of two types: Child outcomes and parent outcomes. An effect size was calculated for each dependent variable. The calculation of the effect size is explained in detail in section 3.3.1.

In the following section the definition of each independent and dependent variable is presented and the coding principle of each variable is explained.

3.2.1 Coding of the Factors that Influence Intervention Effectiveness

The factors that influenced intervention effectiveness were of three types: 1) study characteristics 2) program characteristics and 3) evaluation characteristics. In this section, characteristics of the intervention program were defined and how the coding system for each was introduced.

Study Characteristics

Publication Date: The publication date of the study article was coded. This was not the date the study was conducted. This was a categorical variable where dates were grouped as 1975-1980, 1981-1990, 1991-2000, 2001-2004.

Country: This variable was a categorical variable that indicated the country where the intervention took place. The categories were United States, United Kingdom, Australia and Canada.

SES: This variable indicated the SES level of the children included in each study. The SES levels were categorized as low, middle and high. The missing values indicated either that the SES level was not reported in the study or that the group of children was of mixed SES backgrounds. The SES level was coded according to the information given in the article. The information may have been either directly reported or it may have been reported as a value of an SES index. If a value of an index was reported, then the value was interpreted as low or middle/high SES. For example, if the Hollingshead Two-Factor Index of Social Position (1958) was given, scores 1, 2 and 3 were coded as Middle/high SES, whereas scores 4 and 5 were coded as low SES.

Race/ethnicity: The race/ethnicity was a variable that indicated the race/ethnicity composition of the evaluations ample. First each race was treated as a different variable ant the percentage of the race in the sample was coded. Then, five dummy variables were created that indicated the race/ethnicity characteristic of the sample. The variables were "majority white," "majority African American," "mixed ethnicity with national representative," "strong representation of non-white and non-African American," and "race missing."

Sample Size: The sample size was a continuous variable where the whole sample size was indicated as well as the sample size of the experimental and control groups. Moreover, as it was explained in the next section, the sample size varied for each dependent measure that was reported.

Program Characteristics

Intervention Type: The interventions were categorized as universal, selected, indicated or diagnosed. An intervention was coded as universal if the intervention targeted a group of children from the general population without taking into account whether the children had a risk of having externalizing problems or had these problems. The intervention was coded as selected if the targeted group of children was at risk for developing externalizing problems. The intervention was coded as indicated if the intervention targeted

children with elevated levels of externalizing problems, but the problems had not yet reached the diagnostic level. The intervention was coded as diagnosed if the group of children had externalizing problems that could be diagnosed as Attention Deficit Hyperactivity Disorder (ADHD), Conduct Disorder(CD) or Oppositional Defiant Disorder (ODD).

After the target group characteristics were coded, universal and selected interventions were combined, because the sample size for the universal interventions was too small. The resulting categories of this variable were "universal/selected," "indicated" and "diagnosed."

Target Sample: The samples of the interventions could be at-risk, ADHD, ODD or CD. In order to better understand the nature of the sample, four dummy variables were created that described the target sample, these were coded as "at-risk," "ODD or CD" and "ADHD without ODD or CD." The reason for this differentiation between ADHD samples and non-ADHD samples among the diagnosed samples was because of the nature of ADHD. Since ADHD was thought to be more of a biological disorder influencing attention regulation, interventions targeting ADHD and non-ADHD samples may have yielded different results.

Domain of Intervention: This variable was a categorical variable that indicated whether an intervention was applied to children, parents or teachers. Each domain was first

treated as a different variable and for each study the presence of the domain was indicated as 1 and the absence of the domain was indicated as 0. These domains were not mutually exclusive categories and there could be more than one domain for an intervention. Target domain was then combined into new categories. The categories created for this variable were "parents with or without teachers", "parents and children with or without teachers" and **"**children with or without teachers." Additionally, in order to examine the effectiveness of interventions in detail the domain variable was coded into seven categories: "only parents", "only children", "only teachers", "parents and children", "children and teachers", parents and teachers" and "parents, children and teachers."

Intervention Group Type: This variable indicated the size of the unit of intervention. The interventions were categorized as child group, parent group, teacher group, individual child, individual parent or individual teacher, parent-child dyad, parent-teacher dyad or teacher-child dyad. Each category was treated as a different variable and each one was coded either as 0 or 1. The group type was then recoded into a new summary variable based on empirical distributions. The categories created were "individual parent," "only parent group," "any parent-child dyad," "any child group without parent-child dyad" and "parent groups and teacher groups."

Number of sessions: This variable was a continuous variable that indicated the number of session the intervention was conducted. After the coding was completed, the lengths of the

interventions were coded as “1-10 weeks,” “11-20 sessions,” “21-60 sessions” and “61 or more sessions.”

Intensity of the Intervention: The intensity variable was a categorical variable that indicated how frequent the intervention was applied to the targeted group. The categories were “daily,” “weekly,” and “other”.

Child Methods: This was a categorical variable and it indicated the methods adopted by the interventions that targeted children as a domain. Originally each of the methods were coded as a separate dummy variable (0-1) that indicated whether the intervention (a) taught self regulation (b) taught emotion regulation (c) taught emotion recognition (d) taught problem solving or (e) did social skills training. After the coding was completed, the methods were combined into the following categories: (a) teaching problem solving skills, but no emotion or behavior regulation training (b) teaching problem solving and emotion or behavior regulation training (c) any method without problem solving skills. It is important to note that every child intervention included social skills training, so a social skills training component was present in all categories.

Parent Methods: This was a categorical variable and it indicated the methods adopted by the interventions that targeted parents as a domain. Originally each of the methods were coded as a separate dummy variable (0-1) that indicated whether the intervention (a) taught

parental discipline techniques (b) improved parent-child relationship (c) taught techniques to reduce parental distress (d) taught self control or (e) improved parent-teacher relationship. After the coding was completed, these methods were combined into the following categories: (a) Both parental discipline and parent-child communication and any other component (parental distress, self control or both) (b) Parental discipline, but not parent child communication (c) Only parent-child communication.

Teacher Methods: This was a categorical variable and it indicated the methods adopted by the interventions that targeted teachers as a domain. Originally each of the methods were coded as a separate variable dummy (0-1) that indicated whether the intervention (a) taught teachers class management (b) taught techniques to improve parent-teacher relationship or (c) taught techniques to improve teacher-child communication.

Intervention Method: After categorizing the parent, child and teacher methods in themselves, all of the methods were combined in one summary variable, since the effectiveness of the combination of methods coming from different domains may have been different when compared to the effectiveness of the methods applied to a domain by itself. The following categories were created:

- Parent-child communication and discipline training to parents; no child, and no teacher intervention
- Discipline training to parents; no child, and no teacher intervention

- Problem solving training to children; no parent, and no teacher training
- Other parent and/or child methods; no teacher intervention
- Teacher interventions

Evaluation Factors

Type of Control Groups: This variable was a categorical variable that was related to the design of the study and indicated the nature of the control group used in the study. The categories were "experimental design with random assignment to waitlist controls," "quasi experimental design with random assignment" and "experimental design with matched controls."

3.2.2 Coding of the Dependent Variables

The dependent measures were the effect sizes calculated for each outcome measure reported in each study. The effect sizes were calculated using the raw means, standard deviations and sample sizes for the pre and post measures of each experimental and control group. A list of the measurements classified according to the behavior measured and a description of each measure was presented in Table 3.4.

Table 3.3

Characteristics of the Sample of Studies Included in the Meta-analysis

Characteristics	Frequency (N = 57)	Characteristics	Frequency (N = 57)
Publication Date		Target sample	
Before 1980	3	At Risk	35
Between 1980-1989	10	ODD	16
Between 1990-1999	16	CD	10
Between 2000-2004	28	ADHD	8
Country		Target Domain	
Australia	5	Child	20
Canada	6	Parents	44
UK	1	Teachers	9
US	45		
Race/Ethnicity		Intervention Group Size	
Majority white	24	Parent-child dyad	13
Majority African American	8	Teacher-child dyad	1
		Parent Group	28
Mixed ethnicity with national representative	5	Child Group	17
		Teacher Group	7
		Individual child	-
Strong representation of non-white and Non-African American	7	Individual parent	13
		Individual teacher	-
Missing	13		
SES		Parent Methods	
Missing	27	Parental Discipline	42
Low	21	Parental Distress	5
Middle	9	Parent Child Communication	31
		Parent Teacher Communication	1
		Self Control	5
Intensity		Child Methods	
Daily	10	Self regulation	11
Other	3	Emotion regulation	7
Weekly	44	Emotion recognition	4
		Social skills	19
		Problem solving skills	14
Target Population		Type of control Group	
Diagnosed	22	Experimental with matched controls	1
Indicated	19		
Universal/ Selected	16	Quasi experimental with random assignment	8
		Experimental with random assignment with waitlist controls	48

Table 3.4

Coding Principles for the Dependent Variables

Name of the Measure	Name of the Sub measure (Factor)	Description of the Measure
Child Outcomes		
Parent Report Child Externalizing Behaviors		
ADHD Rating Scale (DuPaul, 1990)		It is an 18-item scale for parents reporting on ADHD symptoms.
Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992)	Externalizing T score	It is a 148-item measure that assesses children of 4-18 year old in three domains: externalizing behaviors, internalizing behaviors and adaptive skills. The externalizing domain is composed of three scales: aggression, hyperactivity and conduct problems.
Behavior Checklist for Infants and Children (BCIC; MacPhee, 1986)	Problem Behavior	It measures the total behavior problems of children and infants.
Behavior Screening Questionnaire (BSQ; Richman & Graham, 1971)		It is a questionnaire used to identify emotional and behavioral problems in preschool children.
Child Behavior Checklist (Achenbach & Edelbrock, 1991; CBCL; Achenbach & Rescorla, 2000; Achenbach, 1994; Achenbach, Edelbrock, & Howell, 1987; Achenbach & Edelbrock, 1983)	Total Externalizing Behaviors	It is a 118-item scale of behavior-problem items designed for 4-16 year old children. Total externalizing behaviors subscale includes aggressive, antisocial and under controlled behaviors.
Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978; Robinson, Eyberg & Ross, 1980; Eyberg, 1992; Colvin, Eyberg, & Adams, 1998, Eyberg & Pincus, 1999)	Intensity Score	It is a 36-item child conduct-behavior problem inventory for 2-16 year old children. Intensity score measures the frequency with which the problem behavior occurs.
Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978; Robinson, Eyberg & Ross, 1980)	Problem Sore	It is a 36-item child conduct-behavior problem inventory for 2-16 year old children. Problem score measures the frequency with which the problem behavior occurs.
Home Situations Questionnaire (Barkley & Edelbrock, 1987)		It is a measure that rates the occurrence and severity of problems in 16 situations at home.

Preschool Behavior Questionnaire (PBQ; Behar & Stringfield, 1974)	Total Score	It is a 30-item parent report instrument that provides a total score of problematic child behavior.
Parent Daily Reports (PDR; Chamberlain & Reid, 1987; Webster-Stratton & Spitzer, 1991)	Target Negative Behaviors	It is a phone call checklist, where parents report the occurrence and nonoccurrence of the target behaviors during the previous 24-hour period. It consists of 19 negative and 19 prosocial behaviors commonly exhibited by children. Two summery scores were derived: negative behaviors and prosocial behaviors. Target Negative Behaviors are the number of behaviors from the negative behaviors checklist observed by the mothers.
Home Observation Child Externalizing Behaviors		
Coders Impression Inventory (CII-M; adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989)	Percent Time Child Inappropriate	It is coding system based on a 30 minute parent-child observation. Percent Time Child Inappropriate score is the percent of time child was inappropriate.
Coders Impressions Inventory (CII; adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989)	Overall Poor Conduct	It is coding system based on a 30 minute parent-child observation. Overall Poor Conduct score is the percent of time child was inappropriate.
Continuous Performance Test (CPT; Gordon, 1983)	Total correct-Disruptive Behavior	During a continuous performance task lasting for 6 minutes designed for preschool children, the children are videotaped and later their disruptive behaviors are coded t the categories: off-task, fidgets, vocalizes and out-of-seat.
Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1989)	Negative Behavior	It is a home observational measure for parents and children during play. The aversive (non-compliance, destructive behavior, physically negative behavior, crying, whining, yelling and smart talk) and positive (positive verbal and nonverbal behaviors) child behaviors during play is coded. Negative behaviors are the logit transformation of the ratio of aversive to positive child behaviors.
Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1989)	Child Total Deviance	It is a home observational measure for parents and children during play. The ratio of negative and positive behaviors during play is reported. Child Total Deviance includes non-compliance, destructive behavior, physically negative behavior, crying, whining, yelling, smart talk.

Dyadic Parent-Child Interaction Coding System II (DPICS-II; Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994)	Total Number of Child deviance	It is a behavioral coding system designed to assess the quality of parent-child social interactions. It provides an observational measure of parent and child behaviors in the laboratory during three 5 min. standard situations that vary in the degree of parental control expected. Total Number of Child deviance is the sum of child's criticisms, smart talking, whining, yelling, destructive behaviors and physical negative)
Parent-child Interaction Home Observation (Cunningham, Bremner & Boyle, 1995)	Total Negative Child Behavior	The parents and children were observed in six 5-minute observations. Observers coded these child behaviors: interaction, off task, negative behaviors. Total Negative Child Behaviors include off task behaviors, rule violations and noncompliance
Revised Family Observation Schedule (FOS-R-III; Sanders, Waugh, Tully, & Hynes, 1996)	Observed Negative Child Behavior Percentage	It is coding system based on a 30 minute parent-child observation, divided into three 10 minute tasks. The tasks are: mother-child working on a workbook, mother and child working on separate activities, parent directed 10 standardized instructions. Two scores were computed: negative mother behavior score and negative child behavior. The negative child behavior is percentage of 10 second intervals the child showed noncompliance, complaint, aversive demand, physical negative or oppositional behavior.
Home Observation Child Compliance		
Parent-child Interaction Home Observation (Cunningham, Bremner & Boyle, 1995)	Compliance Ratio	The parents and children are observed in six 5-minute observations. Observers coded these child behaviors: interaction, off task, negative behaviors.
Dyadic Parent-Child Interaction Coding System (DPICS; Robinson & Eyberg, 1981)	Total Noncompliance	In this coding system 29 parent and child behaviors are coded present or absent for six 5-minute observations. Then five variables were formed from these for mother behaviors: total praise, total critical statements, total commands, total no opportunities, direct command ratio. Child Total Noncompliance is the ratio of noncompliant behaviors to the total of compliant and noncompliant behaviors.

Dyadic Parent-Child Interaction Coding System II (DPICS-II; Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994)	Child Compliance	It is a behavioral coding system designed to assess the quality of parent-child social interactions. It provides an observational measure of parent and child behaviors in the laboratory during three 5 min. standard situations that vary in the degree of parental control expected. Child Compliance is reported as a percentage of commands obeyed.
School Observation Child Aggression Outcome		
Focal-Child Observational Scheme (Altman, 1974)	Aversive	It is a coding system based on one hundred and twenty 5-s observations. Each 5-s was coded as one of the following specific behaviors: a) leading, questions c)supports d) comments e) positive social other f) aversive g) onlooker h) nonsocial i)parallel, j)if child interacts only with teacher. For the purpose of this study the measure of aversiveness was used.
Minnesota Preschool Affect (MPAC; Sroufe, Schork, Motti, Lawroski & LaFreniere, 1984)	Negative Affect	This observation summarizes aspects of affect and social interaction. The negative affect score measures the expression and regulation of distress, displeasure and discomfort.
School Observation Compliance Outcome		
Observation in Classroom (Breiner & Forehand, 1981)	Compliance versus Noncompliance	It is a coding system based on 45 minute observations of three target children. Each child is observed for 10 seconds and marked in the next 10 seconds for target behaviors. The behaviors are coded into three categories: (a) appropriate behavior vs. oppositional behavior (b) compliance vs. noncompliance (c) on task vs. of task. Compliance vs. noncompliance is the ratio of time child obeyed the teacher to the time child did not obey.
Teacher Report Externalizing Outcome		
Early Screening Project (Walker, Severson & Feil, 1995)	Maladaptive Teacher Rating Scale	It is a 9 item teacher report scale on the behavior adjustment problems of the target child.
Social Skills Rating System (SSRS; Gresham & Elliot, 1990)	Problem Behaviors	It is a teacher report of 3-point likert scale on two domains: social skills and problem behaviors. The problem behaviors include externalizing behaviors.

Composite Score for Child Externalizing Behaviors		
Conduct Problems (Webster-Stratton, Reid, & Hammond, 2004)	Child Conduct Problems at Home	It includes a parent report: ECBI (Robinson, Eyberg, & Ross, 1980) and four independent observations of aggression and inappropriate behavior at home: CII (adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989): overall poor conduct and percentage time inappropriate; Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1989): total deviance-noncompliance and child negative affect).
Conduct Problems (Webster-Stratton, Reid, & Hammond, 2004)	Child Conduct Problems at School	It includes two teacher report variables: Teacher Assessment of School Behavior (TASB; Cassidy & Asher, 1992): Aggressive behavior scale and the Teacher Rating scales of Perceived Competence Scale for Young Children (PCSC; Harter & Pike, 1994): behavior conduct score. It also included two independent observations teachers in the classroom (MOOSES; frequency of child negative behaviors with teachers and peers) and coder rating of poor authority acceptance from the Social Health Profile (SHP).
Composite Score for Child Aggressive Behaviors		
Aggression Composite		It includes two teacher and two parent reports which are: The Teacher Observation of Classroom Adaptation- Revised (TOCA-R; Werthamer-Larson, Kellam, & Wheeler, 1991): Aggressive-Disruptive items; The Parent Observation of Classroom Adaptation (POCA; Werthamer et al., 1991): Aggressive-Disruptive items; The Behavioral Assessment System for Children-Teacher Rating Scale (BASC-TRS; Reynolds & Kamphaus, 1992): Aggression sore; The Behavioral Assessment System for Children-Parent Rating Scale (BASC-PRS; Reynolds & Kamphaus, 1992), Aggression score.

Assessment of Child Externalizing Behaviors		
Preschool Interpersonal Problem Solving (Shure & Spivack, 1974)		The purpose of this assessment is to elicit from the child as many different solutions as possible to two types of interpersonal problems: 1) ways a child might obtain a toy another has 2) ways to avert mother's anger caused by having damaged something of value.
Parent Outcomes		
Self Report Negative Parenting		
Parent Behavior Inventory (PBI; Budd, Riner, & Brockman, 1983)	Punitiveness	It is an inventory that measures 10 specific techniques of child management evaluated on a 5 point scale. The techniques are: promoted techniques (praise, ignoring, and consequences) and negative techniques (spanking, scolding and threatening). The punitiveness factor included the negative techniques.
Parent Stress Index- Short Form (PSI-SF; Abidin, 1995)	Parent-Child Dysfunctional Interaction	It is a 36 item self report of the amount of the stress experienced by parents of young children. Parent-Child Dysfunctional Interaction measures the parent's perception that his or her child does not meet the parent's expectations and the interactions of with his or her child are not satisfying.
Parental Scale (PS; Arnold et al., 1993)	Laxness	It is a 30-item questionnaire that asks parents to characterize how they handle their children's misbehavior by describing their own behavior on 30 behavioral dimensions, from calming to yelling. The laxness factor describes ways in which parents give in, fail to enforce rules, or positively reinforce negative behavior.
Parental Scale (PS; Arnold et al., 1993)	Mother score	It is a 30-item questionnaire that asks parents to characterize how they handle their children's misbehavior by describing their own behavior on 30 behavioral dimensions, from calming to yelling. The mother score consists of over reactivity (authoritarian discipline, displays of anger, meanness and irritability) and verbosity (overly long reprimands or reliance on talking) factors.

Parenting scale (PS; Arnold, O'Leary, Wolff & Acker, 1993)	Overreactivity	This self-report scale measures the dysfunctional discipline practices of parents. Overreactivity measures harsh, aggressive and authoritarian discipline behaviors.
Observation Negative Parenting		
Coders Impressions Inventory (CII; adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989)	Harsh or Critical Parenting	It consists of 12 items pertaining to lack of acceptance, condemnation and disregard for the child, criticisms, sarcasm, anger and unreasonable request. Harsh or critical parenting includes threatening, criticizing, sarcasm, shouting, nagging, physical aggression, oppressive behaviors and expressing anger while discipline.
Coders Impression Inventory (CII-M; adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989)	Harsh/Critical parenting	It is an impression coding system based following a 1/2 hour parent-child observation. Two constructs from this measure is used: a) harsh/critical parenting b) emotional/cognitive stimulation. The harsh/critical Parenting includes lack of acceptance, condemnation, and disregard of the child, criticisms, sarcasm, anger and unreasonable requests).
Direct Home Observation(Conduct Problems Prevention Research Group, 1999)	Inappropriate Commands	The parents and children are observed during an 18 minute structured task. Then the frequency of inappropriate commands and parental praise is coded. Inappropriate Commands is the ratio of parental praise to inappropriate commands.
Dyadic Parent-Child Interaction Coding System (DPICS; Robinson & Eyberg, 1981)	Critical Statements/ Total Criticism	In this coding system 29 parent and child behaviors are coded present or absent for six 5-minute observations. Then five variables are formed from these for mother behaviors: total praise, total critical statements, total commands, total no opportunities, direct command ratio. The total critical statements variable is used for the purpose of this study.
Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1985: revised by Webster-Stratton, 1989)	Critical Statements	It is a coding system based on six 5 -min. parent-child interactions at home. Four separate summary variables were created: Positive parenting, total critical statements, total commands and nonverbal affect dimension. Critical statements are used for the purpose of this study.

Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1989)	Negative Valence	It is a coding system based on six 5 -min. parent-child interactions at home. Four separate summary variables were created: Positive parenting, total critical statements, total commands and nonverbal affect dimension. Negative Valence is the interviewer rating of the valence on a 5 point scale.
Dyadic Parent-Child Interaction Coding System II (DPICS-II; Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994)	Criticisms	It is a behavioral coding system designed to assess the quality of parent-child social interactions. It provides an observational measure of parent and child behaviors in the laboratory during three 5 min. Standard situations that vary in the degree of parental control expected. Criticisms are the frequency of critical statements by parents.
Observation During Free Play (Barkley, Shelton, Crosswait, Moorehouse, Fletcher, Barrett, Jenkins & Metevia, 2000)	Negative Parent Behaviors	The mothers are asked to play with the toys given for 10 minutes. Negative parent and negative child behaviors were assessed on 7-point scale for 14 items each based on the observations. The negative parent behaviors are directive, commanding, punitive behaviors.
Observation During Task Setting (Barkley, Shelton, Crosswait, Moorehouse, Fletcher, Barrett, Jenkins & Metevia, 2000)	Negative Parent Behaviors	The mothers were given a list of commands to have her child perform (i. e. pick up toys, dust a table, pick up trash, pick up clothes from the table, draw a line). The negative parent behaviors (i. e. directive, commanding, punitive behaviors) were measured on 7-point scale for 14 items based on the observations.
Parent-child Observation (adapted from Barkley, 1981; Forehand & McMahon, 1981)	Percentage Negative Behavior	It is a clinical observation of parent and children which consisted of 20 min each of free play, a compliance task and parent-supervised activities. Then child and parent behaviors were coded. The parent behaviors were coded for alpha command, beta command, question, positive behaviors, and negative behaviors. The negative behaviors variable included all behavior that was directive in nature (commands and questions).

Composite Scores for Negative Parenting		
Mother Negative Parenting Composite (Webster-Stratton, Reid & Hammond, 2004)		This composite includes Parenting Practices Interview (harsh/inappropriate discipline score), Coders Impression Inventory (CII; adapted from Observer Impressions Inventory (Capaldi & Patterson, 1989)): harsh critical and family needs scores; Dyadic Parent-Child Interaction Scale - Revised (DPICS-R; Robinson & Eyberg, 1981; revised by Webster-Stratton, 1989): total critical statements) and Daily Discipline Inventory (DDI; Webster-Stratton & Spitzer, 1991): the ratio of critical to positive discipline.

3.3 Method of Analysis

In this section, first the calculation of the effect sizes was explained. Next, how the effect sizes were combined for a study is described. Finally, the weight calculation procedures are explained.

3.3.1 Calculation of the Effect Sizes for Immediate Post-test Outcomes

The outcomes that were considered to be the dependent variables of the meta-analysis were reported in the form of means and standard deviations. The means and standard deviations reported were of different assessments, so in this form they were not comparable. In other words, the difference of the differences in the means of pre and post test results of experimental and control groups did not have the same meaning in terms of reflecting the

effectiveness of the interventions on the behaviors of interest (i.e. externalizing behaviors or negative parenting behavior outcomes).

After the coding was completed, effect sizes were calculated as a standardized mean difference. In this form, all the outcomes based on different measures were comparable. The effect size was the measure of the degree to which the intervention group outperformed the control group on the identified outcome variable expressed in standard deviation units. In this study, the effect size expressed the extent of change in the intervention group relative to the extent of change in the control group expressed in standard deviation units. Effect sizes were calculated for each study including the pre- and post-test means and standard deviations for the control and intervention conditions. The following formulas were used for the calculations (Glass, 1976):

$$\text{Effect Size } (\delta) = \frac{\overline{X}^{e}_{pre} - \overline{X}^{e}_{post}}{s_{pooled}} - \frac{\overline{X}^{c}_{pr} - \overline{X}^{c}_{post}}{s_{pooled}}$$

In the formula X^{e}_{pre} stands for the mean of the pre-test and X^{e}_{post} stands for the mean of the post-test mean for the experimental group. X^{c}_{pre} stands for the pre-test mean and X^{c}_{post} stands for the post-test mean for the control group. s_{pooled} stands for the pooled standard error and it was calculated using the following formula:

$$s_{pooled} = \sqrt{\frac{(N_e - 1)(S_e)^2 + (N_c - 1)(S_c)^2}{N_e - N_c - 2}}$$

In this formula, N_e stands for the sample size of the experimental group and S_e stands for the pre-test standard deviation of the experimental group. N_c stands for the sample size of the control group and S_c stands for the pre-test standard deviation of the control group. In calculating the pooled standard deviations, the pre-intervention standard deviations were used. The reasoning behind this was that the post test standard deviation was already influenced by the intervention effect, so in calculating the pooled standard deviation using the post test standard deviations would create a bias toward the studies with greater effectiveness, thus smaller post-intervention standard deviations. As the denominator of the effect size formula would decrease, the estimated effect size would increase.

If the pre and post mean and standard deviations for each experimental condition was not provided, then the effect size was calculated by using the value of the F-statistic and pre- and post test sample sizes (Lipsey & Wilson, 2001). Then the formula was as follows:

$$\delta = \sqrt{\frac{(\text{F statistic})(\text{N})}{(N_e)(N_c)}}$$

In this formula, N stands for the total sample size of the experimental and control groups, N_e stands for the sample size of the experimental group and N_c stands for the sample size for the control group.

The effect size values were interpreted as follows (Lipsey & Wilson, 2001):

1) If an effect size is less than 0.2, then it is interpreted as a small effect.

2) If an effect size is between 0.2 and 0.8 then it is moderate effect.

3) If an effect size larger than 0.8 then it is a large effect.

A positive effect size indicated that the experimental group showed a greater improvement between pre and post intervention on the specific outcome, compared to the control group. For each measurement, whether a higher or a lower value indicated improvement was determined. For example, according to Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) when a child received a lower score at post-test measures, then it indicated that the child showed improvement, and according to Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) when a child received a higher score at post-test, that indicated improvement. Then, the effect size was calculated in such a way that for all outcomes, a positive effect size indicated improvement. Specifically, if a higher value indicated improvement, then pre-test mean value was subtracted from the post-test mean value; and if a lower value indicated an improvement, then the post-test mean was subtracted from the pre-test mean for the experimental and control condition.

3.3.2 Combining the Effect Sizes

In most studies, a specific behavior of interest was reported by more than one informant and each informant reported on more than one behavior of interest. For example,

externalizing behavior may have been measured by a parent report and an observation, and a parent may have reported on both the externalizing behavior and aggressive behavior. The names of the measures and their characteristics are listed in Table 3.4, classified according to the behavior of interest and the informant. This procedure was applied to the child outcomes and parent outcomes separately.

Child Outcomes

The behaviors measured in each study as externalizing behaviors, aggression and non-compliance were all considered to be externalizing behaviors. There were mother reports, home observation reports, teacher reports, school observation reports, assessments and composite scores (the composite scores were a combination of externalizing behavior outcomes reported by different informants). In some cases more than one effect size was reported for a behavior of interest by the same informant. For example, there were two parent reports on externalizing behaviors.

First, all the effect sizes that were reported by the same informant on externalizing behaviors were combined as a single effect. This procedure was done using three different strategies:

a) The average of all measures was taken (average effect).
b) The effect size with the maximum value was selected to represent the study in that outcome and measurement type group (maximum effect).
c) The effect size with the minimum value was taken selected to represent the study in that outcome and measurement type group (minimum effect).

After these calculations were completed, the externalizing behavior effect sizes calculated for each different informant report were combined, in order to have one externalizing behavior effect size for each study. For each study, among the maximum effects calculated for each informant, the maximum was selected to represent the study. For each study the maximum effect reported for externalizing behaviors as home observations, parent reports, assessments, composite scores, teacher reports or school observations was selected to represent the study in the further analysis.

Parent Outcomes

The negative parenting behaviors were the parent outcomes considered. Harsh discipline, verbally (yelling, criticizing, threatening etc.) and physically (hitting, spanking etc.) negative punitive parent behaviors were considered to be negative parenting outcomes. The negative parenting levels were reported either as self-reports, observations. Some studies reported the negative parenting outcomes as a composite score (a composite score consists of

a combination of self reports and observations on negative parenting behaviors). In some cases the same informant reported more than one negative parenting outcome or more than one informant reported on negative parenting behavior levels in a single study.

The negative parenting effect sizes were combined if there were more than one negative parenting behavior effect size by the same informant. The maximum effect size reported by the same informant on negative parenting behavior was selected to represent the study. In the case that both self reports and observations were reported, the maximum effect among all was selected. If the effect size was reported as a composite score, then it was used to represent the study.

3.3.3 Weight Calculations

Inclusion of various studies in the meta-analyses created a drawback. The sample size of the studies varied and it was shown that the effect size index explained above was upwardly biased when based on small sample sizes (Hedges, 1981; cited in Lipsey & Derzon, 2001). Hedges (1981) provided a simple correction for this bias and all subsequent computations used this corrected or unbiased effect size estimate. The formula for the correction was as follows:

$$\delta = \left[1 - \frac{3}{4N - 9}\right] ES$$

$$\mathrm{SE} = \sqrt{\frac{N}{(N_c)(N_e)} + \frac{\delta^2}{2N}}$$

$$\mathrm{W} = \frac{1}{SE^2}$$

In the formulas δ stands for the corrected effect size and ES stands for the uncorrected effect size. N is the sample size. SE stands for the standard error of the corrected effect size and W stands for the weight assigned for the effect size. All models presented in this thesis applied these weights.

Chapter 4

RESULTS

This chapter consists of two sections: the results pertaining to the effectiveness of interventions for reducing externalizing behaviors and results pertaining to the effectiveness of interventions for reducing negative parenting practices.

4.1 Effectiveness of the Interventions on Externalizing Behaviors

As discussed previously, interventions targeting universal/selected, indicated and diagnosed populations are very different in nature as well as effectiveness. In the first sub-section, the characteristics of the interventions according to intervention type are presented. Next, the average effectiveness of the interventions according to each study and program characteristics are presented. The third sub-section provides the comparison of effectiveness levels based on maximum effects and the effectiveness levels based on only observational assessments. Finally, the effects of study characteristics and the program characteristics on the effectiveness of interventions for externalizing behaviors are presented.

4.1.1 Differences in the Characteristics of Interventions by Intervention Type

Table 4.1 presents the differences in the program characteristics of the interventions for universal/selected, indicated and diagnosed populations. According to the chi-square test results, among the study characteristics the publication date of the article, the race/ethnicity and the SES of the evaluation sample were significantly associated with the intervention type. Among program characteristics, the intensity of the program applied by the intervention, the number of sessions of the intervention program and the child methods used in the program significantly differed by intervention type. On the other hand, the target domain of the intervention program, the intervention group type, and the parent methods used in the program did not significantly differ across intervention types.

Interventions targeting different populations significantly varied across time periods. It was seen that none of the early interventions targeted indicated or diagnosed populations. Among the interventions that targeted universal/selected, indicated or diagnosed populations, most interventions were conducted between the years 2000 and 2004. This outcome was reasonable, since it is known that in recent years more intervention evaluation studies were published.

The race/ethnicity of the sample evaluated by the intervention was significantly different by intervention type. Although most of the interventions that targeted universal/selected populations consisted of "majority African American" samples, most of the interventions that targeted indicated or diagnosed populations consisted of "mostly white" populations. It is likely that most of the intervention evaluations for indicated or diagnosed populations were clinic based and it is also more likely that the sample evaluated in these clinics were mostly white populations. On the other hand, most of the interventions targeting universal/selected populations were applied in areas where mostly at risk populations lived. These interventions evaluated samples with race/ethnicity distributions that were close to national distributions or with samples that consisted of mostly African American children.

The socio-economic levels of the samples significantly differed by intervention type. The SES level of the interventions targeting universal or selected interventions were evaluated mostly with low SES samples. Low SES samples were less frequent among the interventions targeting indicated populations. In most of the intervention studies that targeted diagnosed populations, the SES level of the sample was not reported. It was likely that most of the interventions that did not report the SES level of the sample were evaluated with middle or high SES samples. Even if few interventions targeting indicated populations were evaluated with middle or high SES samples, since the interventions with unknown SES were more likely evaluated with high SES, it may be speculated that majority of the interventions

Table 4.1

Differences in the Characteristics of Interventions by Intervention Type

Characteristics	Intervention Type Universal/ Selected (%)	Indicated (%)	Diagnosed (%)
Publication Date* [a]			
Before 1980	18.8	0.0	0.0
Between 1980-1989	0.0	10.5	36.4
Between 1990-1999	31.3	31.6	22.7
Between 2000-2004	50.0	57.9	40.9
	100.0	100.0	100.0
Race/Ethnicity*			
Mostly white	6.3	47.4	63.6
Majority African American	43.8	5.3	0.0
Mixed ethnicity with national representative	31.3	0.0	0.0
Strong representation of non-white and non-African American	18.8	5.3	13.6
Missing	0.0	42.1	22.7
	100.0	100.0	100.0
SES*			
Low	62.5	47.4	9.1
Middle/high	6.3	21.1	18.2
Missing	31.3	31.6	72.7
	100.0	100.0	100.0
Intensity*			
Daily	18.8	36.8	0.0
Weekly	75.0	52.6	100.0
Other	6.3	10.5	0.0
	100.0	100.0	100.0
Number of Sessions*			
Up to 10 sessions	31.3	27.8	14.3
11-20 sessions	43.8	44.4	47.6
21-60 sessions	0.0	11.1	38.1
61 and more sessions	25.0	16.7	0.0
	100.0	100.0	100.0
Target Domain (In Detail)			
Only parents	50.0	52.6	63.6
Only children	25.0	21.1	13.6
Only teachers	6.3	0.0	0.0
Parents and children	0.0	15.8	9.1
Parents and teachers	18.8	0.0	4.5
Children and teachers	0.0	0.0	4.5
Parents, children and teachers	0.0	10.5	4.5
	100.0	100.0	100.0

Target Domain			
Parent with or without teachers	68.8	52.6	68.2
Parent and child with or without teachers	0.0	26.3	13.6
Child with or without teachers	25.0	21.1	18.2
Only teachers	6.3	0.0	0.0
	100.0	100.0	100.0
Intervention Group Type			
Individual parent	0.0	31.6	18.2
Any parent-child dyad	18.8	15.8	31.8
Only parent group	31.3	21.1	22.7
Any child group without parent-child dyad	25.0	31.6	22.7
Teacher group	6.3	0.0	0.0
Parent group and teacher group	18.8	0.0	4.5
	100.0	100.0	100.0
Parent Methods			
Parental discipline and parent-child communication and other (parental distress, self control or both)	50.0	42.1	59.1
Any discipline without parent- child communication	18.8	31.6	18.2
Only parent-child communication	0.0	5.3	4.5
No parent intervention	31.3	21.1	18.2
	100.0	100.0	100.0
Child Methods*			
No child intervention	75.0	52.6	68.2
Problem solving with no emotional or behavioral regulation	18.8	5.3	0.0
Problem solving with emotional or behavioral regulation	6.3	15.8	27.3
No problem solving	0.0	26.3	4.5
	100.0	100.0	100.0
Method			
Parent-child communication and discipline to parents, no child no teacher intervention	37.5	26.3	45.5
Discipline to parents, no child no teacher intervention	12.5	21.1	13.6
Problem solving to children, no parent no teacher	25.0	10.5	13.6
Other parent/child methods, no teacher intervention[b]	0.0	31.6	13.6
Teacher interventions	25.0	10.5	13.6
	100.0	100.0	100.0
N	16	19	22

Note: [a] Significance of group differences are indicated across the first category. All significance tests are chi square. * $p<0.05$.

[b] Other parent/child methods with no teacher intervention consists of 2 parent interventions, 5 parent and child interventions and 2 child interventions. Among those 2 child interventions, 3 parent and child interventions and 1 parent interventions have targeted indicated populations; 2 parent and child, 1 parent intervention have targeted diagnosed populations.

that targeted indicated populations were evaluated with high SES samples. Also, in most of the interventions targeting diagnosed populations, the SES level was not reported. Again it may be speculated that most of these interventions were evaluated with middle/high SES samples.

The intensity of the interventions significantly differed across intervention types. Despite the differences, there was a common pattern across all interventions. Most interventions, regardless of the intervention types, were administered weekly. For diagnosed populations, all of the interventions were administered weekly. This is reasonable, since therapeutic interventions targeting diagnosed children or their families are commonly administered in weekly sessions.

The number of sessions of the intervention was significantly different across intervention types. It was seen that most of the universal/selected interventions were short or moderate in length (1-20 sessions). The interventions that targeted indicated populations were short or moderate in length (1-20 sessions), too. On the other hand, interventions targeting diagnosed populations were mostly moderate to long (11-60 sessions). This may be an indication that diagnosed samples might have required longer interventions, compared to universal/selected or indicated samples, due to the severity of their behavior problems. However, the interventions conducted with the largest number of sessions which was 61 or more sessions targeted either universal/selected or indicated populations, but the reason these

studies had a large number of sessions was not because these were longer interventions, but because they were conducted on daily basis and this fact increased the number of sessions. In this framework, the fact that the longest interventions were conducted with universal/selected or indicated populations rather than diagnosed populations was not contradicting with the idea that treating more severe externalizing behaviors required longer interventions.

The target domains of the intervention programs were not significantly different across intervention types. The domains of the interventions seemed to have a common pattern, regardless of the type of intervention. Among all of the interventions that had universal/selected, indicated or diagnosed populations, the most common domain was to intervene only in parents. Moreover, when the percentages of all interventions that targeted parents were summed for each intervention type (68.8% for universal/selected population, 73.7% for indicated population and 81.8% for diagnosed population) and compared to the percentages of interventions that did not target parents, again it was seen that among all three intervention types, the majority of the interventions had parents as their domain. However, when we compared child interventions with no child interventions, this was not observed. This information may be an indication that intervention in parents was seen as an important component for reducing externalizing behaviors. When the distribution of teacher interventions were examined it was seen that a substantial percent of the universal/selected interventions targeted teachers as a domain (6.3% only teachers and 18.8% teachers and parents; total of 25.1%). On the other hand, among the interventions targeting indicated or

diagnosed populations, the teachers were the least preferred domain (10.5% for indicated and 4.5% for diagnosed populations). These differences may have been due to convenience, since universal/selected interventions could be implemented conveniently at school through teachers. On the other hand, intervention in children with more severe externalizing problems may have required more skilled staff and might not have involved teachers.

There were some differences in the group types across intervention types, but these differences were not significant. As the level of the externalizing behaviors increased, the frequency of interventions that were administered in groups decreased and more of the interventions were individual based. As only 18.8% of the interventions with universal/selected populations were administered to individual parents or parent-child dyads, this percentage increased to 47.4% (31.6% individual parents and 15.8% parent-child dyads) for the interventions administered to indicated populations and to 50% (18.2% individual parents and 31.8% parent-child dyads) for the interventions administered to diagnosed populations. It was seen that almost no intervention that targeted indicated or diagnosed populations were conducted with teachers since teachers applied the techniques they were taught in classrooms, where the target of the intervention had to be universal or selected populations. Moreover, for severe externalizing problems, the training given to teachers may not have been sufficient to reduce the problems. In these interventions, direct interventions to the child or the parents of the child by a therapist may have been required.

The parent methods used by the interventions were not significantly different across intervention types. In all interventions regardless of the type, about half of the interventions used both discipline training and positive parent-child communication training as their choice of methods. In addition, approximately 20-30% of the interventions used parental discipline methods. Only a small percent of parent interventions attempted to change only parent-child communication and these were interventions with indicated or diagnosed populations that targeted children with more severe externalizing behavior problems. Thus, it may be inferred that almost all intervention programs that targeted parents preferred to teach parents discipline methods.

The child methods used by interventions significantly differed by intervention type. Nevertheless, it should be noted that most of the interventions did not target children at all. The significance of the group differences in child methods may be due to this fact, since the distribution of the other methods seemed comparable across types. Among the interventions that intervened in children, all with universal/selected populations used problem solving and social skills training; very few of those intervened in emotional or behavioral regulation of children, in addition to teaching problem solving and social skills to children. Most interventions that targeted indicated populations used social skills training, but did not teach children problem solving skills. All of these interventions additionally used behavior or emotional regulation techniques. Also, some interventions with indicated populations used problem solving with emotional or behavioral regulation (15.8%). Among the interventions

targeting diagnosed populations, almost all targeted problem solving skills with emotional/behavioral regulation, and a few targeted emotional/behavioral regulation. Thus, as the level of externalizing behaviors in the intervention population increased, emotional or behavioral regulation training became more prevalent.

The distributions of combined parent, child and teacher methods did not significantly differ across intervention types. Among the interventions targeting universal/selected populations, the most prevalent method was teaching parents discipline together with improving their relationships with their children. Among the interventions targeting indicated populations, the most commonly used methods were parental discipline together with parent-child communication techniques and the methods that were categorized as "other parent/child methods with no teacher." When these interventions were examined it was seen that most of these used parental discipline techniques together with other child methods such as self-regulation and emotion-regulation. Thus, it may be concluded that parental discipline techniques were the most prevalent technique among the interventions targeting indicated populations. Among the interventions targeting diagnosed populations, parental discipline together with parent-child communication were most prevalent. The other methods were used approximately equally frequently. It was concluded that when all of the parent, teacher and child methods were combined, the most commonly used method of intervention was teaching parents how to discipline their children.

To sum up, intervention type seemed to influence the length of the intervention and the child methods used. Specifically, longer interventions were used as the level of externalizing problems increased. Although improving the problem solving skills of children with mild externalizing problems may have been enough as an intervention, as the level of the externalizing behaviors got to the point of diagnosis, almost all of the interventions that intervened in children targeted emotion or behavior regulation in addition to problem solving skills. This may indicate that children with more severe behavior problems had more difficulty regulating their behaviors and emotions. However, parent methods did not seem to be influenced by the intervention type. In all interventions parental discipline seemed to play an important role, while parent-child communication was mostly added to teaching discipline. Similarly, in all intervention types, the most preferred domain of intervention was the parents.

4.1.2 Intervention Effectiveness for Externalizing Behaviors

The first purpose of this study was to investigate whether the interventions targeting preschool children with externalizing behaviors were effective for this group of children. When the maximum effect among all reported effects for externalizing behaviors was analyzed[1], on average the interventions improved externalizing behaviors of children by 0.55

[1] For each study the maximum effect among all the externalizing behavior measurements, regardless of the informant or the source of the assessment.

standard deviations (weighted average). According to Lipsey & Wilson (2001), an effect size between 0.2 and 0.8 is a medium effect. Thus, the effectiveness level of interventions on externalizing behaviors of preschool children was at the middle of the range of medium effects. It was expected that on average the interventions on externalizing behaviors would be effective. The results of the study supported this hypothesis.

Table 4.2, 4.3 and 4.4 present the mean effect sizes of interventions, their standard deviations, and the number of interventions classified according to the intervention characteristics of interest. All of these statistics were based on the maximum externalizing behavior effect available for each intervention. Among the study characteristics, publication date was significantly associated with the effectiveness of the interventions. Among the program characteristics, intervention type, target sample and child methods used by the intervention were significantly associated with the effectiveness of the interventions. The only evaluation factor considered was the type of control group and it had a significant effect on the estimated effectiveness of the interventions.

More recent publications presented more modest effectiveness of interventions. There may have been two reasons for this: (1) In more recent years, more of the interventions with low levels of effectiveness may have been accepted for publication because professional journals have become more accepting of the reports of successful and unsuccessful interventions, so that the information was better disseminated (lower selectivity

of recent publications compared to older publications). (2) Some more strict criteria for the evaluation of the interventions may have been expected in recent studies, in order to prevent the biases in the evaluation process. It was seen that in some of the oldest intervention studies, the administration and assessment of the intervention was conducted by the same staff (e.g. teachers both administered the intervention and assessed the intervention outcomes). Recently, it was expected that the administration of the program and the assessment of the outcomes were conducted by independent groups in order to assure that the assessors were blind to the intervention/control status of the subjects they assessed. Thus, it is likely that interventions that showed high effectiveness due to such potential sources of bias were not considered publishable.

The country where the intervention was conducted was not significantly associated with the effectiveness of the interventions. The interventions conducted in United States and Australia showed slightly higher effectiveness. However, most of the interventions were conducted in United States and the effectiveness estimates of the interventions conducted in other countries were based on very few studies.

The race/ethnicity of the target population was not associated significantly with the effectiveness of the intervention. However, the studies with “mostly white” and “mostly African-American” samples were more effective compared to the interventions with “strong representation of non-white and non-African American” and “nationally representative”

samples, although these differences were not significant. The studies with "strong representation of non-white and non-African-American" samples included studies with either more than 50% Hispanic or more than 20 % other ethnic group samples that were not categorized as white, African-American or Hispanics. It is likely that cultural barriers account for the low level of effectiveness of these interventions, although with Hispanic populations, most interventions were conducted in Spanish.

SES of the intervention population was not significantly associated with the effectiveness of the intervention. However, interventions that were evaluated with low SES populations appeared to have somewhat lower levels of effectiveness than those evaluated with middle or high SES populations. Also, it is likely that many of the studies that did not report the SES level of their evaluation samples were of middle SES backgrounds, which had a higher effectiveness than low and middle/high SES samples.

Intervention type was significantly associated with intervention effectiveness. Interventions were most effective on diagnosed populations. Universal/selected or indicated interventions seemed to be less effective than diagnosed interventions. This could be due to the differences in the baseline externalizing levels of the target populations. Since the average pre-intervention externalizing behavior level of children in the universal/selected or indicated populations were closer to normative levels compared to the children in diagnosed

populations, they would show less improvement at post-intervention, compared to the diagnosed populations due to floor effects.

Table 4.2

Weighted Mean Effect Sizes and Standard Deviations by Study Characteristics[a]

Characteristics	N (Total N = 57)	Mean Effect Size	SD
Publication Date			
Before 1980	3	2.203*[b]	.814
Between 1980-1989	10	1.200	.422
Between 1990-1999	16	.598	.416
Between 2000-2004	28	.403	.380
Country			
US	45	.558	.553
UK	1	.459	.000
Canada	6	.428	.408
Australia	5	.670	.186
Race/Ethnicity			
Mostly white	24	.702	.486
Majority African American	8	.763	.863
Mixed ethnicity with national representative	5	.493	.227
Strong representation of non-white and Non-African American	7	.362	.366
Missing	13	.448	.523
SES			
Low	21	.453	.532
Middle/high	9	.518	.395
Missing	27	.802	.460

Notes: [a]The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b]Significance of group differences are indicated across the first category.
All significance tests are F tests. * $p < 0.05$.

The intensity of the intervention program was not significantly associated with the effectiveness of the intervention. The interventions that were conducted daily or weekly basis had almost equal effectiveness and the ones that were conducted at other levels of intensity were less effective. It is likely that the intensity of the intervention program had different associations with the program effectiveness in different types of interventions. Since most of the interventions conducted with diagnosed populations and most of the interventions that targeted universal or selected interventions were conducted on a weekly basis, it was not possible to compare the effectiveness of the interventions that were conducted daily and the ones that were conducted weekly for these populations. The interventions that were conducted on a daily basis were mostly targeting indicated populations and it was not possible to generalize this finding to the other target populations.

The number of sessions of the intervention program was not significantly associated with the effectiveness of the intervention. Nevertheless, the interventions that were administered in 21 to 60 sessions were somewhat more effective than the programs that were administered in fewer sessions. Most of the interventions that were administered in 21 to 60 sessions were the ones that targeted diagnosed populations. Thus, this difference could be due to the characteristics of the sample targeted by the intervention, rather than the length of the intervention. Moreover, although it was expected that the interventions conducted in most sessions (61 or more sessions) would be the most effective ones, it was seen that most of the interventions at this length were interventions targeting universal/selected interventions,

Table 4.3

Weighted Mean Effect Sizes and Standard Deviations According to Program Characteristics[a]

Characteristics	N (Total N = 57)	Mean Effect Size	SD
Intervention Type			
Universal/ Selected	16	.470*[bc]	.479
Indicated	19	.420	.481
Diagnosed	22	1.052	.324
Intensity			
Daily	10	.484	1.154
Weekly	44	.606	.411
Other	3	.070	.000
Number of Sessions			
Up to 10 sessions	15	.648	.347
11-20 sessions	25	.516	.396
21-60 sessions	10	.747	.562
61 and more sessions	7	.582	.869
Target Sample			
At Risk	35	.435*	.476
ODD, CD or both	14	1.022	.363
ADHD w/out ODD/CD	8	1.108	.276
Target Domain			
Parents with or without teachers	36[d]	.565	.380
Parent and child with or without teachers	8	.342	.531
Child with or without teachers	12	.854	.891
Target Domain (Detailed)			
Only parents	32	.610	.417
Only children	11	.832	.923
Only teachers	1	.318	.000
Parents and children	5	.341	.583
Parents and teachers	4	.436	.210
Children and teachers	1	1.150	.000
Parents, children and teachers	3	.343	.529
Intervention Group Type			
Individual parent	10[e]	.716	.380
Any parent-child dyad	13	.435	.507
Only parent group	14	.637	.444
Any child group without parent-child dyad	15	.650	.766
Parent group and teacher group	4	.436	.210

Parent Methods			
Parental discipline and parent-child communication and other (parental distress, self control or both)	29	.481	.442
Parental discipline without parent- child communication	13	.574	.374
Only parent-child communication	2	.791	.836
No parent intervention	13[f]	.773	.837
Child Methods			
No child intervention	37[g]	.556*	.376
Problem solving with no emotional or behavioral regulation	4	1.951[h]	.536
Problem solving with emotional or behavioral regulation	10	.428	.591
No problem solving	6	.361	.591
Method			
Parent-child communication and discipline to parents, no child no teacher intervention	21	.639	.414
Discipline to parents, no child no teacher intervention	9	.498	.441
Problem solving to children, no parent no teacher	9	.841	.986
Other parent and/or child methods, no teacher intervention	9[i]	.470	.594
Teacher interventions	9	.425	.331

Notes: [a] The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.

[b] Significance of group differences is indicated across the first category. All significance tests are F tests. * $p < 0.05$.

[c] When "universal/selected" and "indicated" categories were combined and compared with the category "diagnosed", the means were .435and 1.052 respectively with the difference being significant ($p < .05$).

[d] One case that targeted only teachers (effect size = .318) was excluded from the analysis.

[e] One case with teacher group as the intervention group type was excluded from the analysis (effect size = .318).

[f] Among the interventions that do not target parents 1 targets teachers. 11 target only children and 1 targets both teachers and children.

g Among the interventions that do not target children 32 target only parents. 4 target teacher and parents and 1 targets only teachers

[h] 3 cases out of 4 come from the study Interpersonal Cognitive Problem Solving and Primary Prevention: Programming for Preschool and Kindergarten Children. This was a school-based intervention with three different Conditions, conducted in 1979. Both the intervention and the assessment were administered by the teachers. Also it was a long term intervention (one and two years).

[i] Other parent/child methods with no teacher intervention consists of 2 parent interventions, 5 parent and child interventions and 2 child interventions.

which had lower effectiveness than others. Additionally, almost all of the interventions conducted in 61 or more sessions were conducted on daily basis (6 out of 7). Therefore, although the interventions were conducted in more sessions, the time period between the beginning and the end of the interventions was not much longer then the ones conducted in fewer sessions. It was unclear whether the total length of the exposure to the program was more important than the actual number of sessions.

Whether the intervention sample consisted of children with ADHD or diagnosed children that did not have ADHD, they had about equal effectiveness. However, when the interventions targeting children with "ODD/CD" and interventions targeting children with "ADHD without ODD/CD" were combined and compared to the interventions targeting at-risk children, the difference was significant. The interventions that involved diagnosed samples were more effective compared to at-risk samples. Again, this difference may have been due to the floor effects, i.e. the lower baseline externalizing behavior levels of the at-risk than diagnosed children.

The domain targeted by the interventions was significantly associated with the program effectiveness. The most effective interventions were the ones that targeted only children or children with parents. However, the effectiveness of interventions that targeted different domains depended on the intervention type. Also, most of the interventions targeted

only parents, and the average effect sizes of the interventions that targeted other domains were based on smaller sample sizes.

The group type of the intervention was not significantly associated with the effectiveness of the interventions. However, interventions that were conducted with "individual parents" were slightly more effective compared to interventions that targeted other group types. The interventions that were conducted with individual parents were mostly indicated and diagnosed interventions, and this could contribute to the larger effect size. These may also have been customized according to the needs and the problems of the specific case; therefore they were slightly more successful.

The effectiveness levels of interventions that used different parent methods did not significantly differ. However, interventions that did not target parents and the ones that targeted only parent-child communication were more effective than the interventions that used any other parent method. Interventions that did not target parents targeted only teachers, only children or both. This may be an indicator that methods used for teachers or children were more effective compared to the parent methods. The most effective parent method was improving parent-child communication, but when the two interventions that used this method were examined, it was seen that one that targeted a diagnosed population was highly effective as opposed to the one that targeted an indicated population. In conclusion, this

study did not have enough cases to draw a conclusion regarding the effectiveness of only improving parent-child relationship on reducing the externalizing behaviors.

The effectiveness levels of interventions that used different child methods did not significantly differ. Although the difference in the effectiveness level did not reach significance, among the interventions that targeted children the ones that used problem solving and did not have any behavior or emotion regulation were the most effective interventions. Nevertheless, three of the four cases that yielded this effect came from a single study, where the intervention was administered and assessed by the same teachers.

Table 4.4

Weighted Mean Effect Sizes and Standard Deviations According to Evaluation Factors[a]

Characteristics	N (Total N = 57)	Mean of Average Effect Size	SD
Type of control Group			
Experimental with random assignment with waitlist controls	48	.741 *[b]	.516
Quasi experimental with random assignment	8	.205	.259
Experimental with matched controls	1	1.385	.000

Notes:[a] The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b] Significance of group differences is indicated across the first category. All significance tests are F tests. * $p < 0.05$.

When the average effectiveness of the interventions were examined separately by parent methods and child methods, it was difficult to interpret the findings jointly. It was likely that the interventions that used a combination of parent methods, child methods and/or

teacher methods were more effective than any single child method or parent method. In order to investigate this possibility, the variable "method" was created and parent methods, child methods and teacher methods were combined. This variable was not significantly associated with the intervention effectiveness. However, the most effective interventions were the ones that trained children in problem solving and social skills, but did not give any training to parents or teachers. The second most effective interventions were the ones that taught parents discipline and improved parent-child relationship, which did not target children or teachers. Interventions that targeted teachers were less effective than the others. This may be an indication that teachers did not play a role as important as the parents or children. Moreover, it should be noted that most of the effect estimates included in the study were based on home behaviors of children (home observations or parent reports), so it is possible that the effectiveness of the teacher interventions on child externalizing behaviors may have been underestimated.

The only evaluation characteristic of the studies taken into consideration in this meta-analysis was the type of control group. The type of control group of the intervention design was significantly associated with the effectiveness of the intervention. It was seen that the studies designed to have a matched control group had greater effect estimates. However, there was only one study designed to have a matched control group, so it was not possible to arrive to a conclusion about the effect sizes of the studies that had a matched control group. Even if the study with a matched control group was disregarded, there was a great difference

between the effectiveness of the studies that had an experimental design with random assignment waitlist control groups and studies with a quasi experimental design with random assignment. The studies with experimental design had greater estimated effect sizes compared to the ones with a quasi experimental design. It is likely that in the experimental studies with random assignment, many of the confounding variables that could influence the effectiveness were better controlled.

In conclusion, the effectiveness of the interventions was associated significantly with the publication date, the intervention type and the target sample. Multivariate analysis of intervention effectiveness yielded more detailed findings regarding the characteristics of the most effective interventions (see Section 4.1.4).

4.1.3 Comparison of Intervention Effectiveness on Externalizing Behaviors Based on Maximum Effects and Based on Observer Reports

The results presented thus far were those pertaining to the maximum effect estimates of the externalizing behaviors. In this section, those were compared to the effect estimates based on only observational assessments. The maximum effect sizes for the studies were based on parent reports, observer reports, teacher reports, assessments and composite scores. For each study the maximum effect was selected regardless of the informant or the source of

the assessment. The maximum effects were then compared to the effect sizes that were based on observer reports.

The observational measurements used in studies had some different characteristics. Some of them were structured in a way to correspond to the curriculum of intervention and some others were unstructured and could include high levels of measurement error due to situational factors. The ones structured in a way to correspond to the curriculum of intervention could have led to overestimation of the program effects, since the participants of the intervention could have an idea about what is expected from them during the observation. On the other hand the unstructured observational measures could be sensitive to some factors that could prevent the participants from demonstrating their improvements accurately, such as stressful conditions at home or school. Moreover, the externalizing behaviors of the children were observed in different settings, such as the home of the child, the clinic where the intervention is conducted or at school. The context of the observation could influence the effect estimates, since the externalizing behaviors of the child could be reduced more in of the contexts, but not the others. For example, the intervention could decrease the level of externalizing behaviors at home, but school observations may not have revealed this effect.

In general, the informant of the outcome assessments was a factor in determining the estimated effectiveness of the interventions. Observational assessments yielded lower effect sizes and they were less sensitive to different program or study characteristics. This may

have been because the observational assessments of children tended to be influenced by situational factors, and therefore they were more vulnerable to fluctuations in behavior. In contrast, mother or teacher reports may have been more likely to be influenced by overall patterns of behavior. The lower signal-to-noise ratio in observational assessments may have led to both lower levels of estimated change and lower levels of sensitivity as compared to other methods of assessment.

Tables 4.5 and 4.6 provide a comparison of intervention effectiveness based on maximum effects and based on observer reports. The first data columns of these tables repeat the information already presented in Table 4.2 and 4.3. The third data column presents the mean effect sizes of the externalizing behavior of children based on observer reports only, for intervention characteristics of interest. The weighted mean effect size based on the maximum effect was 0.607 and for observer reports only, the mean effect size was 0.350. The mean effect size that came from only observational assessments was lower compared to the former. This suggested that observational assessments in general yielded lower outcomes. Furthermore, when the two outcomes were compared according to the intervention characteristics of interest, it was seen that the mean effect sizes that came from only observations did not show as much variability as the ones that came from the former data. Thus, it may be suggested that observational assessments had less capability of demonstrating the association between intervention characteristics and their effectiveness. The results based on only observational assessments were based on a more limited sample of

intervention studies. It is also possible that those interventions that demonstrated high levels of effectiveness did not administer observational assessments (e.g., those interventions where intervention staff and assessment staff were the same), therefore not included in the latter sample.

The effect sizes based on intervention studies conducted in various time periods differed both when the maximum effects and effects based on observational assessments were considered. The average intervention effectiveness was the lowest for the studies conducted between the years 2000-2004 based on both effect types. This information was consistent with the suggestion that in the recent years, publications were more objective and the intervention studies with high or low effectiveness levels were published as long as their evaluation was scientifically sound. In earlier years, the studies with high estimated effects were more likely to be published.

According to the effect sizes based on observational assessments, the interventions conducted in Australia were the least effective and the ones conducted in Canada were the most effective. This was inconsistent with the pattern displayed by the maximum effects. However, the number of studies conducted in Australia or Canada was very limited and this inconsistency may have been due to other characteristics of the interventions that were conducted in these countries.

The effectiveness of interventions that were evaluated with samples of different race/ethnicity varied regardless of whether the maximum effects or effects based on observational assessments were considered. However, the patterns of variation were not consistent. When only observational assessments were considered in calculating the effect sizes, the interventions that were evaluated with a sample consisting of a "mixed ethnicity with national representative" sample were more effective compared to the interventions evaluated with any other sample. When the race/ethnicity of the evaluated sample consisted of a strong representation of non-white and non-African American children (i.e. mostly Hispanic children), the effectiveness of the interventions was consistently low. This was a strong indication that the effectiveness of the interventions with these samples was low due to language or other cultural barriers.

According to effect estimates based on observational assessments, the SES level of the intervention sample did not influence the effectiveness of the intervention. When maximum effect sizes were considered, it was seen that the interventions that did not report on the sample SES had higher effectiveness than the others. This pattern was not replicated with the effect estimates based on observational assessments.

When only observer reports were considered, the intervention type was not influential on intervention effectiveness, although the intervention type was significantly associated with the intervention effectiveness when maximum effects were considered. It is more likely

Table 4.5

Comparison of Maximum Mean Effect Sizes and Mean Effect Sizes Based on Observer Reports According to Study Characteristics[a]

Characteristics	N (Total N = 57)	Mean Effect Size (Maximum effect)	N (Total N = 28)	Mean Effect Size (Observational Assessments)
Publication Date				
Before 1980	3	2.203*[b]	-	-
Between 1980-1989	10	1.200	6	.417
Between 1990-1999	16	.598	9	.459
Between 2000-2004	28	.403	13	.289
Country				
US	45	.558	22	.371
UK	1	.459	-	-
Canada	6	.428	3	.460
Australia	5	.670	3	.240
Race/Ethnicity				
Mostly white	24	.702	12	.414
Majority African American	8	.763	3	.304
Mixed ethnicity with national representative	5	.493	1	.531
Strong representation of non-white and Non-African American	7	.362	2	.203
Missing	13	.448	10	.300
SES				
Low	21	.453	11	.361
Middle/high	9	.518	6	.354
Missing	27	.802	11	.348

Notes: [a]The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b]Significance of group differences are indicated across the first category.
All significance tests are F tests. * $p < 0.05$.

Table 4.6

Comparison of Maximum Mean Effect Sizes and Mean Effect Sizes Based on Observer Reports and According to Program Characteristics[a]

Characteristics	N (Total N = 57)	Mean Effect Size (Maximum Effect)	N (Total N = 28)	Mean Effect Size (Observational Assessments)
Intervention Type				
Universal/ Selected	16	.470*[b]	6	.346
Indicated	19	.420	9	.331
Diagnosed	22	1.052	13	.412
Intensity				
Daily	10	.484	3	.587
Weekly	44	.606	24	.349
Other	3	.070	1	.117
Number of Sessions				
Up to 10 sessions	15	.648	8	.405
11-20 sessions	25	.516	15	.325
21-60 sessions	10	.747	3	.442
61 and more sessions	7	.582	2	.425
Target Domain				
Parent with or without teachers	36[c]	.565	19	.335
Parent and child with or without teachers	8	.342	3	.469
Child with or without teachers	12	.854	5	.440
Target Domain (Detailed)				
Only parents	32	.610	16	.295
Only children	11	.832	5	.440
Only teachers	1	.318	1	.318
Parents and children	5	.341	3	.469
Parents and teachers	4	.436	3	.398
Children and teachers	1	1.150	-	-
Parents, children and teachers	3	.343	-	-
Intervention Group Type				
Individual parent	10[d]	.716	8	.211
Any parent-child dyad	13	.435	4	.768
Only parent group	14	.637	7	.317
Any child group without parent-child dyad	15	.650	5	.429
Parent group and teacher group	4	.436	3	.398

Parent Methods				
Parental discipline and parent-child communication and other (parental distress, self control or both)	29	.481	14	.328
Parental discipline without parent- child communication	13	.574	7	.394
Only parent-child communication	2	.791	1	.025
No parent intervention	13	.773	6	.410
Child Methods				
No child intervention	37	.556*	21	.340
Problem solving with no emotional or behavioral regulation	4	1.951	-	-
Problem solving with emotional or behavioral regulation	10	.428	4	.329
No problem solving	6	.361	3	.587
Method				
Parent-child communication and discipline to parents, no child no teacher intervention	21	.639	11	.349
Discipline to parents, no child no teacher intervention	9	.498	5	.244
Problem solving to children, no parent no teacher	9	.841	3	.315
Other parent and/or child methods, no teacher intervention	9	.470	5	.449
Teacher interventions	9	.425	4	.133

Notes:[a] The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b] Significance of group differences is indicated across the first category. All significance tests are F tests. * $p < 0.05$.
[c] One case that targeted only teachers (effect size = .318) were excluded from the analysis.
[d] One case with teacher group as the intervention group type was excluded from the analysis (effect size = .318).

that diagnosed children benefited more from an intervention compared to the universal/selected or indicated populations, since more children in the sample would need help due to high level of externalizing behaviors. Also, the baseline externalizing levels of the children in the sample would be higher targeting diagnosed populations. Therefore, it may be suggested that the observational reports did not capture the difference in the average effectiveness level between interventions targeting different populations, while the maximum effects could capture the difference.

The intensity of the intervention program administered was not associated with the intervention effectiveness both when the maximum effects were considered and effect estimates were based on observational assessments. However, the magnitude of effectiveness levels based on maximum effects and the estimated effectiveness based on observational assessments were conflicting. Although the interventions that were conducted on weekly basis were more effective according to the results based on maximum effects, the ones conducted on daily basis were more effective according to the estimated effects based on observational assessments. The effects based on only observer reports came from a more limited sample, so it is possible that some of the more effective weekly interventions did not include observer reports.

The length of the intervention program made a difference in the effectiveness of the intervention. According to both maximum effects and effects based on observational

assessments, it was seen that the interventions administered in 21 to 60 sessions were more effective than the ones conducted in fewer session. However, when effect estimates were based on observational assessments, the interventions conducted in 21 to 60 sessions were close to the effectiveness of the interventions administered in fewer sessions. Again, this may be due to the fact that observational assessments were less able to distinguish intervention effectiveness compared to maximum effects. It was seen that the interventions conducted in more than 61 sessions were less effective compared to the interventions conducted in 21-60 sessions. However, it should be noted that the interventions conducted in 61 or more sessions were daily and were not necessarily longer interventions. In addition, the interventions conducted in 61 or more sessions targeted either universal/selected or indicated populations which were in general lower in effectiveness than indicated or diagnosed interventions.

The interventions that targeted only children or both parents and children as a domain were the most effective interventions when the effect estimates were based on only observation reports, although the interventions that targeted parents and children were not as effective when maximum effects were considered. The fact that the interventions that intervened in both parents and children were more effective only for the effect estimates based on observational assessments could be an indication that when both parents and children were trained and they were evaluated with observational assessments related to the curriculum, they performed better than the progress they made in real life situations not directly related to the curriculum.

Similarly, it was seen that the most effective interventions according to the estimated effects based on observational assessments were the ones that had parent-child dyad as the group type. Thus, when both parents and children were trained on the targeted behaviors, and the effects were assessed with observations on the expected behaviors, then the best outcomes were obtained.

Among the parent methods applied in the intervention programs the most effective interventions were the ones that did not target parents at all. This was consistent for estimated effects based on maximum effects and the effects based on observational assessments only (though the differences were not significantly different). However, an important inconsistency was seen on the effectiveness level of the interventions that taught parent-child communication techniques. These interventions were not effective at all when the estimated effects were based on observational assessments, while the interventions that used this technique were the most effective when maximum effects were considered. However, this outcome came from only two studies when maximum effects were considered and only one study was included when effect estimates were based on observational assessments. Therefore, a conclusion regarding the effectiveness of the interventions teaching parent-child communication techniques could not be drawn.

Among the interventions that targeted children, the ones that did not use problem solving as a method were the most effective, according to the estimated effects based on

observational assessments, although this difference was not statistically significant. However, when maximum effects were considered, the most effective interventions were the ones that used problem solving methods and did not use emotional or behavioral regulation techniques (this difference was significant). None of those interventions were assessed with observations, so a comparison between the effectiveness levels based on maximum effects and observational assessments was not possible for the interventions that used only problem solving methods. Another conflicting issue was that the interventions that did not use problem solving skills were the least effective interventions when maximum effects were considered, while they were the most effective when the estimated effects were based on observer reports only. When the intervention types of interventions using this method were compared it was seen they mostly targeted indicated populations for maximum effects and observer reports. The difference could be because of the effectiveness level of the additional interventions that were included in the sample based on maximum effects and not included in the sample based on only observer reports.

When the parent, child and teacher methods were combined, the most effective interventions according to maximum effects were the ones that taught problem solving to children, but did not intervene to parents or teachers as opposed to the estimated effects based on observational assessments, where using methods for parents and children that could not be categorized otherwise and not intervening to teachers were the most effective methods. On the other hand, the interventions that used different teacher methods were

consistently the least effective both when the effect estimates were based on observer reports and maximum effects. It may be possible to conclude that the interventions that used teacher methods were not as effective as the ones parent or child interventions regardless of the measurement type.

4.1.4 Multivariate Analyses of the Effectiveness of the Interventions Based on the Maximum Effect Estimates

In this section two sets of regression analyses are presented. The first set of analyses pertained to the effects of the study characteristics such as the publication year, the country, and the characteristics of the evaluation sample. The results of these analyses allowed one to understand if non-substantive factors that had to do with the evaluation of an intervention, but not with the content of the intervention, influenced the estimated effectiveness of the intervention. The second set of analyses pertained to the effects of the substantive aspects of the intervention program such as the length, the intensity, the domain of intervention, the group type of the intervention, and the methods used.

Effects of the Study Characteristics

The multiple regression analyses of the effects of study characteristics included the publication year of the intervention study, the country where the intervention was conducted,

the SES level of the evaluation sample, and the race/ethnicity of the evaluation sample. These were categorical variables and they were dummy coded (0-1). The publication date of the intervention was coded with the comparison category "after 2000." The country where the intervention took place was coded with the comparison category "US." The race/ethnicity composition of the evaluation sample was coded with the comparison category "majority white." The SES level of the evaluation sample was coded with the comparison category "low SES".

Table 4.7 presents the results of the multiple regression analysis of the intervention effectiveness predicted by the study characteristics of the interventions of interest. The publication date of the intervention study, the country where the intervention was conducted, the race/ethnicity and the SES of the study sample were significant predictors of the intervention effectiveness. The model had an adjusted R-square of .60 meaning that the study characteristics of the interventions explained 60% of the variance in the intervention effectiveness on externalizing behavior levels (F (15, 41) = 7.88, p=.00). Since the VIF values were lower than the threshold level of 2, it can be concluded that the multicollinearity between the predictors was negligible.

The interventions conducted "before 1980," the interventions conducted "between the years 1980 and 1989," and the interventions conducted "between the years 1991-1999" were significantly more effective compared to the ones conducted after 2000. This finding

corroborated that of bivariate analyses presented earlier. This pattern of period dependence may have been in part because in early years only effective interventions were published and in part because evaluations and assessments had higher standards in recent years (such as having assessors who were blind to the intervention status of the subjects).

The interventions conducted in Canada were significantly less effective compared to the interventions conducted in the US. The effectiveness of the interventions conducted in Australia or UK were not significantly different from the effectiveness of interventions conducted in the US. However, the countries except for US were represented with very few studies in the sample.

The interventions that did not report the race/ethnicity composition of their sample were significantly less effective compared to the interventions that were evaluated with a "majority white" sample. Moreover, studies evaluated with a "strong representation of non-white and non-African American" sample were significantly less effective compared to the interventions evaluated with a "majority white" sample. The interventions evaluated with a "mixed ethnicity sample with national representation" were significantly less effective compared to the interventions evaluated with a "majority white" sample, too. The effectiveness of the interventions that were evaluated with "majority African- American" sample was not significantly different from the effectiveness of the interventions evaluated

Table 4.7

Multiple Regression Analysis Predicting the Effect of Study Characteristics on Intervention Effectiveness (N= 57)

Predictors	Unstandardized Coefficients [ab]
Publication Date of the Intervention Study	
Publications before 1980	1.823**
	(.566)
Publications between 1980-1989	.824**
	(.399)
Publications between 1990-1999	.407*
	(.378)
Publications between 2000-2004	Comparison category
Country of the Intervention	
Australia	.266
	(.157)
Canada	-.516*
	(-.290)
UK	-.339
	(-.072)
US	Comparison category
Race/ethnicity of the Intervention Sample	
Majority African-American	.004
	(.003)
Mixed ethnicity with national representative	-.342+
	(-.221)
Strong representation of non-white and non-African American	-.339*
	(-.279)
Race missing	-.351*
	(-.272)
Majority white	Comparison category
SES of the Intervention Sample	
Middle/high SES	.372*
	(.250)
Missing SES	.422*
	(.373)
Low SES	Comparison category

Note: [a]All significance tests are t-tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
$R^2 = .68$ and Adjusted $R^2 = .60$.

with a “majority white” sample. Most of the interventions evaluated with “majority white” sample targeted diagnosed populations, but few studies targeting diagnosed populations did not report their race/ethnicity composition. Therefore, it is possible that the interventions that did not report their race/ethnicity composition were less effective due to their population. Also, all of the interventions evaluated with a “mixed ethnicity sample with national representation” targeted universal/selected populations. Since most of the interventions that targeted diagnosed populations were with “majority white” sample, the difference between the effectiveness of interventions evaluated with “majority white” sample and “mixed ethnicity sample with national representation” may have been due to the associated intervention type.

The interventions evaluated with a middle/high SES sample were significantly more effective compared to the interventions evaluated with a low SES sample. Moreover, the interventions that did not report the SES level of their evaluation sample were significantly more effective compared to the interventions evaluated with a low SES sample. The expectation that the interventions are less effective on low SES groups was supported by these data. It is more likely that the intervention studies that did not report the SES level of their evaluation sample were actually evaluated with a middle/high SES sample. In conclusion, it may be suggested that the interventions evaluated with middle/high SES samples were more effective. There may be three reasons for this finding: (1) the interventions that targeted diagnosed populations were more likely to be evaluated with

middle/high SES samples. It was seen that diagnosed interventions were more effective compared to universal/selected, or indicated interventions. Therefore it may be suggested that the interventions that were evaluated with a "middle/high SES" sample were more effective because of their associated intervention type. (2) The interventions with universal/selected population were more often evaluated with low SES samples, since low SES populations carried more risk factors for increasing the externalizing behavior problem of children. (3) It is possible that in general low SES samples benefited less from the interventions, because of their additional risk factors such as stress due to poverty, more marital conflict or higher divorce rates (Webster-Stratton & Hammond, 1990).

Effects of the Intervention Program Characteristics

Tables 4.8, 4.9, 4.10 and 4.11 present the results of multiple regression analysis of the intervention effectiveness predicted by the program characteristics. The predictors were introduced to the regression analysis with forced entry method. In each step the predictors that were not significant were eliminated from the analysis. Since the predictors were categorical variables, they were dummy coded (0-1).

In Model 1, the intervention type was entered into the regression. Intervention type variable was dummy coded with the comparison category of "universal/selected" interventions. This model tested the hypothesis that the interventions are more effective on

children with more severe externalizing behaviors. The model had an adjusted R-square of .21 *(F* (2, 54)= 8.62, p=.001). Since all the VIF values were lower than the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible. The intervention type of the studies was a significant predictor of the program effectiveness. The effectiveness of the interventions with indicated populations were not significantly different compared to the interventions targeting universal/selected populations. The interventions with diagnosed populations were more effective compared to the interventions targeting universal/selected interventions. Thus, these data supported the hypothesis tested.

In Model 2, the intensity of the intervention program was added to the regression model. The intensity of the program was coded with "weekly" as the comparison category. This model tested the hypothesis that the intensity of the intervention program influenced its effectiveness. The model had no incremental adjusted R-square ($F_{\text{incremental}}$ (2, 51)= 1.01, p=.37) . Since the explained variance did not increase when the intensity of the program was entered as a predictor, it was concluded that the intensity of the program was not a significant predictor of intervention effectiveness. Since all the VIF values are below the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible.

In Model 3, an interaction effect was introduced that tested whether the effectiveness of interventions targeting indicated populations conducted in various intensities were significantly different. The interaction term for only indicted daily interventions was

entered, because all of the intervention studies included in the meta-analysis with diagnosed populations were conducted on weekly basis. The model had an incremental adjusted R-square of .39 ($F_{\text{incremental}}$ (2, 51)= 48.12, p=.000). It was seen that there was a significant interaction effect of intervention and daily interventions. The effectiveness of interventions that were conducted on daily basis and weekly basis with indicated populations were not significantly different. However, daily universal/selected interventions were significantly more effective compared to the weekly universal/selected interventions.

Table 4.8

Multiple Regression Analysis Predicting the Effect of Intervention Type and Intensity of the Program on Intervention Effectiveness (N=57)

Predictors	Model 1 [ab]	Model 2	Model 3
Intervention Type of the Program			
Indicated	-.080 (-.075)	-.112 (-.105)	.207+ (.194)
Diagnosed	.582** (.459)	.570** (.450)	.663** (.524)
Universal/selected	Comparison category	Comparison category	Comparison category
Intensity of the Intervention Program			
Daily (universal/selected or indicated)		.099 (.075)	1.814** (1.376)
Other		-.353 (-.146)	-.426 (-.176)
Weekly		Comparison category	Comparison category
Interaction of Intervention Type and Intensity of the Intervention Program			
Indicated*Daily			-2.207** (-1.576)

Note: [a]All significance tests are t-tests. + p < .10 *p < 0.05 **p < 0.001.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2 =.21 for Model 1, Adjusted R^2 =.21 for Model 2, Adjusted R^2 =.60 for Model 3

In Model 4, the intervention type and number of sessions of the intervention was entered into the regression. The number of sessions of the intervention was dummy coded with "1-10 sessions" as the comparison category. In this analysis, only the interventions conducted on weekly basis were included, since daily interventions had more sessions due to the intensive program. In this model the hypothesis that the length of the intervention program influences its effectiveness was tested. A related issue was whether there was a length that optimizes the effectiveness of interventions for externalizing behaviors. The incremental adjusted R-square was .03 ($F_{\text{incremental}}$ (1, 40)=4.19, p=.047). The number of sessions of the intervention program was a significant predictor of the intervention effectiveness. Although it was expected that the interventions with more sessions would be significantly more effective, the interventions conducted in 11 or more sessions were significantly less effective compared to the ones conducted with up to 10 sessions. This may be an indication that number of sessions which was effective depended on the domain of intervention and the method applied. For example, the interventions that targeted parents may not have required the same number of sessions as child interventions because the parents may not have needed as many repetitions to learn new behaviors. Thus, the content of the intervention program may have been more important than the length of the program while determining the effectiveness level.

In Model 5, the interaction of the intervention type and the number of sessions was entered into the regression in order to test whether the indicated and diagnosed interventions

conducted in more than 10 sessions were more effective than the ones conducted in less than 10 sessions. The model had a non-significant incremental adjusted R-square of .10 ($F_{\text{incremental}}$ (2, 38)=1.36, p=.265). According to the model, the interventions conducted in 11 or more sessions is significantly less effective for all interventions regardless of the type. The interaction of intervention type and the number of sessions was not a significant predictor of the intervention effectiveness. Again, it may be concluded that other characteristics of the intervention were more important than the number of sessions.

Table 4.9

Multiple Regression Analysis Predicting the Effect of Number of Sessions of the Program Among Weekly Interventions on Intervention Effectiveness (N = 44)

Predictors	Model 4 [ab]	Model 5
Intervention Type of the Program		
Indicated	.234* (.259)	.100 (.111)
Diagnosed	.705** (.831)	.811** (.956)
Universal/selected	Comparison category	Comparison category
Number of Sessions of the Intervention Program		
1-10 sessions	Comparison category	Comparison category
11 or more sessions	-.163* (-.205)	-.207+ (-.261)
Interaction of Intervention Type and Number of Sessions		
Indicated* 11 or more sessions		-.119 (-.132)
Diagnosed* 11 or more sessions		.252 (.211)

Note: [a]All significance tests are t-tests. + p < .10 *p < 0.05 **p < 0.001.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2= .59 for Model 4, Adjusted R^2= .60 for Model 5.

The analysis regarding the effectiveness of target domain of the intervention program was presented separately for universal/selected interventions on one hand and "indicated or "diagnosed" interventions on the other. This approach was adopted because some domains of intervention were not represented in universal/selected interventions (e.g., parents and children with or without teachers). The domain of the intervention was examined in three categories: "parents with or without teachers," "children with or without teachers" and "parents and children with or without teachers". The comparison category was "parents and children with or without teachers." There was only one case in the sample that targeted "only teachers". This one case was eliminated from the present analysis. This model tested the hypothesis that multi-modal interventions were more effective. First the effectiveness of the target domain on interventions with universal populations was tested with one way ANOVA. It was seen that the interventions that targeted children with or without teachers (M = 1.23) were significantly more effective compared to the interventions that targeted parents with or without teachers (M= .47) for universal populations (F (1, 13)= 5.76, p=.032*)*.

In Model 6, the intervention type (indicated and diagnosed only) and the domain of the intervention program were entered into the regression. The adjusted R-square was .36 (F(3, 37)=11.05, p=.00). It was seen that "parent training with or without teachers" were significantly more effective compared to "parent and child training with or without teachers." On the other hand the effectiveness of "child training with or without teachers" and "parent and child training with or without teachers" was not significantly different.

In Model 7, the interaction effects which represented the domains used for diagnosed populations were entered into the regression. The incremental adjusted R-square was .01 ($F_{\text{incremental}}$ (2, 35) = 1.30, p=.29). The effectiveness of interventions with diagnosed populations that targeted "parents with or without teachers," and "children with or without parents" was not significantly different from the effectiveness of interventions that targeted "parents and children with or without teachers". On the other hand, among the interventions with indicated populations the ones that targeted "parents with or with or without teachers" were significantly more effective compared to the ones that targeted "parents and children with or without teachers" as a domain. The effectiveness of the interventions with indicated populations that targeted "children with or without teachers" was also significantly different from the interventions with indicated populations that targeted "parents and children with or without teachers." The comparison of the effectiveness levels of the interventions that targeted universal/selected, indicated or diagnosed populations and preferred different domains are shown in Figure 4.1.

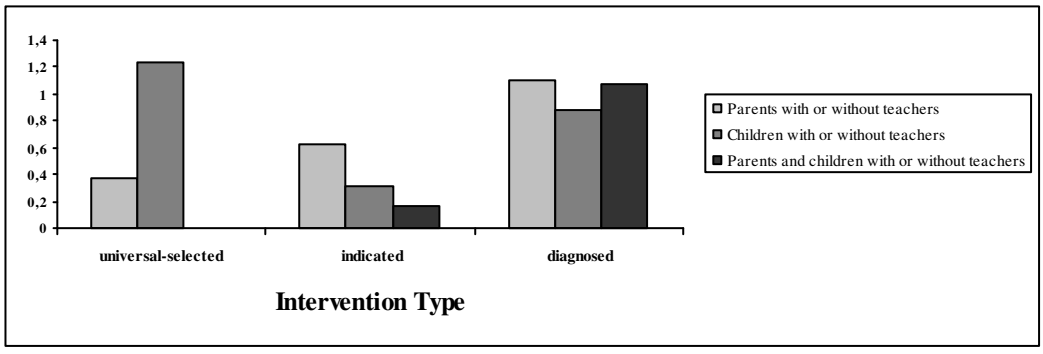

Figure 4.1 Comparison of the relative effectiveness of the interventions targeting different domains

Table 4.10

Multiple Regression Analysis Predicting the Effect of Intervention Type (Indicated and Diagnosed only) and Domain of the Program on Intervention Effectiveness (N=41)

Predictors	Model 6	Model 7[ab]
Intervention Type of the Program		
Indicated	Comparison category	Comparison category
Diagnosed	.620** (.569)	.988* (.906)
Domain of the Program		
Parent training with or without teachers	.361* (.343)	.496* (.472)
Child training with or without teachers	.070 (.050)	.182 (.130)
Parent and child training with or without teachers	Comparison category	Comparison category
Interaction of Intervention Type and Domain of the Program		
Diagnosed* parent training with or without teachers		-.512 (-.393)
Diagnosed* child training with or without teachers		-.432 (-.240)

Note: [a]All significance tests are t-tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2=.43 for Model 6 and Adjusted R^2=.44 for Model 7.

Models 8 through 11 which are presented in Table 4.11 were nested models investigating whether group type or the method of interventions were significant predictors of program effectiveness. In Model 8, the intervention type and the group type of the intervention were the predictors of intervention effectiveness. The group type of the intervention program was dummy coded with “only parent group” as the comparison

category. It should be noted that "individual parent" category consisted of interventions targeting only indicated or diagnosed populations. Moreover the category "parent groups and teacher groups" consisted of interventions targeting only universal/selected and diagnosed populations. The hypothesis that the group type of the intervention influences program effectiveness was tested. The model had non-significant incremental adjusted R-square ($F_{\text{incremental}}$ (4, 48)=.88, p= .48). The group type was not a significant predictor of the intervention effectiveness. It is possible that the method utilized or the targeted domain was more important than the group type.

In Model 9, the interaction effects representing the intervention type and group type was entered into the regression. The model had an incremental adjusted R-square of .14 ($F_{\text{incremental}}$ (7, 41)= 3.56, p=.013). It was seen that the interaction of the group type and intervention type was significant. Among the interventions that administered the program to child groups, the ones that targeted indicated populations and the ones that targeted diagnosed populations were significantly less effective compared to the ones that targeted universal/selected populations. There may be two reasons for this finding: (1) While working with children with elevated levels of externalizing behaviors, child groups may not have been effective since children might have needed more individual attention. (2) In indicated or diagnosed child groups, where externalizing behavior levels were elevated, children might have been negative role models to each other. On the other hand, in universal/selected populations, children with elevated externalizing behaviors were in the

Table 4.11

Multiple Regression Analysis Predicting the Effect of Intervention Type, Group Type and Methods of the Program on Intervention Effectiveness (N= 56)

Predictors	Model 8[ab]	Model 9	Model 10	Model 11
Intervention Type of the Program				
Indicated	-.251 (-.234)	.091 (.085)	-.040 (-.037)	.064 (.059)
Diagnosed	.456* (.360)	.836* (.660)	.574* (.452)	.592 (.465)
Universal/selected	CC	CC	CC	CC
Intervention Group Type				
Individual parent	.209 (.142)	-		
Any parent-child dyad	-.176 (-.150)	-.083 (-.070)		
Only parent group	CC	CC		
Any child group without parent-child dyad	.033 (.027)	.882* (.734)		
Parent group and teacher group	-.192 (-.141)	-.012 (-.009)		
Interaction of Intervention Type and Group Type				
Indicated* Any parent-child dyad		-.292 (-.148)		
Indicated* Any child group without parent-child dyad		-1.176* (-.737)		
Indicated*Individual parent		.197 (.120)		
Diagnosed* Any parent-child dyad		.268 (.109)		
Diagnosed* Any child group without parent-child dyad		-1.201* (-.610)		
Diagnosed*Individual parent		-.471 (-.160)		
Diagnosed*Parent group and teacher group		-.197 (-.039)		

Intervention Method				
Parent-child communication and discipline to parents, no child no teacher intervention			.115 (.107)	-.004 (-.004)
Problem solving to children, no parent no teacher			.186 (.114)	.868* (.531)
Other parent and/or child methods, no teacher intervention			-.059 (-.041)	-
Teacher interventions			-.043 (-.038)	.024 (.021)
Discipline to parents, no child no teacher intervention			CC	CC
Interaction of Intervention Type and Intervention Group				
Indicated*Parent-child communication and discipline to parents, no child no teacher intervention				.369 (.207)
Indicated*Problem solving to children, no parent no teacher				-1.487* (-.405)
Indicated*Other parent and/or child methods, no teacher intervention				-.186 (-.116)
Indicated*Teacher interventions				-.221 (-.106)
Diagnosed*Parent-child communication and discipline to parents, no child no teacher intervention				.204 (.102)
Diagnosed*Problem solving to children, no parent no teacher				-1.011+ (-.397)
Diagnosed*Other parent and/or child methods, no teacher intervention[i]				.206 (.077)
Diagnosed*Teacher interventions				.101 (.034)

Note: [a]All significance tests are t- tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2= .54 for Model 8, Adjusted R^2= .68 for Model 9, Adjusted R^2= .18 for Model 10, Adjusted R^2= .32 for Model 11

same group with children having normative levels of externalizing behaviors and those children may have set a peer model to children with high levels of externalizing behaviors.

The interventions conducted with any other group type and targeting any population were not significantly different from each other.

In Model 10, the intervention type and the methods used were the predictors of intervention effectiveness. The methods used were categorized as (1) parent-child communication and discipline to parents, no child no teacher intervention, (2) discipline to parents, no child no teacher intervention, (3) problem solving to children, no parent intervention, no teacher intervention, (4) other parent/child methods, no teacher intervention, and (5) teacher interventions. The second method listed above was the comparison category for modeling purposes. Also, it should be noted that "other parent/child methods, no teacher intervention" category only included interventions that targeted indicated or diagnosed populations, since no intervention program with universal/selected population used methods to be included in this category. In this model, the hypothesis that the program content influences the intervention effectiveness was tested. The model had a non-significant incremental adjusted R-square ($F_{\text{incremental}}$ (4, 49)= .49, p=.74). According to the model, the interventions that used any of the methods were not significantly different from each other. Although the effectiveness level did not reach significance, it was seen that teaching problem solving to children was slightly more effective than the other methods.

In Model 11, the interaction effects which represented the group types of interventions with indicated and diagnosed populations were entered into the regression. The

model had an incremental adjusted R-square of .14 ($F_{\text{incremental}}$ (8, 42)= 2.12, p= .05). According to the results, the interventions teaching problem-solving to children and not intervening in parents or teachers were significantly more effective than the interventions using any other method for universal/selected populations. On the other hand, the interventions teaching problem solving to children and not intervening to parents or teachers, was significantly less effective compared to the interventions using any other method for indicated populations. For diagnosed populations, the effectiveness of the interventions that used any of the methods was not significantly different from each other. Although the difference did not reach 0.05 significance level, it was seen that teaching problem-solving to children and not intervening in parents or teachers was the least effective method ($p<.10$), and the most effective method for both among interventions targeting indicated or diagnosed populations was teaching parents discipline as well as improving parent-child relationship.

Teaching problem-solving to children and not intervening in parents or teachers and targeting indicated or diagnosed populations were significantly less effective compared to the ones targeting universal/selected populations and using the same method. It could be possible that teaching problem solving to children and not intervening in the family environment of the child may have resulted in improvement in child behaviors, only if the children already had lower levels of baseline externalizing problems. The relative effectiveness of the interventions with indicated populations and using different methods were shown in Figure 4.2. In Figure 4.2, it may be seen that in general, any method used for diagnosed populations

was highly effective. This may have been due to the high baseline externalizing behavior levels of this group of children.

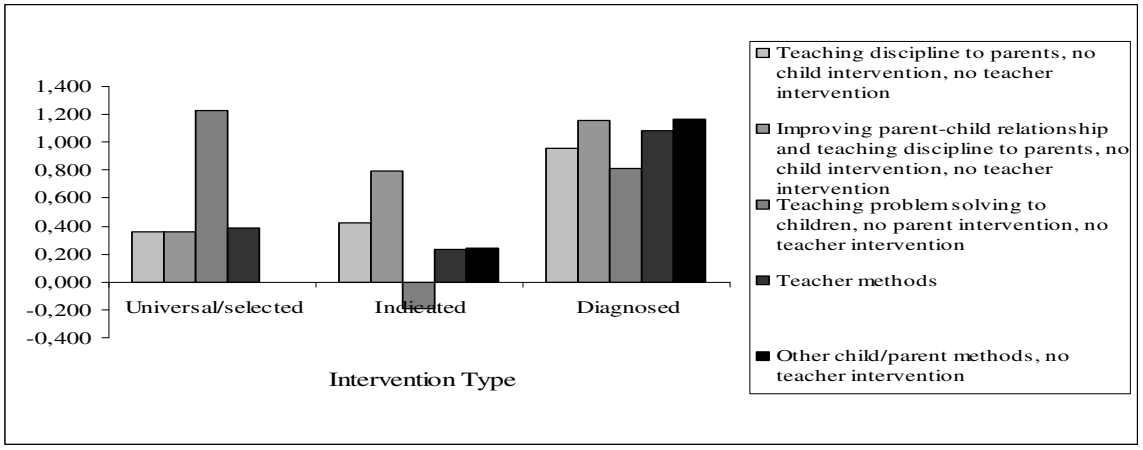

Figure 4.2 Comparison of the relative effectiveness of the interventions using different methods

In sum, the most important program characteristics that predicted the intervention effectiveness were the intervention type, the intensity of the program, the domain of the intervention, the group type of the program and the methods used in the program. Furthermore, the effectiveness of various attributes depended on the intervention type.

4.2 Effectiveness of the Interventions on Negative Parenting

In this section the analysis of the effectiveness of the interventions on negative parenting behaviors of the mothers of preschool children are presented. First the mean effectiveness of the interventions by study and program characteristics is presented. Then, the multivariate analyses of intervention effectiveness are presented. The effect size measures used in this section were based on the maximum effect for each intervention. On average the interventions improved negative parenting behaviors of children by 0.55 standard deviation units (weighted average).

4.2.1 Association of Intervention Characteristics and Their Effectiveness on Negative Parenting Behaviors

Table 4.12, 4.13 and 4.14 present the mean effect sizes for negative parenting, their standard deviations, and the number of interventions classified according to intervention characteristics of interest. Among the study characteristics, the country, race, and the SES level of the evaluation sample were significantly associated with the effectiveness of the interventions. Among the program characteristics, the intervention group type was significantly associated with the effectiveness of the interventions. The only evaluation factor that was considered was the type of control group and it was significantly effective on the estimated effectiveness of the interventions.

The publication date of the intervention study was not significantly associated with the intervention effectiveness on negative parenting. The effectiveness level of interventions on negative parenting behaviors over the years was almost equal. The consideration of negative parenting as an outcome of interventions on child externalizing behaviors was relatively recent.

The country where the intervention was conducted was not significantly associated with intervention effectiveness of negative parenting behavior outcome. Since the parents in these countries were from a similar cultural background, possibly the parenting practices of these parents and how they reacted to an intervention program were similar. Therefore, it could be expected that the effectiveness of the interventions on negative parenting behaviors were not different from each other.

The race/ethnicity of the target population was significantly associated with the effectiveness of the intervention. The studies evaluated with a “mostly white” sample were more effective compared to the studies evaluated with any other sample. There probably were some cultural differences in child rearing and negative parenting behaviors to be modified and the methods to be used may have been calibrated on the basis of the majority cultural norms.

Table 4.12

Weighted Mean Negative Parenting Effect Sizes and Standard Deviations According to Study Characteristics[a]

Characteristics	N (Total N = 36)	Mean Effect Size	SD
Publication Date			
Before 1980	-	-	-
Between 1980-1989	6	.552	.428
Between 1990-1999	8	.475	.187
Between 2000-2004	22	.583	.456
Country			
US	30	.478	.369
UK	1	.800	.000
Canada	2	.751	.235
Australia	3	.867	.404
Race/Ethnicity			
Mostly white	14	.791*[b]	.351
Majority African American	4	.218	.253
Mixed ethnicity with national representative	5	.555	.314
Strong representation of non-white and Non-African American	5	.574	.344
Missing	8	.290	.422
SES			
Low	12	.473*	.324
Middle/high	7	.380	.396
Missing	17	.844	.389

Notes: [a]The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b]Significance of group differences are indicated across the first category.
All significance tests are F tests. * $p < 0.05$.

The SES level of the intervention participants was significantly associated with the effectiveness of the intervention. Although the effectiveness level of the interventions evaluated with low or middle/high SES samples were about equal, the effectiveness of the interventions that have not reported the SES level of their sample was higher compared to the interventions evaluated with low or middle/high SES samples. It was speculated that most of the studies that did not report their SES level were conducted with diagnosed populations, and the effectiveness of the interventions targeting diagnosed populations on negative parenting behaviors were on average higher than the interventions targeting other populations.

Table 4.13 provides the comparison of the mean effectiveness of the interventions by program characteristics. The intervention type was significantly associated with program effectiveness. As the severity of the externalizing behaviors in the population targeted by the program increased, the effectiveness of the intervention for eliminating negative parenting behaviors increased, too. While the interventions with universal/selected populations were the least effective, the interventions with diagnosed populations were the most effective on negative parenting behaviors.

The intensity of the intervention program was not significantly associated with the program effectiveness on negative parenting outcomes. However, there were only two studies that conducted their intervention on a daily basis in this sample. One of them was not

a parent intervention although it measured parent outcomes. Therefore, it was not possible to conclude whether daily basis interventions were less effective or not.

Table 4.13

Weighted Mean Negative Parenting Effect Sizes and Standard Deviations According to Program Characteristics[a]

	N (Total N = 36)	Mean Effect Size (Present)	SD
Intervention Type			
Universal/ Selected	10	.439*[b]	.242
Indicated	9	.604	.515
Diagnosed	17	.770	.469
Intensity			
Daily	2	.050	.178
Weekly	34	.572	.373
Number of Sessions			
Up to 10 sessions	10	.592*	.389
11-20 sessions	16	.475	.289
21-60 sessions	7	1.115	.438
61 and more sessions	2	.050	.178
Target Domain			
Only parent	24[c]	.649	.348
Parent and child	2	.097	.757
Parent and teacher	4	.401	.296
Child	3	.448	.428
Intervention Group Type			
Individual parent	7	.753*[d]	.398
Any parent-child dyad	7	.545	.173
Only parent group	12	.679	.440
Any child group without parent-child dyad	5	.505	.602
Parent group and teacher group	4	.401	.296

Method			
Only discipline to parents no child and teacher intervention	5	.526	.384
Any discipline to parents no child and teacher intervention	17	.688	.347
Discipline to parents with child and/or teacher intervention	7	.408	.368
No discipline (parent-child relationship)	2	.503	1.256
No parent intervention	5	.323	.508

Notes: [a] The weights are calculated proportional to the sample size and inversely proportional to the square of the standard error.
[b] Significance of group differences are indicated across the first category. All significance tests are F tests. * $p < 0.05$.
[c] One case that targeted only teachers (effect size = -.116), one case that targeted children and teachers (effect size = 1.016) and another case that targeted parents, children and teachers (effect size = 1.273)were excluded from the analysis.
[d] One case with teacher group as the intervention group type was excluded from the analysis (effect size = .116).

The number of sessions of the intervention program was significantly associated with the effectiveness of the intervention. The interventions conducted in 21 to 60 sessions were the most effective interventions on negative parenting. The least effective ones were conducted in 61 or more sessions. However, the interventions conducted in 61 or more sessions were the same two studies that were conducted on daily basis. Thus, the interventions that were conducted in this amount of sessions were not really longer in total length (indeed, they were shorter in total length). However, among the weekly interventions (i.e. with less than 60 sessions), it may be concluded that the interventions conducted in more sessions were more effective compared to the interventions administered in less number of sessions.

The domain targeted by the interventions was not significantly associated with the program effectiveness on negative parenting. Although the difference did not reach significance level, the most effective interventions on negative parenting behaviors were the ones targeting only parents. Moreover, the interventions targeting both parents and children were the least effective interventions. However, when effectiveness of the two interventions targeting parents and children was examined, it was seen that only one of the two cases was less effective on negative parenting level. Therefore, it may be concluded that when parents were the domain of an intervention, the effectiveness on the negative parenting was generally equal. Also, interestingly, the interventions targeting only children were only slightly less effective on negative parenting behaviors than the interventions targeting parents. This may be an indication that as the externalizing behaviors of children decreased negative parenting behaviors did, too.

The group type of the intervention program was significantly associated with the program effectiveness on negative parenting. The interventions that were conducted with individual parents or parent groups were on average more effective on negative parenting behaviors compared to the interventions that were conducted with parent-child dyads, child groups or parent and teacher groups. This may be indication that focusing only on parents either in groups or treating individual parents might have been more effective on negative parenting behaviors. In other words, combining the concerns of children or teachers with the concerns of parents may have decreased the program effectiveness on negative parenting.

The effectiveness of interventions on negative parenting behaviors that used different parent methods did not significantly differ. Although the difference was not significant, most effective interventions were the ones that taught discipline techniques to parents and did not intervene in children or teachers. The interventions that did not teach discipline but improved parent-child relationship were slightly less effective than the interventions that taught discipline. Moreover, the interventions that used methods in addition to teaching discipline techniques (e.g., self control) were slightly more effective. Thus for decreasing negative parenting levels teaching discipline was effective, but teaching additional techniques for self control and improving parent child relationship may have slightly increased this effectiveness.

The only evaluation factor considered in this study was the type of control group. The effectiveness of the interventions on negative parent behaviors was significantly associated with the type of control group. The interventions that used experimental design were significantly more effective compared to the interventions that used a quasi-experimental design.

Table 4.14

Weighted Mean Negative Parenting Effect Sizes and Standard Deviations According to Evaluation Factors[a]

Characteristics	N (Total N = 36	Mean of Average Effect Size	SD
Type of control Group			
Experimental with random assignment with waitlist controls	28	.658*[b]	.400
Quasi experimental with random assignment	5	.298	.169

Notes: [a] The weights are calculated proportional to the sample size and inversely proportional to the square of gthe standard error.
[b] Significance of group differences are indicated across the first category.
All significance tests are F tests. * $p < 0.05$.

In sum, the effectiveness of the interventions on negative parenting behaviors was associated significantly with the country where the intervention was conducted, the race/ethnicity and the SES level of the evaluation sample. Moreover, the intervention type, the number of sessions of the intervention program and the intervention group type were characteristics of the intervention program that were significantly associated with the effectiveness on negative parenting.

4.2.2 Multivariate Analyses of the Effectiveness of the Interventions on Negative Parenting Behaviors Based on the Maximum Effect Estimates

In this section two sets of regression analyses are presented. The first set of analyses pertained to the effects of the study characteristics. The results of these analyses allowed one to understand if non-substantive factors that had to do with the evaluation of an intervention, but not with the content of the intervention, influenced the estimated effectiveness of the intervention on negative parenting behaviors. The second set of analyses pertained to the effects of the substantive aspects of the intervention program such as the length, the intensity, the domain of intervention, the group type of the intervention, and the methods used.

Effects of the Study Characteristics

The multiple regression of the effects of study characteristics included the publication year of the intervention study, the country where the intervention was conducted, the SES level of the evaluation sample, and the race/ethnicity of the evaluation sample. Since the predictors were categorical variables they were dummy coded (0-1). The publication date of the intervention was dummy coded with the comparison category of "after 2000." The country was dummy coded with the comparison category "US." The race/ethnicity composition of the evaluation sample was dummy coded with the comparison category of

"majority white." The SES level of the evaluation sample was dummy coded with the comparison category of "low SES".

Tables 4.15 and 4.16 present the results of the multiple regression analysis of the intervention effectiveness on negative parenting predicted by the study characteristics of the interventions. The publication date of the study articles, the country where the intervention was conducted, the race/ethnicity and the SES of the study sample were significant predictors of the intervention effectiveness. Although the publication date, country and SES level of the evaluation sample were presented in the same regression analysis, the race/ethnicity composition of the sample was presented separately due to high multicollinearity between the race/ethnicity composition of the sample and the other study characteristics. The model with study characteristics except for the race/ethnicity composition of the sample had an adjusted R-square of .34 (F (7,28) = 3.53, p= .008). Since the VIF values were lower than the threshold level of 2, it can be concluded that the multicollinearity between the predictors was negligible. The model with race/ethnicity composition of the evaluation sample had an adjusted R-square of .20. The model was significant (F (4, 31)=3.12, p= .023). Since the VIF values were lower than the threshold level of 2, it can be concluded that the multicollinearity between the predictors was negligible.

The effectiveness of interventions on negative parenting was not significantly different for interventions conducted in 1980's, 1990's and 2000's. Although is likely that in

previous years only effective interventions were published and in more recent years, both effective and not effective interventions were published, this may be true for externalizing behavior levels and negative parenting levels may not have been considered for publication. Therefore, the difference in the effectiveness of interventions over the years might not have been valid for negative parenting outcomes.

Table 4.15

Multiple Regression Analysis Predicting the Effect of Study Characteristics on Negative Parenting (N = 36)

Predictors	β [ab]
Publication Date of the Intervention Study	
Publications before 1980	-
Publications between 1980-1989	-.359 (-.257)
Publications between 1990-1999	.043 (.053)
Publications between 2000-2004	Comparison category
Country of the Intervention	
Australia	.505* (.433)
Canada	.445+ (.297)
UK	-.115 (-.034)
US	Comparison category
SES of the Intervention Sample	
Middle/high SES	-.128 (-.126)
Missing SES	.553* (.476)
Low SES	Comparison category

Note: [a]All significance tests are t - tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
Adjusted $R^2 = .34$.

The interventions conducted in Canada and Australia were significantly more effective compared to the interventions conducted in US. The effectiveness of the interventions conducted in UK was not significantly different from the effectiveness of interventions conducted in US. However, in the analysis the countries except for US were represented with very few studies. It is possible that there were cultural differences or differences in family contexts in different countries and the interventions conducted with parents in Canada or Australia may have been more effective because of this.

Interventions that did not report the SES level of their evaluation sample were significantly more effective compared to the interventions evaluated with low SES samples. It is likely that the intervention studies that did not report the SES level of their evaluation sample actually targeted diagnosed middle or high SES populations. In conclusion, it may be suggested that the interventions evaluated with middle/high SES samples were more effective than those with low SES samples.

Interventions that did not report the race/ethnicity composition of their sample were significantly less effective compared to the interventions that were evaluated with a "majority white" sample. Moreover, studies evaluated with a "majority African American" sample were significantly less effective compared to the interventions evaluated with a "majority white" sample. The effectiveness of interventions evaluated with a

Table 4.16

Multiple Regression Analysis Predicting the Effect of Study Characteristics on Negative Parenting (N =36)

Predictors	β [ab]
Race/ethnicity of the Intervention Study	
Majority African-American	-.572* (-.515)
Mixed ethnicity with national representative	-.236 (-.239)
Strong representation of non-white non-African American	-.216 (-.253)
Race missing	-.500* (-.461)
Majority white	Comparison Category

Note: [a]All significance tests are t-tests. + p < .10 *p < 0.05 **p < 0.001.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2 = .20.

"mixed ethnicity sample with national representation" or "strong representation of non-white non-African American" sample were not significantly different from the interventions evaluated with a "majority white" sample. Most of the interventions that were evaluated with "majority white" samples targeted diagnosed populations, but few studies targeting diagnosed populations did not report their race/ethnicity composition. Therefore, it is possible that the interventions that did not report their race/ethnicity composition were significantly less effective due to their population (mostly other than diagnosed populations). Also, African American families and white families probably had cultural differences in parenting practices, so the interventions conducted may have been more acceptable in one culture than the other. In addition, African American families generally have high incidences

children could be at higher levels than other parents initially, therefore could be reduced effectively by an intervention.

Effects of the Intervention Program Characteristics

Table 4.17, 4.18, 4.19 and 4.20 present the results of stepwise multiple regression analysis of the intervention effectiveness on negative parenting predicted by the program characteristics. In each step the predictors that were not significant were eliminated from the analysis. Since the predictors were categorical variables, they were all dummy coded (0-1) as before.

In Model 1, the intervention type was entered into the regression. Intervention type variable was dummy coded into with the comparison category of "universal/selected" interventions. The model had an adjusted R-square of .07 *(F* (4, 31) = 2.36, p=.10). Since all the VIF values were lower than the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible. The intervention type of the studies was a significant predictor of the program effectiveness. The effectiveness of the interventions with indicated populations was not significantly different from the interventions targeting universal/selected populations. The interventions with diagnosed populations were more effective than the interventions targeting universal/selected interventions. The baseline negative parenting behaviors of the parents with diagnosed

children could be at higher levels than other parents initially, therefore could be reduced effectively by an intervention.

Table 4.17

Multiple Regression Analysis Predicting the Effect of Intervention Type and Intensity of the Program on Negative Parenting (N=36)

Predictors	Model 1 [ab]	Model 2
Intervention Type of the Program		
Indicated	.165 (.183)	.324* (.360)
Diagnosed	.331* (.358)	.331* (.358)
Universal/selected	Comparison category	Comparison category
Intensity of the Program for Indicated Interventions		
Daily		-.714* (-.415)
Weekly		Comparison category

Note: [a]All significance tests are t - tests. + p < .10 *p < 0.05 **p < 0.001.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2 = .07 for Model 1, Adjusted R^2 = .20 for Model 2.

In Model 2, the intensity of the indicated intervention programs was entered into the regression as predictors. The reason for that was that all universal/selected and diagnosed interventions were conducted on weekly basis. The intensity of the program was dummy coded with the comparison category of "weekly". The model had an incremental adjusted R-square of .13 ($F_{\text{incremental}}$ (1, 32)= 6.14, p=.02*).* Since all the VIF values were below the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible. When the coefficients of the regression were analyzed, the intensity of the indicated programs was a significant predictor of the program effectiveness. The daily interventions were significantly less effective compared to the weekly interventions with

indicated populations. Moreover, was seen that the indicated interventions conducted on a weekly basis were significantly more effective compared to the ones conducted on a daily basis.

In Model 3, the intervention type and number of sessions of the intervention was entered into the regression. The number of sessions of the intervention was dummy coded with the comparison category of "1-10 sessions." The analyses presented regarding the significance of the number of session on program effectiveness were limited to only weekly interventions, since they were comparable in terms of length, but the daily interventions had more sessions due to their intensity. The model had a non-significant incremental adjusted R-square ($F_{\text{incremental}}$ (1, 27)= .51, p= .48). The number of sessions of the intervention program was not a significant predictor of the intervention effectiveness on negative parenting. It is possible that parents did not necessarily require longer interventions due to their capacity to retain information without repetition.

In Model 4, interaction effects representing the indicated interventions conducted in 11 or more sessions and diagnosed interventions conducted in 11 or more sessions were introduced. The model had non-significant incremental R-square ($F_{\text{incremental}}$(2, 25)= .41, p= .67). The interaction effects were not significant. Therefore, it may be concluded that for any intervention type, the number of sessions was not influential on the effectiveness of interventions on negative parenting behaviors.

Table 4.18

Multiple Regression Analysis Predicting the Effect of Number of Sessions of the Program Among Weekly Interventions on Negative Parenting (N=36)

Predictors	Model 3 [ab]	Model 4
Intervention Type		
Indicated	-.380*	-.437*
	(-.507)	(-.584)
Diagnosed	.160	.318
	(.115)	(.345)
Universal/selected	Comparison category	Comparison category
Number of Sessions of the Intervention Program		
11 or more sessions	-.08	-.09
	(-.121)	(-.135)
1-10 sessions	Comparison category	Comparison category
Interaction of Intervention Type and Number of Sessions		
Indicated*11 or more sessions		-.259
		(-.258)
Diagnosed*11 or more sessions		.124
		(.120)

Note: [a]All significance tests are t - tests. + $p < .10$ *$p < 0.05$ **$p < 0.01$.
[b]Standardized coefficients are reported in parentheses.
Adjusted R^2= .20 for Model 3, Adjusted R^2= .16 for Model 4.

The target domain of the intervention program was analyzed separately for interventions with "universal/selected" populations and for interventions with "indicated or diagnosed" populations, because it was seen that in the sample of the study, all interventions with universal/selected populations targeted parents with or without teachers.

In Model 5, the domain of the intervention was dummy coded with the comparison category of "parents and children with or without teachers." There was only one case in the sample that targeted "only teachers." This one case was eliminated from the analysis,

because one case was too few to be analyzed. The incremental adjusted R-square non-significant ($F_{\text{incremental}}$ (2, 11) = .32, p= .73). It was seen that the effectiveness of the interventions that used any of the domains were not significantly different from each other.

In Model 6, the interaction of the intervention type and the domain targeted by the intervention was entered into the regression for indicated and diagnosed populations. The model had an incremental adjusted R-square of .14 ($F_{\text{incremental}}$ (2, 20)= 2.67, p=.09). It was seen that there was a significant interaction effect between the intervention type and the domain of the intervention. Among the effectiveness of the interventions with diagnosed populations, the effectiveness of the ones that targeted "parents," "children," and "parents and children" were not significantly different from each other. On the other hand, the interventions with indicated populations that targeted "parents" were significantly more effective compared to the interventions with indicated populations and targeted "parents and children" as a domain. Moreover, the effectiveness of the interventions with indicated populations that targeted "children" was not significantly different from the interventions with indicated populations that targeted "parents and children." The intervention programs with indicated populations targeting "parents" were significantly more effective compared to the interventions with diagnosed populations targeting "parents." It may be suggested that when the externalizing behaviors of children were more severe, then the negative parenting behaviors were more sensitive to an intervention to either their parenting behaviors or the externalizing behaviors of their children. On the other hand, when the externalizing behavior

levels were not as high as in the case of indicated interventions, the parents may not be as responsive to the behavior changes in children unless the parents are intervened. The comparison of relative effectiveness of the interventions that targeted indicated or diagnosed populations preferring parents, children, and parents and children all with or without teachers is shown in Figure 4.3.

Table 4.19

Multiple Regression Analysis Predicting the Effect of Intervention Type and Domain of the Program among Indicated and Diagnosed Interventions on Negative Parenting (N= 26)

Predictors	Model 5 [ab]	Model 6
Indicated	Comparison category	Comparison category
Diagnosed	.176 (.188)	1.140* (1.216)
Parent training with or without teachers	.292 (.271)	.829* (.770)
Child training with or without teachers	.101 (.076)	.238 (.179)
Parent and child training with or without teachers	Comparison category	Comparison category
Diagnosed* parent training with or without teachers		-1.192+ (-1.208)
Diagnosed* child training with or without teachers		-.487 (-.297)

Note: [a]All significance tests are t- tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
Adjusted $R^2 = -.154$ for Model 5, Adjusted $R^2 = -.10$ for Model 6.

In Model 7, the intervention type and the group type of the intervention program was added to the regression analysis. The group type of the intervention program was dummy coded with the comparison category of "only parent group" There was only one "only teacher" group", so it was eliminated from the analysis. The model had non-significant incremental adjusted R-square ($F_{\text{incremental}}$ (4, 27)=.66, p= .62). Since all the VIF values were below the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible. The group type was not a significant predictor of the intervention program. It is possible that the method used or the domain targeted was more important than the group type of what was applied.

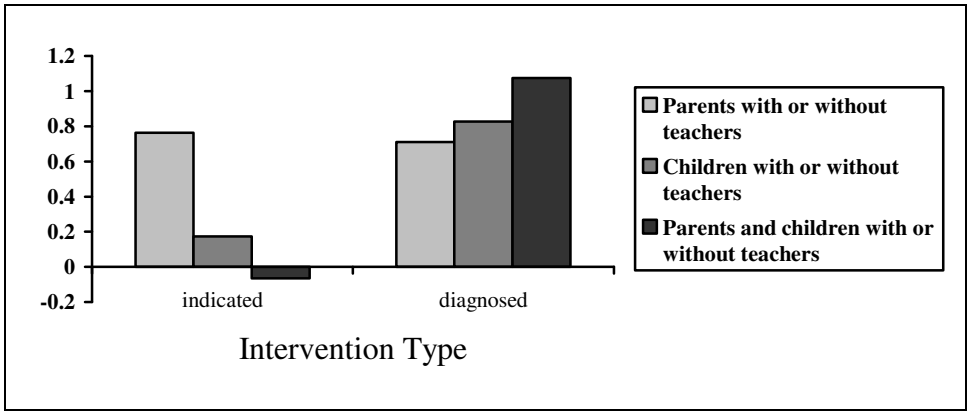

Figure 4.3 Comparison of the Effectiveness of Interventions in Different Domains on Negative Parenting with Different Domains

Table 4.20

Multiple Regression Analysis of the Effect of Intervention Type, Group Type and Methods of the Program on the Effectiveness of Interventions on Negative Parenting (N= 36)

Predictors	Model 7 [ab]	Model 8
Intervention Type of the Program		
Indicated	-.012 (-.048)	.142 (.158)
Diagnosed	.214 (1.087)	.355* (.384)
Universal/selected	CC	CC
Group Type of the Program		
Individual Parent	.078 (.343)	
Any parent-child dyad	-.117 (-.603)	
Only parent group	CC	
Any child group without parent-child dyad	-.213 (-.844)	
Parent group and teacher group	-.233 (-1.154)	
Method Utilized by the Program		
Parent-child communication and discipline to parents, no child no teacher intervention		CC
Discipline to parents, no child no teacher intervention		-.188 (-.227)
No discipline (parent-child relationship)		-.304 (-.136)
No parent intervention		-.393+ (-.313)

Note: [a]All significance tests are t - tests. + $p < .10$ *$p < 0.05$ **$p < 0.001$.
[b]Standardized coefficients are reported in parentheses.
Adjusted $R^2 = .006$ for Model 7, Adjusted $R^2 = .12$ for Model 8.

In Model 8, the methods used by the intervention and intervention type were entered into the regression. The methods utilized were dummy coded with the comparison category of "parent-child communication and discipline to parents, no child no teacher." The model had a non-significant incremental adjusted R-square ($F_{\text{incremental}}$ (3, 30)=1.65, p= 0.20). Since all the VIF values were below the threshold level of 2, it may be concluded that the multicollinearity between the predictors was negligible. According to the model, the interventions that did not target parents were significantly less effective compared to the interventions using any other approach as a parent training.

In sum, the most important program characteristics that predicted the intervention effectiveness were the intervention type, the intensity of the program application and the domain of the intervention and the methods used in the program. This information may be important in designing an effective intervention for reducing negative parenting behaviors.

Chapter 5

Preventive Intervention Program Targeting the 3-5 Year Old Children with Externalizing Behaviors

In this chapter, first an overview is presented that summarizes the characteristics of the intervention program proposed. Next, the selection process of the components of the program is explained. Third, the content of the program proposed is described. Finally, the strengths and weaknesses of this program for the Turkish population are discussed.

5.1 Overview of the Program

This pilot intervention program was designed according to the findings of the meta-analysis of the interventions targeting preschool age children with externalizing behaviors. The characteristics of the intervention were proposed according to Turkish culture and applicability in the conditions of Turkish 3-5 year olds, as well as the meta-analysis findings.

The program targets an indicated population, which consists of children with elevated levels of externalizing behaviors who are at-risk for developing externalizing behavior disorders (i.e. ADHD, ODD or CD). This group of children is targeted, because the aim of

this thesis is to design a preventive intervention, before the externalizing behaviors reach the diagnostic level.

The intervention program targets parents of children with indicated levels of externalizing behaviors. The parent training is delivered in parent groups. The program is delivered in groups of 10-14 parents at a time. Generally, parent groups are formed with this number of parents.

In order to prevent child externalizing behaviors three methods for parents are included in the program: (a) improving parent-child communication, (b) teaching parental discipline and (c) teaching problem solving skills to parents.

After these characteristics of the proposed program is determined, it is seen that the intervention program that best matches the characteristics of an intervention according to the meta-analysis results and that is considered applicable in Turkish context is Incredible Years BASIC and ADVANCE Parent Training Programs (Webster-Stratton, 1981, 1982). Therefore, the application of these programs is proposed in this thesis. The other characteristics of the proposed intervention are basically the characteristics of these two programs.

The intervention program is a weekly program. Although among the programs targeting indicated populations, the effectiveness of the ones conducted on weekly or daily basis are not significantly different, for reasons of applicability a weekly program is appropriate. Moreover, Incredible Years Parent Programs are conducted on weekly basis. The length of the intervention program is 20 weeks. Since the length of the interventions is not significantly associated with the program effectiveness, then the number of weeks is planned according to the content of the program adopted. Each week the intervention is conducted in 2-hour sessions.

When the delivery methods of Incredible Years Parent Programs are examined, it is seen that videotape modeling, group discussions and specific home activity tasks are used. According to these activities, the setting of the intervention is a classroom or a room where watching videos and conducting a group discussion is possible. The trainers required for this intervention program are those who are skilled professionals in mental health, such as psychology, nursing, social work, and child development. Moreover, the professional has to have a prior knowledge on Incredible Years Parent Training content and method application.

In sum, in order to prevent the externalizing behaviors of preschool children a parent training that is conducted in parent groups and improves the discipline techniques of the parents and the parent-child relationship is proposed. The proposed program will be conducted in weekly sessions for 20 weeks.

5.2 The Selection of the Specific Components of the Program

The program design was mainly based on the meta-analysis results. According to the meta-analysis results, the characteristics of the interventions that maximized program effectiveness were delineated. However, the meta-analysis results were based on interventions conducted in the US and other Western cultures. Furthermore, the interventions were conducted in line with the conditions and opportunities provided for preschool children in those countries. When the cultural characteristics of the population or the conditions provided for Turkish preschoolers did not permit some of the characteristics of the interventions identified as best practices to be applied, those characteristics were adopted for the present context. While making the adjustments, previous interventions targeting preschool children in Turkey - although not externalizing behaviors of these children - were taken as an example. The programs designed by ACEV were the most important examples of interventions designed in Turkey targeting at-risk, disadvantaged preschool children.

The choices to be made in order to design an intervention were the intervention type, domain and the content of the program, group type of the intervention, the setting of the program, the trainers to give the program, the length and the intensity of the program. The intervention type, domain, content and group type of the program were selected on the basis of the meta-analysis results and Turkish conditions. The intervention program to be implemented was selected according to these choices. On the other hand, the intensity and

the length of the program, the setting, trainers of the program was selected according to the characteristics of the program, since there was not adequate information in the meta-analysis regarding those characteristics.

The first decision to be made was the intervention type. The intervention could be a (a) universal/selected, (b) indicated or (c) diagnosed. Among these choices, an indicated intervention was selected. Since the aim of this thesis was to design a preventive intervention, a sample consisting of children that were not diagnosed had to be selected. Therefore, an intervention to a diagnosed group of children was not considered as a choice. Among universal/selected and indicated interventions, an indicated intervention was selected, because in a universal or selected group of children a high percent of children have normative externalizing behavior levels. On the other hand, in an indicated population children have high externalizing behavior levels. Therefore, an intervention targeting this population may be more efficient in decreasing the externalizing behaviors of a higher proportion of children in need.

Next, the domain of the intervention and the method applied to the preferred domain was selected, in line with the needs of an indicated population. While selecting the domain and the methods, the conditions in Turkey were considered as well as the meta-analysis results. The domains of selection according to the meta-analysis results were (a) parent interventions (b) child interventions (c) parent and child interventions. Among these, parent

methods were selected, because among the interventions targeting indicated populations, this domain is the most effective (see section 4.1.4, table 4.10). Moreover, the effectiveness of the interventions on negative parenting practices was examined, since the target of a parent intervention would be decreasing the negative parenting behaviors displayed by these parents. It is seen that these interventions were effective on decreasing the negative parenting practices. The interventions targeting indicated populations had an average effect size of .60 (see section 4.2.1, table 4.13). Moreover, according to the multivariate analysis, parent interventions were the most effective interventions on decreasing negative parenting behaviors (see section 4.1.2, table 4.19). An intervention was designed only for parents, because it was seen that no interventions with indicated populations targeted teachers together with parents (see section 4.1.1, table 4.1).

The next step was to choose the methods to be applied. The following methods were compared in the meta-analysis: (a) teaching discipline to parents, no child intervention, no teacher intervention; (b) improving parent-child relationship and teaching discipline to parents, no child intervention, no teacher intervention; (c) teaching problem solving skills to children, no parent intervention, no teacher intervention; (d) other child/parent methods, no teacher intervention; and, (e) teacher methods. Among these, only (a) and (b) were considered as choices, since they were the only ones targeting parents. Among the two, the methods to be implemented in the intervention program were improving parent-child relationship as well as teaching parental discipline, since this was the most effective method

among interventions with indicated populations. Moreover, when the effectiveness of the interventions on negative parenting behaviors was examined, it was seen that the most effective methods on decreasing negative parenting behaviors were these methods (section 4.2.2, table 4.20). Since the results of the effectiveness of the interventions on externalizing child behaviors and negative parenting behaviors were consistent, these methods were selected for the intervention proposed. In addition, problem solving skills of parents was also added to the other two methods, although the effect of this method was not analyzed in the meta-analysis. The reason for including this method is that when the intervention programs that were effective and culturally appropriate for the Turkish context were examined among the interventions that used the first two methods, the intervention program selected to be implemented also included a component including this method (Incredible Years ADVANCE Program).

After the methods to be applied to the parents were selected, the group type of the program was selected. The group types considered were (a) parent group, (b) individual parents, (c) parent child dyads and (d) parent and teacher groups. Parent groups were chosen because of several reasons. First, it was seen that according to the regression analysis the effectiveness of the interventions implemented with parent groups or individual parents were not significantly different (section 4.1.4, see table 4.11). In addition, the effectiveness of the interventions conducted in different group types did not significantly differ for the negative parenting outcome (see section 4.2.2, table 4.20). Therefore, parent groups are suitable as the

group type for reducing externalizing behaviors of children, as well as negative parenting behaviors. In addition, in Turkey there are parent interventions conducted to parent groups. One of the most important parent interventions in Turkey was Mother-Child Education Program (MOCEP). On the basis of interviews with mothers, it was reported they had positive views concerning the meetings being carried out in groups. They found the groups supportive and seeing what other mothers felt and experienced had a positive effect on them (Koçak & Bekman, 2004). Moreover, Turkish women are used to be in groups for socializing purposes. Therefore, facilitating effects of group dynamics for behavior modification had an important function in previous MOCEP applications (Kagitcibasi, Sunar & Bekman, 2001).

The intensity of the program was selected on the basis of the meta-analysis results as well as the other program characteristics already specified. The program could be conducted on (a) a daily basis, (b) weekly basis or (c) other. The intervention would be conducted on a weekly basis, because for indicated populations, it was seen that the weekly interventions, or the interventions conducted other frequencies (daily or other) were not significantly different from each other (see section 4.1.4, table 4.8), and conducting a weekly intervention to parents would be more efficient and practical. Also, when the effect of the intensity of the program on negative parenting behaviors was examined, it was seen that the interventions conducted on weekly basis were more effective in reducing negative parenting behaviors compared to the ones conducted on daily basis (see section 4.2.2, table 4.17).

After the decision concerning the intensity of the program, the next decision concerned was the length of the program. The number of weeks was not selected on the basis of the meta-analysis results, since the number of weeks did not significantly affect program effectiveness. Moreover, when the effectiveness of the interventions on negative parenting behaviors was examined, it was seen that the number of sessions did not significantly affect the intervention outcomes. Since, shorter interventions were as effective as the longer ones, the length of the program was chosen to be the length of the program selected (Incredible Years BASIC and ADVANCE Parenting Programs), which was 20 weeks long.

The setting of the intervention was not analyzed in the meta-analysis. The setting was selected according to the needs of the intervention program. The program may be delivered in a room that is appropriate for a discussion with a group of 10-14 parents. Since videotapes will be shown during the program, the room should have the required equipment. According to Webster-Stratton & Herbert (1993), parents respond better to an informal room that is large and comfortable and includes a place to make tea or coffee or tea and a lending library. This kind of a room makes parents come earlier to the meetings and have a chance to chat informally and be a supportive group.

The trainers of the program could not be selected on the basis of the meta-analysis results, either, because this characteristic of the interventions was not analyzed. The trainers of the program had to have the characteristics required for implementing Incredible Years

BASIC and ADVANCE Parent Programs. The requirements are (1) the person has to have a degree in psychology, counseling, social work, nursery or any other mental health area, and (2) the person has to receive the training for Incredible Years BASIC and ADVANCE Parent Programs.

5.3 The Intervention Program Content

The components of the program are (1) teaching discipline to parents (2) improving parent-child relationships (3) teaching parents problem solving. While Incredible Years BASIC Parenting Program covers the first two, Incredible Years ADVANCE Parenting Program covers the last component.

The program has some approaches that are applied throughout both BASIC and ADVANCE Parenting Programs. First of all, the training is based on a collaborative process between the parent and the trainer. In other words, the trainer and the parents are partners in improving the parenting practices of the parents for reducing the externalizing behaviors of the children. In this collaboration, the trainers and parents have a reciprocal relationship where the trainers provide knowledge and the parents come with their unique strengths and perspectives. During the training best practices and solutions for problematic situations are produced (Webster-Stratton & Herbert, 1993). Second, the group is designed to be a support group for the parents. This support system is set up through the group discussions and

through assigning buddies to each parent. The buddies call each other through out the program and this provides continuous support for the parents throughout the program.

5.3.1 BASIC Parenting Program Content

The content of the BASIC Program aims to improve parent-child relationship and teach parents effective discipline techniques. This program consist of the components: playing with the child, praising the child and giving incentives, limit setting, ignoring and time-out for misbehavior and teaching children natural and logical consequences (Webster-Stratton & Hancock, 1998).

Play Skills: This component aims to teach parents how to play with their child and how to help children learn through play. Through play a warmer and more positive parent-child relationship is targeted. The parents learn to set daily play times with their child which makes children feel loved and how to teach their children vocabulary for expressing their feelings and thoughts, how to teach social skills such as taking turns, and how to teach them problem solving (Webster-Stratton & Hancock, 1998).

Praise: In this component, parents are taught to praise their children when their children engage in positive/prosocial behaviors. This component aims to make parents see and support the positive behaviors of their children. Moreover, some parents do not praise

themselves, either, so they do not know the concept of praising much. In that case, parents are first taught to praise themselves. The parents are encouraged to praise their children for simple, everyday behaviors, such as playing quietly. Also, incorrect opinions of the parents regarding praise, such as praising spoils the child are corrected (Webster-Stratton & Hancock, 1998).

Incentives: Incentives are tangible awards given to children for positive behaviors. The aim of this component is to motivate the positive behaviors of children. The incentives serve the same purpose as praise, but some children respond more positively when they receive tangible rewards, rather than verbal ones. Two types of rewards are taught to parents. The first one is to give the reward as a surprise to the child when the behavior occurs. This approach is suitable if the child already displays the behavior and the parent wishes to increase the frequency of the behavior. The second type of reward is planned ahead of time together with the child. This approach is suitable if the desirable behavior is not displayed by the child (Webster-Stratton & Hancock, 1998).

Limit Setting: In this component, a skill for parental discipline is taught. The parents are taught to set clear and consistent limits for misbehavior. The aim of this component is to teach parents that children seek consistency in rules and as they see that the rules are consistently enforced they start to misbehave less frequently. Therefore, the externalizing behavior levels decrease through effective limit setting (Webster-Stratton & Hancock, 1998).

Ignoring Skills: In this component, another skill aiming at parental discipline is taught. The parents are trained to ignore behaviors such as whining, teasing, arguing, swearing, and tantrums. After these behaviors stop, the parent starts to pay attention to the child once more. As the negative attention given to these unwanted behaviors is lost, the child starts to decrease these behaviors (Webster-Stratton & Hancock, 1998).

Time- Out Skills: Time-out is a technique used for extreme misbehaviors, such as fighting, hitting, and destructive behaviors. The child is sent to a corner of a room or another part of the house for a while. It is actually an extreme form of parental ignoring. This approach helps parents build discipline in a warm relationship with the child rather than a fearful and power based relationship (Webster-Stratton & Hancock, 1998).

Natural and Logical Consequences: This component aims to train parents to teach their children take the responsibility for their actions. The child experiences whatever the actual consequence of the misbehavior. In other words, this technique provides the child with natural punishments for misbehavior. As the child experiences the consequences, it is expected that the child will decrease the unwanted misbehaviors (Webster-Stratton & Hancock, 1998).

5.3.2 ADVANCE Parenting Program Content

The contents of the ADVANCE program targets the communication and problem solving skills of the parents as adults and their problem-solving skills with their children, so that they can take better care of their children, better cope with their children's behavior problems and be better models as adults (Webster-Stratton & Hancock, 1998).

Communication Skills: This component addresses the problems of parents regarding solving conflicts. In this section, by teaching parents how to solve conflicts, it is aimed to make parents better models for their children in resolving conflicts. This component of the program requires substantive adaptation for Turkish conditions, due to the differences in the family structure and gender relations between the two cultures (Webster-Stratton & Hancock, 1998).

Managing Upsetting Thoughts: In this component, parents learn to cope with their own negative feelings such as anger, depression, frustration or guilt when they are dealing with their children. The skills to be taught in this section are active listening, speaking up, talking about feelings, and how to make requests. This section aims to reduce negative parenting behaviors that are due to the personal difficulties of the parents while raising their child (Webster-Stratton & Hancock, 1998).

Managing Stress through Personal Time-Out: In this component, parents learn to deal with their stress and control their behaviors under stress. The parents learn how to use time-out for their stressful periods, by going away from their children until they calm down. Moreover, parents are taught how to use Turtle Technique in order to control their behaviors when they are angry. The parents pretend to be a turtle that goes into its shell until they calm down. After they are calmer they come out of their shells and react to their children in more appropriate ways (Webster-Stratton & Hancock, 1998).

Problem Solving: In this component, problem solving techniques are taught to parents in family conflict situations. The parents are taught to set aside time for problem solving, rather than solving the problems during crisis periods when anger and other negative feelings are at peak. Moreover, parents are taught to define the problem before solving and find solutions in line with their goals and expectations regarding the problem. This component of the program requires substantive adaptation to Turkish culture and family structure, before application (Webster-Stratton & Hancock, 1998).

Teaching Children to Problem Solve: It is one of the ways to reduce the externalizing behaviors of children, since in many instances; the child does not know how to solve problems in a non-aggressive manner. In this component, parents learn to teach their children alternative solutions, as well as being models to their children for problem solving (Webster-Stratton & Hancock, 1998)

The syllabus of the program is provided in Appendix D.

5.4 Application of the Program in Turkish Context

Incredible Years Parent Program was selected as the potentially most effective program on preventing the externalizing behaviors of Turkish children, but this program was essentially designed for the parents of US children. Although the effectiveness of the program was established, several differences between Turkey and US in (1) characteristics of the population, (2) culture, and (3) conditions for administration and logistic of the program may create some difficulties in the application of the program for the parents of Turkish children.

5.4.1 The Differences in the Characteristics of the Population

There are several differences in the characteristics of the populations addressed by the program in Turkey and US. Some of the differences are related to the children whose externalizing behaviors are targeted and others are related to the characteristics of the families of the children.

One of the main differences of the children between the ages 3-5 the two countries is that in US most of the children go to preschool, whereas only 14% of Turkish children at these ages have the same opportunity. The children who go to preschool may have more exposure to cognitive stimulation and have more experience in socialization with peers and teachers, than the ones who do not go to preschool. This difference may make a difference in what the child knows about prosocial and antisocial behavior and authority of adults over behavior. Moreover, the children who go to a preschool and have high levels of externalizing problems may have problems with their peers and teachers in that environment. Turkish children who do not go to preschool may not understand authority, and the difference between prosocial and antisocial behavior as well as those who attend preschool. On the other hand, the behavior problems in the school domain are not of concern for these children or their parents.

The other differences in the population are related to the differences in the family structure between the two counties. One of the important differences is that functionally extended families are common in Turkey, while they are not common in the US. Because of this, the parents in Turkey may have a higher likelihood of receiving social support from their relatives than the parents in the US. On the other hand, in functionally extended families it is more likely that relatives are involved in the child rearing practices, whereas the parents are the only ones involved in the US. In fact, the close relatives and grandparents are the ones that are most trusted for child care (T. C. Başbakanlık Aile Araştırma Kurumu,

1995). Therefore, in large families some difficulties may arise due the discrepancies between the parenting practices of the parents who attend the program and the other significant adults in the family ecology.

.

Another difference in the characteristics of the population targeted by interventions in the two countries is the gender relations. The fathers are usually dominant especially in the discipline applied at home in the patriarchal Turkish family. In general mothers attend the program and in this case even if the mothers are taught how to use discipline techniques efficiently, the fathers may continue harsh and negative disciplinary practices at home.

The divorce rate is a difference between the two countries, too. The divorce rates are over 50% in the US, and less than 10% in Turkey. The result of the divorce is that the fathers are not at home to be with the child. Only 2.8 % of the fathers in Turkey are not at home (T.C. Başbakanlık Aile Araştırma Kurumu, 1995). Thus, the father is present at home for most of the Turkish children, whereas it is not the case for children in the US context. Although the fathers may not always be supportive of the mothers in changing the discipline techniques at home, generally they are interested in their children. It is found that about half of the fathers are generally interested in their children in Turkey (T.C. Başbakanlık Aile Araştırma Kurumu, 1995). Some additional content that would encourage the fathers to support their children may turn this to an advantage in Turkey.

In sum, these important differences in the characteristics of the population targeted have to be taken into consideration in order to maximize the effectiveness of the program. While implementing the program an additional effort may be needed to prevent the disadvantages due to the characteristics of the population in Turkey. On the other hand, the advantages due to these characteristics should be used to increase the effectiveness as much as possible.

5.4.2 The Program Content and Cultural Differences

Incredible Years Parent training content is designed for the US culture. Therefore, some components of the program may be difficult to apply in the Turkish context or may require substantial adaptation.

One of the concerns related to the program may be that there is no information regarding whether parent-child play is common or acceptable in Turkey. Since the program emphasizes on playing with children, more efforts maybe required to make parents play with their children on a daily basis if they are not open to playing with their children. Some information is present regarding the issue that most of the mothers in Turkey have a close relationship with their child. About half of the mothers put distance to their children time to time (T.C Başbakanlık Aile Araştırma Kurumu, 1995). Generally, mothers joke with their children (T.C Başbakanlık Aile Araştırma Kurumu, 1995), too, which may suggest that they

are open to close relationship with the child. Moreover, in the city most of the children have toys (80%; T.C Başbakanlık Aile Araştırma Kurumu, 1995), which may indicate that the parents are supportive of play, even if they might not be playing with their children. Therefore, it is possible that with most mothers playing with their children would not be a problem. However, playing with their children may not be easy for every parent, due to their temperamental differences. Since the aim of play is creating an opportunity for a warm relationship between the parent and the child and creating a context where the play is child directed, alternative solutions could be produced for those parents that have difficulty playing with the child through the collaborative process between the trainer and the parent.

Another difference between the Turkish and the US culture is related to the interpersonal distance and agency. Although culture of relatedness is high in Turkey (Kagitcibasi, 1985), separateness, meaning that the self is distanced from others with well-defined self-boundaries, is supported in the US culture. The current program was designed in a Western culture where autonomy and relatedness are considered to be conflicting patterns (Kagitcibasi, 1996, 2005). However, both autonomy and relatedness are considered to be basic needs, and they may not be necessarily conflicting needs (Kagitcibasi, 2005). Therefore, while applying the program in the Turkish context, to preserve the culture of relatedness and support the development of autonomy in children could be goals that are considered.

One other problem that may occur related to the content of the program is regarding the components about the family-functioning, because of the differences in the family and gender relations in the two cultures. One of the differences that may influence the content of the program is the patriarchal family in Turkey. The components that teach parents how to resolve conflicts and marital problems assume an egalitarian family environment. The teaching objectives in those components may require changes in order to make it more acceptable in Turkish context.

In sum, playing with the child and the components regarding the family functioning that teach parents how to solve conflicts and how to communicate may lead to some difficulties in the adaptation of the program.

5.4.3 The Differences Related to the Administration of the Program and Logistics

There may be some differences related to the administration of the program and logistics issues between the two countries. There may be difficulties finding the staff with the required qualifications as trainers. Moreover, difficulties may arise because the children at this age do not go to preschool, so they are with their parents.

An administrative problem could be related to the trainers of the program and the relationship between the trainers and the parents. The trainers that deliver the program in US are highly educated in mental health and they have extensive knowledge about how to build a relationship with the parents. There may be difficulties finding staff with required qualifications in Turkey. An effort could be made to train trainers who would be effective in delivering the program who might not have a professional background but might have experience in intervention delivery as peer trainers. Since, there are few mental health professionals in Turkey, opportunities to train paraprofessionals may be explored and this approach may meet the needs of a wider group of families than requiring mental health professionals for program delivery.

The problem related to the relationship between the parents and the trainers is that in Turkey parents especially with low education levels tend to perceive the ones who deliver the program as authority figures. The basic principle of the Incredible Years parent program is that the training is a collaborative process where both the trainers and parents contribute to the process. The program in Turkey might require additional efforts to build this collaborative relationship.

In Turkey most children are at home with their parents. This condition may create difficulties in attendance to the program. Simultaneous child care, including some child training components may be a practical, but costly solution to this issue.

In conclusion, the trainers may require additional training to apply the program successfully and parents whose children do not go to preschool may need child care support in order to attend the program.

Chapter 6

DISCUSSION

6.1 Summary of the Findings

The first aim of this thesis was to identify whether psychosocial interventions targeting the externalizing behaviors of preschool children are effective on average. The findings of the study reveal that on average the interventions for this age group has an effect size of 0.55, which shows that the effectiveness of the interventions have a moderate effect on externalizing behaviors. This finding indicates that at preschool ages the effectiveness of interventions to reduce externalizing behaviors is high compared to some of the previous findings. No previous study examined the effectiveness of intervention programs with such a wide variety of characteristics targeting preschool children with externalizing behaviors. According to Lösel & Beelmann (2003), child skills trainings on the externalizing behaviors of preschool children have an effect size of 0.31. Even though this indicates a lower effect size than that found by the current thesis, Lösel & Beelmann (2003) did not include interventions with diagnosed populations, which generally yield higher effects. Moreover, school-based interventions were found to have an average effect size of 0.33 (Wilson,

Lipsey, & Derzon, 2003). Also, when the effectiveness of behavioral parent training targeting the parents of preschool children was examined, the effect size was found to be 0.40 (Maughan, Christiansen, Jenson, Olympia & Clark, 2005).

The second aim of this thesis was to delineate the study and program characteristics that are important in the effectiveness of the interventions. In this study, the intervention characteristics and study characteristics that are important in program effectiveness are examined separately, since study characteristics are considered as non-substantive factors and program characteristics as substantive factors influencing intervention effectiveness.

Among the study characteristics, it is seen that the publication date of the intervention study is one of the characteristics that is significantly associated with the level of effectiveness of interventions. The finding that the studies published in the earlier years are significantly more effective compared to the ones published in the recent years is expected since it is known that more studies are published in the recent years and the publication criteria are more objective in the recent years than previously. Previous reviews have also found similar findings. According to Lösel & Beelmann (2003), the studies published between the years 1991-2000 have the smallest effect size, while the ones published before 1980 has the largest effect size.

The other important study characteristic that influences the program effectiveness is the SES level of the study sample. Specifically, the interventions evaluated with low SES samples are less effective compared to the ones evaluated with high SES samples. Other meta-analyses that evaluated the effectiveness of interventions targeting externalizing behaviors did not report on this characteristic, so it is not known whether this outcome is consistent with the literature or not. On the other hand, individual intervention studies that evaluate the effectiveness of the interventions on different SES levels reveal some conflicting findings. According to Rogers, Forehand, Griest, Wells & McMahon (1981), which evaluated the effectiveness of a parent training on the externalizing behaviors, the parents in all SES levels demonstrated similar changes in the desired direction. On the other hand, Knapp & Deluty (1989) reported that the children coming from high SES families improved significantly more than the children coming from low SES families as a result of a parent training. Webster-Stratton & Hammond (1990) also claimed that low SES families could benefit less from the interventions due to additional risk factors such as stress due to poverty, marital conflict or high divorce rates. There may be several reasons for the finding that the interventions evaluated with high SES are more effective than the ones evaluated with low SES samples. The first one is that in general studies with diagnosed populations are evaluated with high SES samples. Since, universal/selected or indicated populations are on average less effective than the diagnosed populations, this may be a reason of the low effectiveness of the interventions evaluated with a low SES sample. Moreover, low SES samples experience more risks than high SES samples and there may be other factors that the

interventions do not address in their programs such as financial problems, high divorce rates, and high stress levels. This finding may have implications both for evaluating the programs with diagnosed populations more on low SES samples and include other components in the programs that will address these additional problems that the high SES samples do not encounter.

The country where the intervention program is conducted does not seem to be an important study characteristic, since the effectiveness of the studies conducted in any of the countries is not significantly different except that the ones conducted in Canada are significantly less effective. The previous reviews did not examine the effectiveness levels of the interventions according to the country they were conducted, so the finding may not be validated with the other meta-analyses. It is reasonable that the country where the intervention was conducted is not significantly associated with the program effectiveness, since all of the countries had similar cultural backgrounds.

Among the program characteristics, one of the most important and critical characteristic is the intervention type. The interventions that target diagnosed populations are more effective compared to the ones targeting universal/selected or indicated populations. This is consistent with previous reviews examining the effectiveness of externalizing behaviors. According to both Wilson, Lipsey, & Derzon (2003) and Lösel & Beelmann, (2003) the indicated populations revealed higher effects compared to universal or selected

populations. Moreover, within diagnosed interventions, those including children with ADHD are compared to others. It is seen that the effectiveness levels are not significantly different for these groups. Since ADHD is often considered to be a biologically based disorder that requires medication, this result may have important implications. This finding is consistent with Pelham, Wheeler & Chroris (1998), which reviews the treatments for ADHD and concludes that behavioral treatments are effective for ADHD. However, medical treatments are also found to be effective by Pelham et al. (1998) and there is an ongoing debate on this issue.

The findings about the characteristics of interventions in terms of intensity is that for universal/selected interventions the daily interventions are more effective, but for indicated populations whether the interventions are conducted on a daily or a weekly basis does not make a difference. The reason for the inconsistency in the effect of intensity on the effectiveness for universal/selected or indicated populations is not known. It may be speculated that the differences arise from the domain and method of intervention. Daily interventions are likely to be child interventions conducted at school, whereas weekly interventions may be child based or parent based interventions. Previous reviews did not examine the influence of the intensity on intervention effectiveness.

Also, the number of sessions that the intervention is conducted does not make a difference in effectiveness for any of the intervention types. This may be an indication that

the program effectiveness is not related to how long one is exposed to an intervention, but what is actually taught in the period of the intervention and the fit between the exposure and content of the intervention. Not many of the previous reviews examined this issue. Maughan, Christiansen, Jenson, Olympia & Clark (2005) examined this issue for behavioral parent training 3-16 year old children. They have found that the interventions conducted between 1-5 weeks were significantly more effective compared to the longer intervention. However, this finding is not specific to interventions targeting preschool children, so it may be possible that such a difference does not occur for interventions targeting preschool children. Furthermore, long-term and short-term effectiveness of short versus long interventions must be compared.

The method, domain and the group type of the intervention program are three of the characteristics that may not be considered totally independent from each other. More specifically, when the domain of the intervention program is known, the group type and the method may only be one of the alternatives that include that domain. Therefore, it is difficult to identify which of those characteristics are the most important in determining the effectiveness of the intervention. According to the findings of the study, the answer to this question varies according to the intervention type.

The group type of the intervention is not an important characteristic, except for the intervention conducted in child groups. Although the intervention conducted in child groups are significantly more effective if they are universal/selected interventions, they are the least

effective when targeting a diagnosed population. The group types for parent interventions or teacher interventions do not influence effectiveness. This finding is consistent with the fact that child interventions and teaching problem-solving to children are only effective for universal/selected populations and not effective for diagnosed populations, since those interventions are conducted in child groups. On the other hand, invariability of the effectiveness of the interventions conducted in parent groups versus individual parents is inconsistent with some previous meta-analysis findings. According to Maughan, Christiansen, Jenson, Olympia & Clark (2005), the behavioral parent training is significantly more effective when conducted with individual parents than with parent groups. The difference in findings may be due to the fact that in this thesis a wider range of parent training approaches were included than the Maughan et al. study.

The domain of the intervention program is significantly associated with the program effectiveness only for universal/selected and indicated populations. The domain of the interventions targeting diagnosed populations was not a characteristic that is significantly associated with program effectiveness. Child interventions are more effective for universal/selected populations compared to the parent interventions. This may be because the child interventions used problem-solving training for this population which is generally effective. On the other hand, parent interventions are the most effective on indicated and diagnosed populations. The fact that child training is less effective than parent training may

be due to the ineffectiveness of interventions targeting children that do not use problem solving methods.

The method used is one of the important intervention characteristic programs. The effectiveness of the interventions that teach problem-solving skills to children significantly vary by intervention type. Except for universal/selected populations, the interventions that teach problem-solving to children are not effective. It is found to be the most effective method among the interventions with universal/indicated populations. It may be that teaching problem-solving to children with low levels of externalizing behaviors may be effective and as the level of externalizing behaviors increase, the effectiveness may be low as long as the parents are not included in the intervention. In fact, this reasoning is consistent with the finding that the effectiveness of the interventions on negative parenting behaviors increases as the externalizing behavior levels increase. In other words, teaching problem-solving to children may only be effective as a method if the negative parenting behavior levels are already low.

When the effect sizes based on maximum effects and the based on observer reports are compared, it is seen that the average effect sizes are lower when the effects are based on only observations. Moreover, when children are trained and the observations measure what is taught by training, then the interventions yield high effect sizes. This finding indicates that the studies should be cautious while using only observer reports. According to Hinshaw,

Erhardt & Huber (1992), independent play observations have effect sizes close to teacher reports, but not parent reports. Since, mostly parent reports and independent observations are selected to represent each intervention program; the discrepancy may be considered consistent with the literature.

Another purpose of this thesis was to examine the effectiveness of the interventions on negative parenting behaviors. On average, interventions are effective for reducing negative parenting behaviors. The average effect size of the decrease in negative parenting behaviors is 0.55 which is consistent with the average effect size of the decrease in externalizing behaviors. Therefore, it may be inferred that reducing the negative parenting behaviors of the parents may be effective for reducing the externalizing behaviors. In sum, this finding is consistent with the previous findings that parent training is more effective than child training when an indicated or diagnosed population is targeted. Since previous reviews examining the effectiveness of the interventions that target the externalizing behaviors of children did not evaluate the effectiveness of the interventions on negative parenting behaviors this finding may not be compared with other study findings.

This study also had the aim of delineating the characteristics of interventions that are effective in reducing negative parenting. Diagnosed interventions are most effective on negative parenting behaviors and universal/selected interventions are the least effective. This finding is consistent with that on the effectiveness of interventions for externalizing

behaviors. Among the methods applied to parents, there are no significant differences except that the interventions not targeting parents are less effective in reducing negative parenting, which is expected. Therefore it may be concluded that teaching parental discipline or improving parent-child relationships are effective in reducing negative parenting levels. Another finding is that child interventions are not effective on reducing negative parenting behaviors. When this finding is compared to the effectiveness of child interventions on decreasing the externalizing behavior levels, it is seen that child interventions are highly effective only when the externalizing levels of children are low at the baseline. Therefore, it may be possible that the negative parenting levels of those parents are already at low levels. However, when high levels of externalizing behaviors are present, the way to reduce them is to reduce the negative parenting behaviors through parent interventions.

The influence of the number of sessions on the intervention effectiveness for negative parenting behaviors is consistent with the influence of number of sessions on interventions on externalizing behaviors. In both cases, it is not an influential characteristic of the interventions. Therefore, both for parents and children, the length of the intervention is not important, but the domain or the method applied are more important.

The influence of the group type of the program may be considered as consistent for the externalizing behaviors and the negative parenting behaviors. Although the effect of child groups is significantly different for different intervention types, it is not significantly

different from other group types for negative parenting. The group types concerning parents would be expected to be more important in the case of negative parenting behaviors. In both cases, interventions to individual parents, parent groups or parent-child dyad do influence the effectiveness. This finding may also indicate that the domain and the method of the interventions are the most important characteristics for decreasing the negative parenting behaviors.

The effectiveness of the domain shows some consistencies and inconsistencies for externalizing behaviors and negative parenting behaviors. Although the effectiveness levels of different domains are consistent for the interventions targeting indicated populations, they are not consistent for the interventions targeting diagnosed interventions. Although the interventions with parents and parents & children are the two most effective domains for decreasing the externalizing behaviors for diagnosed populations, the interventions with parents & children are the most effective for decreasing the negative parenting behaviors. The reason why the interventions with only parents are not as effective on negative parenting behaviors is unclear. It is possible that the methods applied in these interventions were not adequate in reducing the negative parenting behaviors, or that parents' specific problems with their children need to be addressed when the level of externalizing behaviors are very high.

The influence of the method used in the intervention program is consistent for the effectiveness of the program on externalizing behaviors and negative parenting behaviors. In both cases teaching parents discipline and improving parent-child relationship are the most effective methods and teaching only discipline to parents is the second most effective method. This finding is consistent for the interventions targeting indicated and diagnosed populations. However, it is not known whether the effectiveness of the interventions targeting universal/selected interventions is consistent for externalizing behaviors and negative parenting behaviors. It is suggested that the reason teaching problem-solving to children is more effective for universal/selected interventions is that negative parenting behaviors may already be low for this group of children. Therefore, it is possible that improving the parenting practices may not be as effective for these populations. This may be examined in later studies.

The last purpose of this thesis was to propose a preventive intervention program targeting Turkish preschool children with externalizing behaviors on the basis of the meta-analysis results and the previous intervention programs conducted in Turkey. The intervention program proposed targets an indicated population for prevention purposes. The meta-analysis findings indicate that teaching parents discipline as well as improving parent-child relationship is a better method than the other methods for this group of children. Moreover, it is seen that parent interventions are more effective than child interventions for

this group of children. The intervention is designed to be a weekly intervention conducted in parent groups.

In summary, it is found that psycho-social interventions for preschool children with externalizing behaviors are effective and as the level of externalizing behaviors increase the effectiveness of the interventions increase, too. Moreover, it is seen that both study and program characteristics are associated with the effectiveness of the interventions. These interventions are also effective in decreasing negative parenting. Finally, the parenting intervention proposed to be implemented in Turkey is selected on the basis of the meta-analysis results as well as the previous interventions conducted in Turkey targeting preschool children. Therefore, it is expected to be effective on Turkish preschool children who have high levels of externalizing problems.

6.2 Contributions

This thesis has several contributions to the literature. In this quantitative review it is shown that on average the interventions targeting externalizing behaviors are effective on preschool children. This finding supports the development and implementation of interventions targeting this group of children. The study shows that it is possible to reduce externalizing behaviors at the preschool period through psycho-social interventions.

Previously there was no review comparing a wide range of methods for reducing externalizing behaviors among preschool children. This review filled this gap by identifying the characteristics of interventions that are highly effective for this group of children.

Another contribution of this thesis is that previous studies did not consider the intervention type as a factor moderating the effects of other program characteristics on intervention effectiveness. In the previous reviews, the intervention type was only considered as a characteristic of the intervention. The findings of this meta-analysis reveal that the effectiveness level of the interventions with different characteristics varied depending on the intervention type.

An important contribution of this thesis is the intervention program proposed. The program combines the attributes of the interventions that resulted in the best outcomes. Also, the intervention is designed as a preventive intervention, so in application the program may be promising in preventing the externalizing behavior problems before they reach diagnostic levels. Prevention of the externalizing behaviors will allow the prevention of related academic and social problems of the children. Also, since the externalizing behaviors at early ages lead to more severe conduct problems in adolescence and adulthood, such as juvenile delinquency or drug abuse, it may be possible to reduce the occurrence of these problems in the society.

6.3 Limitations

Despite the important contributions of this thesis, it has some limitations, too. The most important limitation is the power of the study sample. The study has a relatively small sample size for the number of characteristics examined. There were very few or no interventions representing some of the characteristics of interest. Thus, the effectiveness of interventions with those characteristics is inconclusive (for example; there were no interventions that targeted universal/selected populations and targeted parents and children, and there were no daily interventions targeting diagnosed populations). Moreover, the problem with statistical power implied that in this small sample some differences did not reach significance, but may have been significant with a larger sample.

Another limitation of the study is that due to strict methodological criteria, some approaches to interventions to preschool children with externalizing behaviors could not be represented in the study. For instance, although individual child interventions are widely used especially with diagnosed populations, no studies met the methodological criteria.

Another limitation of the study was that each intervention in the study sample was represented with one mean and standard deviation. However, the effectiveness of an intervention on individuals with different characteristics may fluctuate within a study. The study may not be able to capture the influence of various factors on the effectiveness level of

the individuals exposed to the same intervention program. For instance, in some programs individuals coming from different SES groups were present, but those studies are represented with a single mean and standard deviation in the meta-analysis.

In addition, the effectiveness of the interventions on various cultures could not be evaluated with this study, because the countries other than US were represented with very few studies and they were all conducted in countries with a similar cultural background. Therefore, generalizing the effects of these findings to other cultures is difficult. Actually, this limitation is mostly due to the fact that the studies that met the methodological criteria of this study were not conducted in countries other than Western countries. Therefore it is difficult to infer how the interventions should be customized to other cultures or what methods may be effective in those cultural contexts. Since the countries outside US are represented with few studies, it was not possible to determine whether the effectiveness of these interventions may be attributed to the intervention type or the country conducted or whether the effectiveness levels of the different intervention types vary similarly.

An additional limitation regarding the fact that the interventions included in the study were conducted in Western cultures the caution that must be exercised in the results to design an intervention program to be implemented in the Turkish context. Although, through some previous intervention examples implemented in Turkey, some of the intervention

characteristics are determined to be suitable for Turkey, the actual effectiveness on children and acceptability by the parents may be uncertain.

6.4 Future Studies

The future studies may be developed in three areas: (1) the characteristics of interventions that associated with effectiveness may be examined in more detail (2) the findings of the meta-analysis may shed light on the basic research regarding the trajectories of externalizing behaviors (3) the proposed intervention may be developed into a pilot intervention and put into practice, and the effectiveness may be evaluated.

The findings of the meta-analysis may have indications for future research on the trajectories of the development of externalizing behaviors in young children. This study seems to support the idea that coercive parent-child relationship is closely related to externalizing behaviors. Although child interventions are more effective when a universal/selected population is targeted, parent interventions are more effective when children with higher levels of baseline externalizing behaviors. The factors that lead to this difference may be examined further. Although the finding has implications that the development of the externalizing behaviors are related to both child and family factors, the factors that interact pertaining to the child and parent must be further understood to account for the findings of the meta-analysis.

Finally, future research may be conducted regarding the effectiveness of the intervention program proposed based on the meta-analysis findings. The future studies may apply the intervention as a pilot study and evaluate the acceptability and effectiveness level of the program. On the basis of that, a full scale intervention program may be developed and the risk for externalizing behavior disorders for a large number of children may be prevented at preschool ages. As a result, the risk for juvenile delinquency and drug abuse risk at later ages may be reduced in the society.

APPENDIX A: List of Review Articles used for Data Collection

Brestan, E. V., & Eyberg, S. M. (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5,272 kids. *Journal of Clinical Child Psychology, 27(2),* 180-189.

Lonigan, C. J., Elbert, J. C., & Johnson, S. B. (1998). Empirically supported psychosocial interventions for children: An overview. *Journal of Clinical Child Psychology, 27 (2),* 138-145.

Lösel, F., & Beelmann, A. (2003). Effects of child skills training in preventing antisocial behavior: A systematic review of randomized evaluations. *The Annals of the American Academy, 587,* 84-109.

Newby, R. F., & Fischer, M. (1991). Parent training for families of children with ADHD. *School Psychology Review, 20 (2),* 252-264.

Sheldrick, R. C., Kendall, P. C., & Heimberg, R. G. (2001). The clinical significance of treatments: A comparison of three treatments for conduct disordered children. *Clinical Psychology: Science and Practice, 8(4),* 418-430.

Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0-8 years). *Prevention Science, 2(3),* 165-192.

Weisz, J. R, Weiss, B., Alicke, M. D., & Klotz, M.L. (1987). Effectiveness of psychotherapy with children and adolescents: A meta-analysis for clinicians. *Journal of Consulting and Clinical Psychology, 55(4),* 542-549.

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology, 71(1),* 136-149.

APPENDIX B: List of Articles Included in the Meta-analysis

August, G. J., Realmuto, G. M., Hektner, J. M., & Bloomquist, M. L. (2001). An integrated components preventive intervention for aggressive elementary school children: The early risers program. *Journal of Consulting and Clinical Psychology, 69 (4),* 614-626.

Barkley, R. A., Shelton, T. L., Crosswait, C., Moorehouse, M., Fletcher, K., Barrett, S., Jenkins, L., & Metevia, L. (2000). Multi-method psycho-educational intervention for preschool children with disruptive behavior: Preliminary results at post-treatment. *Journal of Child Psychology and Psychiatry, 41(3),* 319-332.

Bradley, S.J., Jadaa, D., Brody, J., Landy, S., Tallett, S. E., Watson, W., Shea, B., & Stephens, D. (2003). Brief psychoeducational parenting program: An evaluation and 1-year follow-up. *Journal of American Academy of Child and Adolescent Psychiatry, 42(10),* 1171-1178.

Brotman, L. M., Klein, R. G., Kamboukos, D., Brown, E. J., Coard, S. I., & Sosinsky, L. S. (2003). Preventive intervention for urban, low-income preschoolers at familial risk for conduct problems: A randomized pilot study. *Journal of Clinical Child and Adolescent Psychology, 32 (2),* 246-257.

Chaffin, M., Silovsky, J. F., Funderburk, B. Valle, L. A., Bresten, E. V., Balachova, T., Jackson, S., Lensgraf, J., & Bonner, B. L. (2004). Parent-child interaction therapy with physically abusive parents: Efficacy for reducing future abuse reports. *Journal of Consulting and Clinical Psychology, 72 (3),* 500-510.

Cunningham, C. E. Bremner, R., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behavior disorders: Utilization, cost effectiveness, and outcome. *Journal of Child Psychology and Psychiatry, 36(7),* 1141-1159.

Denham, S. A., & Burton, R. (1996). A social-emotional intervention for at-risk 4 year-olds. *Journal of School Psychology, 34 (3),* 225-245.

Gross, D., Fogg, L., Webster-Stratton, C., Garvey, C., Julion, W., & Grady, J. (2003) Parent training with multi-ethnic families of toddlers in day care in low-income urban communities. *Journal of Consulting and Clinical Psychology, 71 (2),* 261-278.

Hamilton, S. B., & MacQuiddy, S. L. (1984). Self-administered behavioral parent training: Enhancement of treatment efficacy using a time-out signal seat. *Journal of Clinical Child Psychology, 13 (1),* 61-69.

Hektner, J. M., Egan, E. A., Realmuto, G. M., & Bloomquist, M. L (2002). The early risers longitudinal prevention trial: Examination of 3-year outcomes in aggressive children with intent-to-treat and as-intended analyses. *Psychology of Addictive Behaviors, 16 (4),* S27-S39.

Jackson, Y., Rump, B. S., Ferguson, K., & Brown, A. (1999). Group play therapy for young children exposed to major stressors: Comparison of quantitative and qualitative evaluation methods. *Journal of Child and Adolescent Group Therapy, 9 (1),* 3-16.

McNeil, C. B., Eyberg, S., Eisenstadt, T. H., Newcomb, K., & Funderburk, B. (1991). Parent-child interaction therapy with behavior problem children: Generalization of treatment effects to the school setting. *Journal of Clinical Child Psychology, 20 (2),* 140-151.

Miller-Heyl, J. MacPhee, D., & Fritz, J. J. (1998). Dare to be you: A family-support, early prevention program. *The Journal of Primary Prevention, 18 (3),* 257-285.

Mize, J., & Ladd, G. W. (1990). A cognitive-social learning approach to social skill training with low-status preschool children. *Developmental Psychology, 26 (3),* 388-397.

Nicholson, B., Anderson, M., Fox, R., & Brenner, V. (2002). One family at a time: A prevention program for at-risk parents. *Journal of Counseling and Development, 80,* 362-371.

Nixon, R. D. V., Sweeney, L., Erickson, D. B., & Touyz, S. W. (2003). Parent-child interaction therapy: A comparison of standard and abbreviated treatments for oppositional defiant preschoolers. *Journal of Consulting and Clinical Psychology, 71 (2),* 251-260.

Pisterman, S., McGrath, P., Firestone, P., Goodman, J. T., Webster, I., & Mallory, R. (1989). Outcome of parent-mediated treatment of preschoolers' attention deficit disorder with hyperactivity. *Journal of Consulting and Clinical Psychology, 57 (5),* 628-635.

Sanders, M.R., Markie-Dadds, C. Tully,A.L. & 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(4),* 624-640.

Serna, L., Nielsen, E., Lambros, K., & Forness, S. (2000). Primary prevention with children at risk for emotional or behavioral disorders: Data on a universal intervention for Head Start classrooms. *Behavioral Disorders, 26(1),* 70-84.

Schuhmann, E. M., Foote, R. C., Eyberg, S. M., Boggs, S. R., & Algina, J. (1998). Efficacy of parent-child interaction therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child Psychology, 27(1),* 34-45.

Scott, S., Spender, Q., Doolan, M., Jacobs, B. & Aspland, H. (2001). Multicentre controlled trial of parenting groups for childhood antisocial behavior in clinical practice. *British Medical Journal, 323,* 1-7.

Sheeber, L. B., & Johnson, J. H. (1994). Evaluation of a temperament-focused, parent-training program. *Journal of Clinical Child Psychology, 23(3),* 249-259.

Shure, M. B. & Spivack, G. (1979). Interpersonal cognitive problem solving and primary prevention: Programming for preschool and kindergarten children. *Journal of Clinical Child Psychology, 2,* 89-94.

Spaccarelli, S., Cotler, S., & Penman, D. (1992). Problem-solving skills training as a supplement to behavioral parent training. *Cognitive Therapy and Research, 16 (1),* 1-18.

Tutty, S., Gephart, H., & Wurzbacher, K. (2003). Enhancing behavioral and social skill functioning in children newly diagnosed with attention-deficit hyperactivity disorder in a pediatric setting. *Journal of Developmental and Behavioral Pediatry, 24 (1),* 51-58.

Walker, H.M., Kavanagh, K., Stiller,B. Golly, A., Severson, H.H. & Feil, E.G. (1998). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional & Behavioral Disorders*, *6(2),* 1-26.

Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology, 52(4),* 666-678.

Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: Strengthening parenting competencies. *Journal of Consulting and Clinical Psychology, 66 (5),* 715-730.

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 (1),* 93-109.

Webster-Stratton, C., Kolpacoff, M., & Hollinsworth, T. (1988). Self-administered videotape therapy for families with conduct-problem children: Comparison with two cost-effective treatments and a control group. *Journal of Consulting and Clinical Psychology, 56 (4),* 558-566.

Webster-Stratton, C., Reid J., & Hammond, M. (2001a). Social skills and problem-solving training for children with early-onset conduct problems: Who benefits? *Journal of Child Psychology and Psychiatry, 42 (7),* 943-952.

Webster-Stratton, C., Reid, J. M., & Hammond, M. (2001b). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology, 30 (3),* 283-302.

Webster-Stratton, C., Reid, M. J. & Hammond, M. (2004). Treating children with early-onset conduct problems: Intervention outcomes for parent, child, and teacher training. *Journal of Clinical Child and Adolescent Psychology, 33 (1),* 105-124.

APPENDIX C: The List for the Measurements Used in the Meta-analysis

Abidin, R. R. (1995). *The Parent Stress Index* (3. rd Ed.) Odessa, FL: Psychological Assessment Resources.

Achenbach. T. M. (1991) *Manual for the child behavior checklist 4-18.* Burlington, VT: University Associates in Psychiatry.

Achenbach, T. M. (1994). Child Behavior Checklist and related instruments. In M. E. Maruish (Ed.), *The Use of Psychological Testing for Treatment Planning and Outcome Assessment* (pp.517-549). Hilsdale, NJ: Lawrence Elbraum Associates, Inc.

Achenbach, T. M. & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T. M., Edelbrock, C. & Howell, C. T. (1987). Empirically based assessment of the behavioral/emotional problems of 2- and 3- year old children. *Journal of Abnormal Child Psychology, 15,* 629-650.

Achenbach T. M. & Edelbrock, C. S. (1991) *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington, VT: University Associate in Psychiatry.

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for ASEBA Preschool Forms & Profiles. Burlington*: University of Vermont, Research Center for Children, Youth, & Families.

Altman, J. (1974). Observational study of behavior: Sampling methods. *Behavior, 49,* 227-267.

Arnold, D. S., O'Leary, S. G., Wolff, L. S., & Acker, M. M. (1993). The Parenting Scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment, 5,* 137-144.

Barkley, A. & Edelbrock, C. (1987). Assessing situational variations in children's problem behaviors: the home and school situation questionnaire. In R. J. Prinz (Eds.) *Advances in Behavioral Assessment of Children and Families.* Vol.3 (pp. 157-176). New York: JAI Press.

Behar, L., & Stringfield, S. (1974). A behavior rating scale for the preschool child. *Developmental Psychology, 10,* 601-610.

Breiner, J., & Forehand, R. (1981). An assessment of the effects of parent training on clinic referred children's school behavior. *Behavioral Assessment*, 3, 31-42.

Budd, K. S., Riner, L. S., & Brockman, M. P. (1983). A structured evaluation system for clinical evaluation of parent training. *Behavioral Assessment. 5,* 373-390.

Cassidy, J., & Asher, S. R. (1992). Loneliness and peer relations in young children. *Child Development, 63,* 350-365.

Colvin, A., Eyberg, S., & Adams, C. (1998). Restandardization of the Eyberg child behavior inventory. Manusript submitted for publication.

DuPaul, G. J. (1990). The ADHD rating scale. In R. A. Barkley (Ed.) *Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*. New York, NY, Guilford Press, (pp. 45-48).

Eyberg, S. M. (1992). Parent and teacher behavior inventories for the assessment of conduct problem behaviors in children. In L. V. Creek, S. Knapp, T. L. Jackson (Eds.) *Innovations in Clinical Practice: A Source Book* (Vol. 11, pp. 261-270). Sarasota, FL: Professional Resource Press.

Eyberg, S. M., Bessmer, J., Newcomb, K., Edwards, D., & Robinson, E. A. (1994). Dyadic Parent-child interaction coding system-II: A manual. San Rafael, CA: Select Press.

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

Eyberg, S. M., & Ross, A. W. (1978). Assessment of child behavior problems: The validation of a new inventory. *Journal of Clinical Psychology, 16,* 113-116.

Gordon, M. (1983). *The Gordon Diagnostic System*. DeWitt, NY: Gordon Systems.

Gresham, F. M., & Elliot, S. N. (1990). *Social Skills Rating System (SSRS).* Circle Pines, MN: American Guidance Service.

Harter, S., & Pike, R. (1984). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. *Child Development, 55,* 1969–1982.

MacPhee, D. (1986, April). *The measurement of difficult child behavior.* Poster presented at the Biennial International Conference on Infant Studies, Los Angeles.

Reynolds, C. R., & Kamphaus, R. W. (1992). *Manual for the Behavioral Assessment System for Children.* Circle Pines, MN: American Guidance Service.

Richman, N., & Graham, P. (1971) A behavioral screening questionnaire for use with three-year-old children. *Journal of Child Psychology and Psychiatry,* 12, 5-13.

Robinson, E. A., & Eyberg, S. M. (1981). The dyadic parent-child interaction coding system: Standardization and validation. *Journal of Consulting and Clinical psychology, 49,* 245-250.

Robinson, E. A., Eyberg, S. M., & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology, 9,* 22-28.

Sanders, M. R., Waugh, L., Tully, L., & Hynes, K. (1996). The Revised Family Observation Schedule (3rd ed.). Brisbane, Queensland, Australia: Parenting and Family Support Center.

Shure, M. B., & Spivack, G. (1974). *Preschool Interpersonal Problem Solving (PIPS) Test Manual.* Philadelphia: Hebnemann Community Mental Health/Mental Retardation Center.

Sroufe, L. A., Schork, E., Motti, F., Lawroski, N. & LaFreniere, P. (1984). The role of affect in social competence. In C. E. Izard, J. Kagan, R. B. Zajonc (Eds.) *Emotions, Cognitions and Behavior* (pp. 289-319). Cambridge University Press.

Walker, H. M., Severson, H., & Feil, E. (1994). *The Early Screening Project: A Proven Child-find Process*. Longmont, CO: Sopris West.

Werthamer-Larson, L., Kelam, S. G., & Wleeler, L. (1991). Effect of first-grade classroom environment on child shy behavior, aggressive behavior, and concentration problems. *American Journal of Community Psychology, 19,* 585-602.

APPENDIX D: Syllabus of Incredible Years Parenting Program

In the first 12 weeks of the intervention program, Incredible Years BASIC Program is applied. In the last 8 weeks, Incredible Years ADVANCE Program is applied. Each week, videotape vignettes regarding the topic are watched and after each vignette a therapist-led discussion regarding the topic of that vignette is conducted. In each session, about 25 minutes of vignettes are watched. If the parents do not want to watch a specific vignette, then role playing with the parents is conducted instead. At the end of each session, home activities are given to parents and at the beginning of the next session the home activities from the previous week are discussed.

BASIC Parenting Program

In 12 weeks, the four programs included in BASIC Parenting Program are covered. The programs are:

Program 1: Play

Part 1: How to Play with the Child

Part 2: Helping Children Learn

Program 2: Praise and Rewards

Part 1: Effective Praising

Part 2: Tangible Rewards

Program 3: Effective Limit Setting

Part 1: How to Set Limits

Part 2: Helping Children Learn to Accept Limits

Part 3: Dealing with Noncompliance

Program 4: Handling Misbehavior

Part 1: Avoiding and Ignoring Misbehavior

Part 2: Time Out and Other Penalties

Part 3: Preventive Strategies

The schedule for the program is as follows:

Sessions 1-3

The first three sessions of the program is devoted to Program 1. This section is divided into two parts which are (1) how to play with the child (2) how to make children learn through play. The content of the videotape vignettes in this section are as follows:

Part 1: How to Play with the Child

- Recognizing children's capabilities and needs.
- Providing positive support for children's play.
- Helping children develop imaginative and creative play.
- Building children's self-esteem and self concept.
- Handling children's boredom.
- Avoiding power struggles with children.
- Understanding the importance of adult attention

(http://www.incredibleyears.com/programs/objectives-table2.pdf).

Part 2: Helping Children Learn

- Talking with children.
- Understanding ways to create faster language development.
- Building children's confidence in learning ability.
- Helping children learn to problem solve.
- Helping children deal with frustration.
- Avoiding the criticism trap.
- Making learning enjoyable through play.

(http://www.incredibleyears.com/programs/objectives-table2.pdf).

At the end of each session parents are assigned home activities. Parents are asked to play with their children for 10 minutes every day as a home activity, in order to practice the skills they have learned. Then, the second week the parents are asked to play with their children in learning activities such as playing with play dough, drawing, reading a story, answering questions. Finally, in the third session, the home activity is to be a social coach by commenting on the social behaviors of the child such as being polite, sharing, taking turns and being an emotional coach by commenting on when the child seems happy, sad, angry etc (http://www.incredibleyears.com/resources/basic-program-handouts-play-06.pdf).

Sessions 4-6

During these sessions Program 2 is covered. Two parts of this program are: (1) praise (2) tangible rewards. The parents are taught to say positive statements and give tangible rewards to their children during play time. The content of the videotape vignettes in this section are as follows:

Part 1: Effective Praising

- Understanding ways to praise more effectively.
- Avoiding praise of perfection only.
- Recognizing common traps.
- Handling children who reject praise.
- Providing physical warmth.
- Recognizing child behaviors that need praise.
- Understanding the effects of social rewards on children.
- Doubling the impact of praise.
- Building children's self-esteem.

(http://www.incredibleyears.com/programs/objectives-table2.pdf).

Part 2: Tangible Rewards

- Providing unexpected rewards.
- Understanding the difference between rewards and bribes.
- Recognizing when to use the "first-then" rule.
- Providing ways to set up star and chart systems with children.
- Recognizing ways to carry out point programs.
- Understanding how to develop programs that are age appropriate.

• Understanding ways to use tangible rewards for reducing or eliminating problems such as dawdling, not dressing, noncompliance, not sharing, fighting with siblings, picky eating, messy rooms, not going to bed, and messy diapers. (http://www.incredibleyears.com/programs/objectives-table2.pdf).

As home activity parents are asked to praise a behavior of their child that they want to see more frequently. In time, increasing the amount of praise is expected from the parents. Moreover, parents are asked to use a star or sticker program for an expected behavior as home activity. The home activity of the second week is to use tangible rewards for an expected behavior (http://www.incredibleyears.com/resources/basic-program-handouts-praise-04.pdf).

Sessions 7- 11

In these sessions Program 3 and 4 are covered as the topics. These programs are covered interchangeable in the same sessions, rather than one program following the other.

First how to set clear and predictable limits is taught which is the first part of Program 3 (how to set limits). In the next session the second section of limit setting which is “helping children accept limits” and the first section of handling misbehavior

which is “avoiding and ignoring skills” is taught. In the next two sessions part 3 of limit setting which is “dealing with noncompliance” and the second part of handling misbehavior which is “time out and other penalties” are covered. In the last session of the BASIC program, includes the natural and logical consequences of misbehavior. The videotape vignettes in this section are as follows:

Part 1: How to Set Limits

- Identifying important household rules.
- Understanding ways to give more effective commands.
- Avoiding unnecessary commands.
- Avoiding unclear, vague, and negative commands.
- Providing children with positive alternatives.
- Understanding when to use the "when-then" command.
- Recognizing the importance of warnings and helpful reminders.
- Understanding ways to use problem-solving approaches.

Part 2: Helping Children Learn to Accept Limits

- Dealing with children who test the limits.
- Understanding when to divert and distract children.
- Avoiding arguments and "why games."
- Recognizing traps children set for parents.
- Ignoring inappropriate responses.
- Following through with commands effectively.
- Helping children to be more compliant.

Part 3: Dealing with Noncompliance

- Understanding how to implement Time Out for noncompliance.
- Understanding ways to explain Time Out to children.
- Avoiding power struggles.
- Dealing with children who refuse to go to Time Out or refuse to stay in Time Out.
- Ignoring children's inappropriate responses.
- Following through effectively and consistently.
- Avoiding common mistakes concerning Time Out.

Part 1: Avoiding and Ignoring Misbehavior

- Anticipating and avoiding frustration.
- Showing disapproval.
- Ignoring and distracting.
- Handling noncompliance, screaming, arguing, pleading, and tantrums.
- Handling crying, grabbing, not eating, and refusing to go to bed.

Part 2: Time Out and Other Penalties

- Explaining Time Out to a school-age child.
- Using Time Out for hitting behaviors.
- Using the Time Out chair with a toddler.
- Explaining Time Out to a toddler.
- Using a Time Out room with a toddler.
- Using Time Out to help stop sibling fights.
- Following through when a child refuses to go to Time Out.
- Dealing with spitting.
- Dealing with threats.
- Understanding and establishing logical consequences.
- Coping when discipline doesn't work.

• Dealing with the telephone syndrome.

• Dealing with the TV syndrome.

Part 3: Preventive Strategies

• Encouraging sharing and cooperation between children.

• Using puppets and story books to teach children social skills.

• Talking and listening effectively.

• Problem solving with children.

• Reviewing points to remember when using Time Out.

The home activity given during these weeks are related to limit setting and handling misbehavior. The parents are asked to use commands only for the most important behaviors and give positive and specific commands. Also, parents have to set a few household rules. Moreover, parents have to avoid arguing about the commands and ignore inappropriate responses to commands. The parents are asked to record their commands and the responses of the child. In order to apply the time out technique the parents have to choose a place for time out and explain how and when it will be used to the child (http://www.incredibleyears.com/resources/basic-program-handouts-limit-setting-04.pdf). One of the home activities pertaining to the topic “handling misbehavior” is ignoring a behavior that is wanted to be decreased every time it occurs. Moreover, as

another home activity parents have to find behaviors that might result in logical or natural consequences and identify what privilege to remove would be appropriate. Meanwhile, throughout these weeks, the parents have to keep the daily play times and continue praising the child when expected or positive behaviors occur (http://www.incredibleyears.com/resources/basic-program-handouts-misbehavior-06.pdf).

Session 12

In this last session of the BASIC Program, the parents last week's assignments are reviewed. Then the termination activities are conducted, such as feelings about the group and continuing the group. Finally, the certificates are distributed together with the gifts.

ADVANCE Parenting Program

In 8 weeks, the three programs included in ADVANCE Parenting Program are covered. The programs are:

Program 5: How to Communicate Effectively With Adults and Children

Part 1: Active Listening and Speaking Up

Part 2: Communicating More Positively with Self and Others

Part 3: Giving and Getting Support

Program 6: Problem-Solving for Parents

Part 1: Adult Problem Solving

Part 2: Adult Problem-solving Meetings

Program 7: Problem-Solving with Young Children

Part 1: Children to Problem-Solve Through Stories and Games

Part 2: Children to Problem-Solve in the Midst of Conflict

The weekly program is as follows:

Sessions 1-2

In this part of the program the first topic of Program 5 which is "active listening and speaking up" is covered. The content of the videotape vignettes are as follows:

Part 1: Active Listening and Speaking Up

• Understanding the importance of active listening skills.

• Learning how to speak up effectively about problems.

• Recognizing how to validate another's feelings.

• Knowing how and when to express one's own feelings.

• Avoiding communication blocks such as not listening, storing up grievances, and angry explosions (http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity parents are asked to listen actively for minutes during the week with a partner or child. As another home activity, the parents are asked to speak up in a topic that has been worrying them and while doing that practicing the skills taught regarding the how to communicate effectively (http://www.incredibleyears.com/resources/advance-program-handouts-communicating-effectively.pdf).

Session 3

In this part of the intervention, the second part of program 5 which is "communicating more positively with oneself and others. The content of the videotape vignettes are as follows.

Part 2: Communicating More Positively with Self and Others

• Understanding the importance of recognizing self-talk.

• Understanding how angry and depressive emotions and thoughts can affect behaviors with others.

• Learning coping strategies to stop negative self-talk.

• Learning coping strategies to increase positive self-talk.

• Increasing positive and polite communication with others.

• Avoiding communication blocks such as put-downs, blaming, and denials.

• Understanding the importance of seeing a problem from the other person's point of view.

(http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity, the parents are asked to use self talk with one situation that makes them upset. The aim of this activity is to make parents practice changing negative thoughts and emotions to positive ones for a specific situation. Moreover, parents are asked to observe when their child is upset and encourage them to use the Turtle Technique (http://www.incredibleyears.com/resources/advance-program-handouts-communicating-effectively.pdf).

Session 4

This week the last part of program 5 which is “giving and getting support” is covered. The content of the videotape vignettes are as follows:

Part 3: Giving and Getting Support

• Understanding the importance of support for a family or an individual.

• Recognizing communication styles or beliefs that block support.

• Fostering self-care and positive self reinforcement strategies in adults and children.

• Avoiding communication blocks such as defensiveness, denials, cross complaints, and inconsistent or mixed messages.

• Knowing how to get feedback from others.

• Understanding how to turn a complaint into a positive recommendation.

• Promoting consistent verbal and nonverbal messages.

• Knowing how to make positive requests of adults and children.

• Understanding why compliance to another's requests is essential in any relationship.

• Learning how to be more supportive to others.

(http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity, parents are asked to use the methods taught about giving polite requests and positive feedback instead of a complaint. (http://www.incredibleyears.com/resources/advance-program-handouts-communicating-effectively.pdf).

Session 5

This week, the first part of Program 6 which is "adult problem-solving meetings" is covered. The content of the videotape vignettes are as follows:

Part 1: Adult Problem Solving

• Recognizing when to use spontaneous problem-solving skills.

• Understanding the important steps to problem solving.

• Learning how and when to collaborate effectively.

• Avoiding blocks to effective problem solving such as blaming, attacks, anger, sidetracking, lengthy problem definition, missed steps, and criticizing solutions.

• Recognizing how to use problem-solving strategies to get more support.

• Learning how to express feelings about a problem without blaming.

(http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity, the parents are asked to pick a problem situation between them and their partner or by themselves, and then to practice solving the problem by going through the problem-solving procedure taught in the program. Then, parents are asked to record their strengths and weaknesses during the process

http://www.incredibleyears.com/resources/advance-program-handouts-problem-solving-parents.pdf).

Session 6

This week, the second part of Program 6 which is "family problem-solving meetings" is covered. The content of the videotape vignettes are as follows:

Part 2: Family Problem-solving Meetings

• Understanding how to use the problem solving steps with school-age children.

• Recognizing the importance of evaluating plans during each problem-solving session.

• Understanding the importance of rotating the leader for each family meeting.

• Learning how to help children express their feelings about an issue.

• Reinforcing the problem-solving process.

(http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity, parents are asked to find another problem situation that requires problem solving and practicing solving the problem through the problem solving methods taught in the program (http://www.incredibleyears.com/resources/advance-program-handouts-problem-solving-parents.pdf).

Session 7

This week the first part of Program 7 which is “teaching children to problem solve through stories and games” is covered. The content of the videotape vignettes are as follows:

Part 1: Teaching Children to Problem-Solve Though Stories and Games

• Understanding that games and stories can be used to help children begin to learn problem-solving skills.
• Appreciating the developmental nature and process of problem solving and learning how to enhance these skills in children.
• Strengthening a child's beginning empathy skills or ability to understand a problem from another person's viewpoint.
• Recognizing why aggressive and shy children need to learn these skills.
• Learning how to help children think about the emotional and behavioral consequences to proposed solutions.
• Knowing how to help older children evaluate their proposed solutions.
• Understanding the importance of validating children's feelings.
• Learning how to help children make more positive attributions about another person's intentions.

• Recognizing the value of adults modeling their ability to problem solve for children to observe. (http://www.incredibleyears.com/programs/objectives-4.pdf).

As home activity parents are asked to role play a problem situation with their child and encourage the child to produce as many solutions to the problem as possible (http://www.incredibleyears.com/resources/advance-program-handouts-problem-solving-with-children.pdf).

Session 8

This week, the second part of Program 7 which is "teaching children to problem-solve in the midst of conflict" is covered. As home activity, parents are asked to choose a problem situation that seems distressing for the child during daily reading or play time and discuss the possible solutions to the problem situation in order to find a good solution.

The content of the videotape vignettes are as follows:

Part 2: Children to Problem-Solve in the Midst of Conflict

• Understanding the importance of not imposing solutions upon children but of fostering a thinking process about conflict.

• Recognizing how and when to use guided solutions for very young children or for children who have no positive solutions in their repertoire.

• Discovering the value of obtaining the child's feelings and view of the problem before attempting to problem solve.

• Learning how to foster children's skills to empathize and perceive another's point of view.

• Recognizing when children may be ready to problem solve on their own.

• Avoiding blocks to effective problem solving with children, such as lectures, quick judgments, exclusive focus on the right "answer," and failure to validate a child's feelings.

(http://www.incredibleyears.com/programs/objectives-4.pdf).

Session 9

The last week of the program is for going over any materials that parents have problems with, evaluating the program and celebration. The problems raised by the parents are role played as well as going over any vignettes that could not be covered. Then the leader and the parents talk about how it was to be in the group. Finally, parents are given their certificates and some special present such as the photo of the whole group.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders (4th Ed.).* Washington, DC:Author.

Brestan, E. V., & Eyberg, S. M. (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5,272 kids. *Journal of Clinical Child Psychology, 27(2),* 180-189.

Bullis, M., H. M.Walker, and J. R. Sprague. (2001). A promise unfulfilled: Social skills training with at-risk and antisocial children and youth. *Exceptionality, 9*, 67-90.

Conduct Problems prevention Research Group (1992). A developmental and clinical model for the prevention of conduct disorder: The FAST track program. Special issue: Developmental approaches to prevention and intervention. *Development and Psychopathology, 4(4),* 509-527.

Coplan, J. C., Bowker, A., & Cooper, S. M. (2003). Parenting daily hassles, child temperament, and social adjustment in preschool. *Early Childhood Research Quarterly, 18(3),* 376-395.

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, *Parenting and the Child's World* (pp 215-230).New Jersey: Lawrence Erlbaum.

Dore, M. M, & Lee, J. M. (1999). The role of parent training with abusive and neglectful parents. *Family Relations, 48,* 313-325.

Durlak, J. A., Fuhrman, T. & Lampman, C. (1991). Effectiveness of cognitive-behavior therapy for maladapting children: A meta-analysis. *Psychological Bulletin, 110(2),* 204-214.

Eisenberg, N., Fabes, R. A., Shepard, S. A., Murphy, B. C., Guthrie, I. K., Jones, S., Friedman, J., Poulin, R. & Maszk, P. (1997). Contemporeous and longitudinal prediction of children's social functioning from regulations and emotionality. *Child Development, 68(4),* 642-664.

Forehand, R. L., & McMahon, R. J. (1981). *Helping the noncompliant child." A clinician's guide to parent training.* New York: Guilford.

Garstein, G. A. & Fagot, F. I. (2003). Parental depression, parenting and family adjustment, and child effortful control: Explaining externalizing behaviors for preschool children. A*pplied Developmental Psychology, 24,* 143-177.

Gauthier, Y. (2003). Infant mental health as we enter the third millennium: Can we prevent aggression? *Infant Mental Health Journal, 24(3),* 296-308.

Glass, G. V. (1976). Primary, secondary and meta-analysis of research. *Education Research, 5,* 3-8.

Greenberg, T. M., Domitrovich, C. & Bumbarger, C. B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment, 4,* 1-57.

Greenwood, C. R., Hops, H., & Walker, H. M. (1977). The program for academic survival skills (pass): Effects on student behavior and achievement. *Journal of School Psychology, 15(1),* 25-35.

Hedges, L. V. & Olkin, I. (1985). *Statistical Methods for Meta-analysis.* San Diego, CA: Academic Press.

Hinshaw, S. P., Han, S. S., Erhardt, D., & Huber, A. (1992). Internalizing and externalizing behavior problems in preschool children: Correspondence among parent and teacher ratings and behavior observations. *Journal of Clinical Child Psychology, 21 (2),* 143-150.

Hops, H., Walker, H. M., Fleischman, D. H., Nagoshi, J. T., Omura, R. T., Skindrud, K., & Taylor, J. (1978). CLASS: A standardized in-class program for acting-out children. II. field test evaluations. *Journal of Educational Psychology, 70(4),* 636-644.

Joseph, G. E., & Strain, P. S. (2003). Comprehensive evidence-based social-emotional curricula for young children: An analysis of efficacious adoption potential. *Topics in Early Childhood Special Education, 23(2),* 65-76.

Kagitcibasi, C. (1985c). Intra-family interaction and a model of family change. In T. Erder (Ed.), *Family in Turkish society* (pp.149-166). Ankara: Turkish Social Science Association.

Kagitcibasi, C. (1996).The autonomous-relational self: A new synthesis. *European Psychologist*, *1*(3), 180-186.

Kagitcibasi, C. (2005). Autonomy and relatedness in cultural context: Implications for self and family. *Journal of Cross-cultural Psychology, 36(4),* 403-422.

Kagitcibasi, C., Sunar, D., & Bekman, S. (2001). Long-term effects of early intervention: Turkish low-income mothers and children. *Applied Developmental Psychology, 22,* 333-361.

Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. *Development and Psychopathology, 10,* 165–185.

Knapp, P. A., & Deluty, R. H. (1989). Relative effectiveness of two behavioral parent training programs. *Journal of Clinical Child Psychology, 18,* 314-322.

Koçak, A., & Bekman, S. (2004). Mothers speaking: A study on the experience of mothers within the mother-child education program (MOCEP). *European Early Childhood Education Research Journal , 12 (1),* 115-129.

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis.* Thousand Oaks, CA: Sage Publications.

Lösel, F., & Beelmann, A. (2003). Effects of child skills training in preventing antisocial behavior: A systematic review of randomized evaluations. *The Annals of the American Academy, 587,* 84-109.

Maughan, D. R., Christiansen, E., Jenson, W. R., Olympia, D., & Clark, E. (2005). Behavioral parent training as a treatment for externalizing behaviors and disruptive behavior disorders: A meta-analysis. *Schhol Psychology Review, 34 (3),* 267-286.

McMahon, R. J. (1994). Diagnosis, assessment, and treatment of externalizing problems in children: The role of longitudinal data. *Journal of Consulting and Clinical Psychology, 62(5),* 901-917.

McMahon, R.J., & Forehand, R. (2003). Helping the noncompliant child: Family-based treatment for oppositional behavior (2nd ed.). New York: Guilford Press

Moffitt, T. E. (1990). Juvenile delinquency and attention deficit disorder: Boys' developmental trajectories from age 3 to age 15. *Child Development, 61,* 893-910.

Pelham,W. E., Wheeler, T.,&Chronis, A. (1998). Empirically supported psychosocial treatment for attention deficit hyperactivity disorder. *Journal of Clinical Child Psychology*, *27,* 190–205.

Prinstein, M. J., & La Greca, A. M. (2004). Childhood peer rejection and aggression as predictors of adolescent girls' externalizing and health risk behaviors: A 6-year longitudinal study. *Journal of Consulting and Clinical Psychology, 72(1),* 103-112.

Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., Epstein, M. H. (2004). Meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education*, *38 (3)*, 130–143.

Reid, M. J., Webster-Stratton, C., and Hammond, M. (2003) Follow-up of children who received the Incredible Years Intervention for oppositional-defiant disorder: maintenance and prediction of 2-year outcomes. *Behavior Therapy*, *34 (4),* 1-

Rogers, T. R., Forehand, R., Griest, D. L., Wells, K. C., & McMahon, R. J. (1981). Socioeconomic status: Effects on parent and child behaviors and treatment outcome of parent training. *Journal of Clinical Child Psychology, 10(2),* 98-101.

Rothbaum, F., & Weisz, J. R. (1994). Parental care giving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin, 116(1),* 55-74.

Sanson, A. & Rothbart, M. K. (1995). Child temperament and parenting. In M. H. Bornstein (Editor). *Handbook of Parenting*, (vol. 4, pp. 299-321). New Jersey: Lawrence Erlbaum Associates.

Schuhmann, E. M., Foote, R. C., Eyberg, S. M., Boggs, S. R., & Algina, J. (1998). Efficacy of parent-child interaction therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child Psychology, 27(1),* 34-45.

Sheldrick, R. C., Kendall, P. C., & Heimberg, R. G. (2001). The clinical significance of treatments: A comparison of three treatments for conduct disordered children. *Clinical Psychology: Science and Practice, 8(4),* 418-430.

Stormont, M. (2002). Externalizing behavior problems in young children: Contributing factors and early intervention. *Psychology in the Schools, 39(2),* 127-138.

T. C. Başbakanlık Aile Araştırma Kurumu (1995). *Ailede Çocuk Eğitimi Araştırması.* Ankara.

Tremblay, R. E., Pagani, K. L., Masse, L. C.,Vitaro, F., & Pihl, R. O. (1995). A bimodal preventive intervention for disruptive kindergarten boys: Its impact through mid-adolescence. Special section: Prediction and prevention of child and adolescent antisocial behavior. *Journal of Consulting and Clinical Psychology, 63,* 560-56.

Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. G. (1998). First step to success: an early intervention approach for preventing school antisocial behavior. *Journal of Emotional & Behavioral Disorders, 6 (2)*, 66-81.

Webster-Stratton, C. (1996). Early-onset conduct problems: Does gender make a Difference? *Journal of Consulting and Clinical Psychology, 64(3),* 540-551.

Webster-Stratton, C., & Hancock, L. (1998). Parent training: Content, methods and processes. In E. Schaefer (Ed.), *Handbook of Parent Training*, second edition (pp. 98-152). New York: Wiley and Sons.

Webster-Stratton, C., and Hammond, M. (1990). Predictors of treatment outcome in parent training for families with conduct-problem children. *Behavior Therapy, 21*, 319-337.

Webster-Stratton, C. & Herbert, M. (1994). *Troubled families — Problem children: Working with parents a collaborative process.* Chichester, England: Wiley & Sons Limited.

Webster-Stratton, C., Hollinsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct-problem children. *Journal of Consulting and Clinical Psychology, 57(4),* 550-553.

Webster-Stratton, C., & Reid, M. J. (2003). Treating conduct problems and strengthening social and emotional competence in young children (ages 4-8 years): The dina dinosaur treatment program. *Journal of Emotional and Behavioral Disorders, 11(3),* 130-143.

Webster-Stratton, C., Reid, M. J., & Hammond, M. (2004). Treating children with early-onset conduct problems: Intervention outcomes for parent, child, and teacher training. *Journal of Clinical Child and Adolescent Psychology, 33(1),* 105-124.

Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0-8 years). *Prevention Science, 2(3),* 165-192.

Weisz, J. R, Weiss, B., Alicke, M. D., & Klotz, M.L. (1987). Effectiveness of psychotherapy with children and adolescents: A meta-analysis for clinicians. *Journal of Consulting and Clinical Psychology, 55(4),* 542-549.

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology, 71(1),* 136-149.

Wood, J. J., Cowan, P. A., & Baker, B. L. (2002). Behavior problems and peer rejection in preschool boys and girls. *The Journal of Genetic Psychology, 163(1),* 72-88.

www.incredibleyears.com