Cultural adaptation of a parenting intervention for parents in multi-ethnic disadvantaged neighborhoods : contextualised content in a built-in module
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Parent training programs for ethnic minorities

A meta-analysis of adaptations and effect

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ABSTRACT

This meta-analysis focuses on parent training programs for ethnic minority families and reports on (i) the adaptation of program content and (ii) the process that informs these adaptations. Relevant studies are reviewed to determine the adaptations made and the impact of the adaptations on parenting and child outcomes.

Studies were eligible for inclusion if they enrolled predominantly ethnic minority parents with children aged 0–12 years, used a randomized controlled trial design with post-intervention assessments, focused on group-based parent training programs and on prevention of parenting problems, and reported parenting behavior outcomes. A total of 18 studies were included in the analysis.

The results show that parent training programs targeting ethnic minority parents have a small but significant effect on improving parenting behaviour (k = 18, Cohen's d = 0.30), child outcomes (k = 16, Cohen's d = 0.13), and parental perspectives (k = 8, Cohen 's d = 0.19). Most of the programs made adaptations related to surface and deep structure sensitivity. Programs with cultural adaptations, especially deep structure sensitivity (k = 7, Cohen's d = 0.54), are more effective in improving parenting behavior.

Because only a third of the included studies provided details on the processes that guided the adaptations made, additional studies are needed to provide information on the process of adaptation; this will enable others to learn from the procedures that can be undertaken to culturally adapt interventions

INTRODUCTION

Several studies have tested the efficacy of parent training programs to prevent parenting problems in varying subgroups, and, generally, such programs have a positive influence on parenting skills and child behavior (e.g.,: Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Kaminski, Valle, Filene, & Boyle, 2008). However, the effectiveness of parent training programs varies based on participants' characteristics and features of the parent training programs (Lundahl, Risser, & Lovejoy, 2006). Former studies indicate that an ethnic minority status is associated with poorer outcomes (Griner & Smith, 2006; Lundahl et al., 2006). Researchers warn of the dangers of disseminating evidence-based interventions among diverse populations if such programs were originally developed according to European-American cultural norms and expectations (Cardona et al., 2012) and emphasize the relevance of cultural sensitivity and ecological validity for treatment and outcomes (Bernal, Jiménez-Chafey, & Domenech Rodríguez, 2009).

With increased knowledge on evidence-based interventions, attempts have been made to adapt and develop parent training programs for ethnic minority groups (Baumann et al., 2015). Earlier meta-analysis indicates that by integrating factors such as language, cultural beliefs and explanatory models into the intervention, culture-sensitive programs may improve the target population's acceptance and the effectiveness of the intervention (Griner & Smith, 2006; Smith, Domenech Rodríguez, & Bernal, 2011). However, there is a lack of evidence to guide practitioners on how best to culturally adapt interventions (Sidhu, Gale, Gill, Marshall, & Jolly, 2015). The aim of the present meta-analysis was twofold. First, the included studies were reviewed to determine (a) the type of adaptations made to the parent training programs and (b) the extent to which the process that informed the adaptations is described. Second, we examined the influence of the adaptations on program effectiveness, i.e., the extent to which parenting problems were prevented in ethnic minority families.

Cultural adaptation frameworks
There is no single correct way to culturally adapt parent training programs and no rule stating that every evidence-based intervention should be adapted (Baumann et al., 2015; Domenech Rodriguez, Baumann, & Schwartz, 2011). When considering cultural adaptations, frameworks providing guidance may inform the adaptation of

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either the program content, or the process of adaptation (Ferrer-Wreder, Snudell, & Mansoory, 2012). One such framework focusing on the content of the adaptation (in other words, on what to adapt) is the cultural sensitivity model (Resnicow, Baranowski, Ahluwalia, & Braithwaite, 1999). This distinguishes between surface and deep structure adaptations. Surface structure sensitivity involves matching program materials and messages to the characteristics of the target population (e.g., language, locations, and people). Deep structure sensitivity refers to incorporating elements that influence the behavior of the target group (e.g., cultural, social, and environmental factors). Frameworks directed at the process of adaptations guide decisions about when and how to adapt and which stakeholders to involve in the process. These models generally recommend to incorporate the expertise of stakeholders to inform the adaptations, the use of formative research, and to perform evaluation studies of the adapted intervention (Baumann et al., 2015; Domenech Rodriguez et al., 2011). The present study combines a qualitative synthesis regarding the process and content of cultural adaptations, with a meta-analysis examining how adaptations impact the outcomes and effectiveness. We assess whether studies that provide information on the process of adaptation are more effective than those that do not describe the process of adaptation. This is based on the assumption that researchers that report the process of adaptations make better-informed choices resulting in improved outcomes in the target population. We also assess how the type of adaptations influences program effectiveness. It is reported that studies with more cultural adaptations are more effective than studies with fewer cultural adaptations (Smith et al., 2011). Based on the cultural sensitivity model of Resnicow et al. (1999) we assume that the impact is a result of the type of adaptations rather than the number of adaptations. Therefore, we compare programs with deep structure adaptations, surface structure adaptations, and no adaptations. Our hypothesis is that programs with deep structure adaptations will have enhanced effectiveness.

METHODS

Study selection

The parenting programs that are the focus of this meta-analysis are group-based interventions aimed at improving the quality of the parent–child relationship by changing parenting practices, aspects of parental functioning, and the child's emotional and behavioral adjustment. The following seven criteria were applied for study inclusion: (1) the study sample consisted of predominantly (≥50%) ethnic minorities (i.e., a group of people who share a common culture, religion, language, or nationality (Hughes et al., 2006); we focus on ethnic groups that are minority groups in the country in which the intervention was delivered); (2) the intervention participants had a child aged 0–12 years (preschool to elementary school); (3) the intervention focused on the prevention of parenting problems (i.e., universal, selective, or indicated preventive interventions); (4) the intervention was group based; (5) the study reported a measure of parenting skills or behavior; (6) the study reported immediate post-intervention assessments; and (7) the study was a randomized controlled trial. Having a post-intervention assessment was chosen as an inclusion criterion because, with a preventive sample, long term effects are generally more difficult to demonstrate because different processes and outcomes may be involved (Sandler, Schoenfelder, Wolchik, & MacKinnon, 2011). Recently, the number of preventive parenting programs has increased exponentially and policy makers emphasize the need for systematic development and evaluation of these programs (Bakermans-Kranenburg et al., 2003). Therefore, the present study focused on preventive parent training programs. Programs were excluded when they were intended for children or parents who displayed clinically apparent or diagnosed with mental health problems or problem behaviour (i.e., above a clinical cut off point) and when parenting skills and behavior outcomes were only related to lifestyle behavior (e.g., physical activity, diet, and substance use) or literacy behavior. Individual programs (home-visiting programs and programs with an individual format) were also excluded. Since these programs are generally tailored to the individual needs of parents, cultural adaptations differ between parents. This makes it difficult to categorize these adaptations and compare them with the inbuilt or systematically planned adaptations in group programs (i.e., brief structured programs with a specific focus on parenting). A computer search was made in PsycInfo, PubMed, Medline, Embase, Web of Science, Cochrane/Central, and Cinhal/Academic Search Premier for all studies published up to August 2015. The search was performed using the

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following terms in varying combinations: parent program, minority group, ethnic, low income, disadvantaged community, and randomized controlled trial. Initially, this strategy identified 1327 studies. Preliminary study selection was based on scrutiny of the abstracts, which were reviewed by KM and MC, to determine whether they met the inclusion criteria. The preliminary screening resulted in 167 studies, each of which was assessed by reading the full article. Any disagreements were resolved by consensus, and a third reviewer (MW) was consulted in case of uncertainty about inclusion. When studies did not report immediate post-intervention data or the data were incomplete, the authors were contacted to provide additional data. Finally, 18 studies were included in the meta-analysis. The supplementary data (Appendix 1) describes the selection of the studies; Table 1 lists and provides details on the included studies.

Outcome measures

Preventive parent training programs generally operate under the premise that changes in parenting behaviour will also affect child outcomes. Therefore, dependent measures in studies most often include some combination of child and parent outcomes. In the present study, as a primary outcome, changes in parenting behavior were examined. As a secondary outcome, we investigated changes in parental perceptions and in child (psychosocial) behavior.

Primary outcome Effect sizes were computed from measures of parenting behavior based on parental self-reported and observed measures. Most studies used only self-reported measures, whereas some combined both self-reported measures and observations of parent/child interactions. A diverse range of scales, subscales, and revised scales was reported by the studies (see the supplementary data: Appendix 2). Self-reported measures generally included broadband instruments, such as the Parenting Scale (PS: Arnold, O'Leary, Wolff, & Acker, 1993). Observational methods included (among others) the Dyadic Parent–Child Interactive Coding System-Revised (DPICS: Robinson & Eyberg, 1978).

Secondary outcomes Measures of parental perceptions of parenting were derived from self-reported instruments, such as the Parenting Stress Index (PSI: Abidin, 2015). The included child outcomes were related to child psychosocial development. Measures of child psychosocial behavior generally involved parent-reported measurements, whereas some studies combined self-reported measures and observations of parent/

child interactions. The Eyberg Child Behavior Inventory (ECBI: Eyberg & Robinson, 1983) was often reported as a measure of child psychosocial behavior. Examples of observational methods used by researchers included the Dyadic Parent–Child Interactive Coding System (DPICS: Robinson & Eyberg, 1978)

Effect sizes

Cohen's d was used as a measure of the effect size, which represents the difference between the treatment and control groups expressed in standard deviation units (Lipsey & Wilson, 2001). The effect sizes and the 95% confidence intervals (CI) around the point estimates of the effect sizes were calculated using the software program CMA (Borenstein, Rothstein, & Cohen, 2000). Three meta-analytical data files were constructed, one for each outcome measure (i.e., parenting behavior, child behavior, and parental perspectives). Studies frequently reported results on multiple outcome measures and, incidentally, on multiple treatment conditions. To avoid overrepresentation of any study with multiple effect sizes or multiple treatment conditions, we aggregated the effect sizes within one study (Lipsey & Wilson, 2001). In the case of more than one outcome measure for parenting behavior, child behavior, or parental perspective, the effect sizes were computed separately for each outcome and then aggregated. When studies included two or more intervention arms (e.g., a parent group, a child group, and a teacher group), effect sizes were calculated for the effects of the treatment conditions with the parent group component compared to the control condition.

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Table 1. Characteristics of included studies

Study	Intervention			Participants
	Program name	Number of sessions	Country	Target group
Bjørknes et al. 2013	Parent Management Training – Oregon Model (PMTO)	18	Norway	Muslim immigrant mothers from Somalia and Pakistan, who described their child's behavior as a conduct problem
Brotman et al. 2011	ParentCorps	13	USA	Parents of children enrolled in prekindergarten in schools in large urban school districts
Coard et al. 2007	Black Parenting Strengths and Strategies (BPSS)	12	USA	Low-income caregivers who self-identified as African American
Day et al. 2012	Empowering Parents, Empowering Communities	8	UK	Socially disadvantaged families who identified difficulties in managing the child's behavior
Fagan et al. 2002	Men as Teachers	6	USA	African American fathers of children enrolled in services for low-income families
Ghosh Ippen 1998	(no name)	9	USA	Low-income caregivers who self-identified as Latino
Gottfredson et al. 2006	Strengthening Washington DC Families Project	14	USA	Parent's living in high-risk neighborhoods
Gross et al. 2003	Incredible Years Parenting Program	12	USA	Parents of children enrolled in day care centers that serve low-income families
Gross et al. 2009	Chicago Parent Program	12	USA	Parents of children enrolled in day care centers that serve low-income families
Kim et al. 2008	Incredible Years Parenting Program	12	USA	First generation Korean American mothers
Kim et al. 2014	Korean Parent Training Program (KPTP)	12	USA	First generation Korean American mothers
Lau et al. 2011	Incredible Years Parenting Program	14	USA	Chinese American parents with concerns about parenting or child behavior problems

	Moderators	**Effect sizes**				
	Child's age	Adaptations[1]	Methodological rigor[2]	Parenting behavior	Child behavior	Parental perspectives
	3 - 9	D / D / B	0 / 0 / 0	0.24	0.30	-
	4	D / L / E	0 / 0 / 0	0.44	-	-
	5 - 6	D / D / E	0 / 0 / 1	1.22	0.54	-
	2 - 11	S / L / B	0 / 0 / 0	0.57	0.30	0.16
	5.9 (mean)	D / L / B	1 / 0 / 1	0.43	-	0.31
	8 - 11	S / L / E	1 / 1 / 1	0.29	0.08	-
	0 - 12	B / L / E	1 / 1 / 0	0.00	-0.04	-
	2 - 3	S / L / E	0 / 1 / 0	0.50	0.12	0.42
	2 - 4	S / D / E	0 / 0 / 0	-0.07	-0.02	-0.04
	3 - 8	S / L / B	0 / 0 / 1	0.10	0.01	-
	3 - 8	D / D / B	0 / 0 / 1	0.76	0.51	0.51
	5 - 12	D / L / E	0 / 0 / 1	0.84	0.76	0.40

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Table 1. Continued

Study	Intervention			Participants
	Program name	Number of sessions	Country	Target group
Leijten et al. 2015	Incredible Years Parenting Program	12 to 18[3]	The Netherlands	Mothers experiencing parenting difficulties due to disruptive child behavior, recruited from outpatient clinics for child and adolescent psychiatry and in deprived neighborhoods
Matsumoto et al. 2007	Triple P Positive Parenting Program	8	Australia	Japanese Australian caregivers
Taylor et al. 1997	Group Well Child Care	7	USA	Mothers with one or more risk factors: poverty, single marital status at delivery, less than high school education, age less than 20 years at delivery, previous substance abuse or history of abuse as a child.
Turner et al. 2007	Triple P Positive Parenting Program	8	Australia	Australian indigenous families with concerns about the child's behavior or parenting skills
Webster-Stratton 1998	PARTNERS	8 to 9	USA	Mothers of children enrolled in day care centers for low-income families
Webster-Stratton et al. 2001	Incredible Years Parenting Program	12	USA	Mothers of children enrolled in day care centers for low-income families
Overall effect size				

[1] Moderators: cultural sensitivity (B=basic, S=surface structure, D=deep structure), process of adaptation (L= no to little information, D= detailed information), program delivery (B=basic, E=enhanced).
[2] Moderators: type of comparison condition (0=no intervention, 1=alternate intervention), intervention condition (0=parent group alone, 1= parent group plus additional intervention), sample size (0 = more than 35 per condition, 1 = 35 or less per condition).
[3] During the study, the number of sessions for the program was extended by the developer.

	Moderators			Effect sizes		
	Child's age	Adaptations[1]	Methodological rigor[2]	Parenting behavior	Child behavior	Parental perspectives
	3 - 8	S / L / E	0 / 0 / 0	0.32	0.34	0.07
	2 - 10	S / L / B	0 / 0 / 1	0.25	0.38	0.47
	0	B / L / B	1 / 0 / 0	0.16	0.11	-
	1 - 13	D / L / B	0 / 0 / 1	0.56	0.15	-
	4	S / L / B	1 / 0 / 0	0.33	0.10	-
	4	S / L / B	1 / 0 / 0	0.04	0.14	-
			0.30	0.13	0.18	

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Moderators

Moderator analyses were used to provide a more specific assessment of the effects based on the study characteristics expected to influence outcomes. Two characteristics of adaptations made to parent training programs were coded to assess their potential role as moderating variables: (1) cultural sensitivity and (2) process of adaptation. Cultural sensitivity was coded as "basic", "surface structure sensitivity", or "deep structure sensitivity". Parent training programs were coded "basic" if studies did not report adaptations related to the participant group. The code "surface structure sensitivity" was given when programs adapted program materials and messages to characteristics of the target population (e.g., language, people, location). The code "deep structure sensitivity" was given when programs incorporated elements that influence the parenting behavior of the target group (e.g., content related to cultural, social, and environmental factors). Programs were coded to include detailed information on the process of adaptation and whether the study described the way in which stakeholders' expertise, data from qualitative or quantitative research, or formal evaluation of the program, informed the adaptations made. See the supplementary data (Appendix 3) for more information on the coding of the above mentioned moderators. Three characteristics of methodological rigor were coded as indicators of internal validity: (i) type of comparison group, (ii) intervention condition, and (iii) sample size. Based on the study of Lipsey and Wilson (2001), who analyzed a large amount of meta-analyses and provided information on study indicators related to methodological rigor, two moderators were created. The type of comparison group in each study was coded as "control group received no intervention" (including waitlist control group) or "control group received an alternate intervention". The precise intervention condition was coded as "parent group alone" if the parent training program was evaluated as a stand-alone program, or as "parent group plus additional interventions" if the parent training program was evaluated as a part of a wider array of interventions (Table 2). The third moderator related to methodological rigor was the number of participants in the intervention and control condition. Fewer than 35 participants in a condition was considered a small sample size because studies with small sample sizes are known to be positively biased, thereby risking overestimation of the magnitude of effect sizes (Hertzog, 2008). The moderators were tested for homogeneity using the within-class goodness-of-fit statistic (Johnson, 1993). A significant Qwithin statistic suggests heterogeneity within a set of studies and the need for a moderator analysis. The influence of moderators was calculated using the Qstatistic for between group

differences. The Qbetween statistic indicates significant differences between the subgroups of a moderator.

Reliability

The first author (KM) coded all studies. A trained graduate student coded a random sample of nine of the 18 studies. Cohen's kappa values were computed for the two categories of moderators, i.e., adaptations and methodological rigor. This resulted in kappa values of 0.55 and 1.00, respectively. These kappa values can be interpreted as a moderate to very good agreement (Viera & Garrett, 2005). Disagreements were resolved by discussions among the coders and, when necessary, were discussed with a third researcher (MC) until consensus was reached.

Publication bias

To address possible publication bias, funnel plots and the failsafe N were examined (Rosenthal, 1979). A funnel plot is a plot of each study based on its effect size and standard error. The plot is expected to show a funnel shape with a symmetrical distribution on the right and left sides of the mean if there is no publication bias. The fail-safe N represents the number of studies required to nullify the intervention effect, i.e., the number of additional studies in which the intervention effect was zero that is needed to increase the p value for the meta-analysis above 0.05.

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Table 2. Coding system for moderators

Variable	Coding description
Adaptations	
Cultural sensitivity	B = basic parent training program
	S = surface structure sensitivity (i.e. matching materials and messages)
	D = deep structure sensitivity (i.e. content adaptations)
Process of adaptation	L = no to little information
	D = detailed information (i.e. description how process of adaptations was informed)
Program delivery	B = basic program delivery
	E = enhanced program delivery (i.e. one or more measures to overcome practical barriers)
Methodological rigor	
Type of comparison group	0 = control group received no intervention
	1 = control group received an alternate intervention
Intervention condition	0 = parent group alone
	1 = parent group plus additional intervention
Sample size	0 = more than 35 participants per intervention condition
	1 = 35 or less participants per intervention condition

RESULTS

Study descriptives

Table 1 provides an overview of the characteristics of the parent training programs. Overall, there was a high percentage of ethnic minorities (range 60–100%) in the study samples. This was the result of the intentional recruitment of parents from ethnic groups (Bjørknes & Manger, 2013; Coard, Foy-Watson, Zimmer, & Wallace, 2007; Fagan & Stevenson, 2002; Ghosh Ippen, 1999; Kim, Cain, & Webster-Stratton, 2008; Lau, Fung, Ho, Liu, & Gudino, 2011; Matsumoto, Sofronoff, & Sanders, 2007; Turner, Richards, & Sanders, 2007) or (for studies targeting parents from deprived neighborhoods) the multi-ethnic composition of these neighborhoods (Brotman et al., 2011; Day, Michelson, Thomson, Penney, & Draper, 2012; Gottfredson et al., 2006; Gross et al., 2003; Gross et al., 2009; Leijten, Raaijmakers, Orobio de Castro, van den Ban, & Matthys, 2015; Taylor, Davis, & Kemper, 1997; Webster-Stratton, 1998; Webster-Stratton, Reid, & Hammond, 2001).

Cultural sensitivity

Of the 18 studies, 16 made adaptations of an existing intervention or created a new culturally tailored program specifically for ethnic minority families (Bjørknes & Manger, 2013; Brotman et al., 2011; Coard et al., 2007; Day et al., 2012; Fagan & Stevenson, 2002; Ghosh Ippen, 1999; Gross et al., 2003; Gross et al., 2009; Kim et al., 2014; Kim et al., 2008; Lau et al., 2011; Leijten et al., 2015; Matsumoto et al., 2007; Turner et al., 2007; Webster-Stratton, 1998; Webster-Stratton et al., 2001). Below, we first describe what adaptations were made: categorized as surface structure sensitivity and deep structure sensitivity. Second, we describe what information was provided regarding the process of adaptation.

Surface structure adaptations Adaptations in language were made in eight studies (Bjørknes & Manger, 2013; Ghosh Ippen, 1999; Kim et al., 2014; Kim et al., 2008; Lau et al., 2011; Leijten et al., 2015; Matsumoto et al., 2007; Webster-Stratton et al., 2001). These adaptations mainly consisted of the translation of program materials. Interpreters or bilingual group leaders were used, and adaptations were made with regard to proverbs and language expression in a minority of studies (Bjørknes & Manger, 2013; Coard et al., 2007; Leijten et al., 2015). Adaptations in persons were made in 12 studies. Matching of group leaders with the characteristics of the participants was reported in seven studies, based on ethnicity (Coard et al., 2007; Gross et al., 2003; Gross et al., 2009; Turner et al., 2007) or with the use of local parents as peer facilitators (Day et al., 2012; Fagan & Stevenson, 2002; Webster-Stratton, 1998). The use of bicultural group leaders who could function as cultural brokers was explicitly mentioned in three studies (Bjørknes & Manger, 2013; Kim et al., 2014; Matsumoto et al., 2007). Three studies paid attention to the homogenization of gender. In two studies, the program was provided to mother-only groups to meet the cultural norms of Muslim women (Bjørknes & Manger, 2013; Leijten et al., 2015), and the third used only male staff in a program provided to fathers (Fagan & Stevenson, 2002). Changes in program materials were mentioned in the seven studies (Bjørknes & Manger, 2013; Brotman et al., 2011; Gross et al., 2009; Leijten et al., 2015; Turner et al., 2007; Webster-Stratton, 1998; Webster-Stratton et al., 2001). Adaptations were made to manuals and video segments to portray familiar and relevant situations for parents, e.g., images in workbooks and video segments depicting families from a variety of ethnic backgrounds (Brotman et al., 2011; Gross et al., 2009; Turner et al., 2007; Webster-Stratton, 1998; Webster-Stratton et al., 2001). To overcome language barriers, pictures were added to the

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homework assignments (Leijten et al., 2015) and role-playing was added to the sessions (Bjørknes & Manger, 2013).

Deep structure adaptations Deep structure adaptations were made in seven studies, in addition to surface structure adaptations (Bjørknes & Manger, 2013; Brotman et al., 2011; Coard et al., 2007; Fagan & Stevenson, 2002; Kim et al., 2014; Lau et al., 2011; Turner et al., 2007). Deep structure sensitivity included sessions with specific content, which paid attention to large sibling groups, emotion control, racial socialization, cultural and contextual influences on parenting, and communication training (Bjørknes & Manger, 2013; Brotman et al., 2011; Coard et al., 2007; Fagan & Stevenson, 2002; Lau et al., 2011). More time was allowed to discuss cultural and contextual (e.g., social, political) influences on parenting in two studies (Brotman et al., 2011; Turner et al., 2007). One study reported making the overall program culturally sensitive, by incorporating cultural and religious elements and parenting norms (Kim et al., 2014).

Process of adaptation
Detailed information on the process that guided the adaptations was given in five studies, of which three had surface and deep structure sensitivity (Bjørknes & Manger, 2013; Coard et al., 2007; Kim et al., 2014), and one study had surface structure sensitivity (Gross et al., 2009). Two studies referred to recent literature and described how this influenced the program development (Coard et al., 2007; Kim et al., 2014), one study used information from a former pilot study to adapt the parent training program (Bjørknes & Manger, 2013), and another study provided details on the involvement of an advisory board and how this influenced the program development (Gross et al., 2009). Twelve studies with surface or deep structure sensitivity did not offer detailed information on the process of adaptation. Three studies reported collaboration with local stakeholders and information from a pilot study, without providing details on how this guided the process of adaptation of the program (Brotman et al., 2011; Fagan & Stevenson, 2002; Turner et al., 2007). Other studies provided no information on the process of adaptation (Day et al., 2012; Ghosh Ippen, 1999; Gross et al., 2003; Kim et al., 2008; Lau et al., 2011; Leijten et al., 2015; Matsumoto et al., 2007; Webster-Stratton, 1998; Webster-Stratton et al., 2001).

Effect sizes and moderator analysis

Effect sizes regarding the parenting behavior construct, child behavior construct, and parental perspective construct were calculated for 18 studies, 16 studies, and 8 studies, respectively. Table 1 provides an overview of effect sizes per study and the overall effect per outcome construct.

Primary and secondary outcomes

Effect sizes for parenting behaviour ranged from −0.07 to 1.22, with an overall effect size of 0.30 (95% CI 0.17 – 0.44). This reflects a small but significant difference between the intervention and comparison groups at immediate post-intervention. The parenting behavior construct contained significant heterogeneity (Q_{within} = 34.79, $p < 0.05$), which implies the relevance for moderator analysis. Effect sizes for child behavior ranged from −0.04 to 0.76, with an overall effect size of 0.13 (95% CI 0.05 – 0.22). Effect sizes for parental perspectives ranged from−0.04 to 0.47, with an overall effect size of 0.19 (95% CI 0.04 – 0.35). This reflected a small difference between the intervention groups, favoring the intervention group. Homogeneity was tested and was found to be nonsignificant for child behavior (Q_{within} = 15.72, $p > 0.05$) and parental perspectives (Q_{within} = 7.80, $p > 0.05$), indicating no marked variability in reported effect sizes across studies. Therefore, Table 3 presents the results of the moderator analysis for the primary outcome, whereas results of the moderator analysis for the secondary outcomes are described only in the text.

Moderator analysis

Cultural sensitivity was significantly related to effect size ($Q_{between}$ = 8.61, $p < 0.05$). The highest effect size was found for studies with deep structure sensitivity ($d = 0.54$), indicating that the parenting behavior of parents in programs with deep structure sensitivity improved the most. An exploratory moderator analysis indicated that a significant effect was also found for the child behavior construct ($Q_{between}$ = 8.13, $p < 0.05$). Contrary to our expectation, process of adaptation had no significant influence on parenting outcomes. The second set of moderators examined indicators of methodological rigor to ascertain the extent to which effect sizes reflect the impact of the parent training program, rather than the methodological influences or biases. One of the three rigor moderators predicted significant differences in effect sizes for parenting behavior. Studies with a sample size of ≤35 per condition had a significantly higher effect for the parenting behavior construct ($Q_{between}$ = 4.62, $p < 0.05$).

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Publication bias

A funnel plot was examined for the parenting behavior construct, which was asymmetrical, with a gap in the bottom left hand corner. This indicates that the true effect might be smaller than that found, due to unpublished studies with nonsignificant findings. A calculation of the fail-safe N revealed that 180 unpublished studies with non-significant results would have to exist to reduce the level of significance of the effect size for parenting behavior to a p value ≥ 0.05.

Table 3. Moderators associated with parenting behavior outcomes

	Parenting behavior			
Adaptations	d	k	Q_{within}	$Q_{between}$
Cultural sensitivity				8.05*
Basic	0.10	3	2.59	
Surface structure	0.24	10	13.90	
Deep structure	0.54	7	6.59	
Process of adaptation				0.07
No to little information	0.29	15	21.13	
Detailed information	0.35	5	13.19**	
Program delivery				0.00
Basic	0.28	11	9.32	
Enhanced	0.32	9	24.58**	
Methodological rigor	d	k	Q_{within}	$Q_{between}$
True 'no' treatment control group				2.56
Yes	0.39	13	23.03*	
No	0.17	7	7.91	
Parent training program evaluated as stand-alone program				0.38
Yes	0.31	16	26.10*	
No	0.23	4	6.95*	
Sample size smaller than 35 per condition				5.04*
Yes	0.52	8	7.44	
No	0.22	12	20.00*	

d = effect size   k = number of studies   C.I. = confidence interval Q_{within} = within-class goodness-of fit
$Q_{between}$ = between-group goodness-of fit
* p <0.05 ** p <0.01

DISCUSSION

This study includes a wide variety of preventive parent training programs delivered to ethnic minority families. The aim was to (i) describe the type of cultural adaptations made and (ii) the process that informed the adaptations. In addition, the influence of the adaptations on program effectiveness was examined. The current meta-analysis shows the effectiveness of parent training programs for parenting behavior and, to a lesser extent, for parental perspectives and child behavior. The majority of studies made adaptations to the program, consisting of surface structure adaptations (related to language, persons, and program materials) and deep structure adaptations (related to specific content and cultural/contextual influences and norms). As expected, there was a significant positive effect supporting the relevance of making parent training programs culturally sensitive. Programs with cultural sensitivity were more successful in improving parenting behavior compared with interventions without cultural sensitivity. These findings are in line with earlier studies showing that culturally adapted treatments were more effective than non-adapted treatments (Griner & Smith, 2006; Smith et al., 2011). Our study reveals that cultural sensitivity can be achieved in different ways, and it was found that, in particular, deep structure sensitivity resulted in a program effect. These findings may provide a different perspective on former studies indicating that the most effective treatments were those with more adaptations (Griner & Smith, 2006; Smith et al., 2011). Analyses were done on a study level, which implies that cultural sensitivity may not be an integral element of the original parent training program, but rather a one-time adjustment or aspect of program implementation. Also, the topic is subject to report bias, implying that adaptations were only coded when specifically mentioned in the included studies. Only a third of the studies with cultural sensitivity provided information on the process that guided the adaptations made. This is in line with Baumann et al. (2015), who found that few studies provided information on how choices were made regarding adaptations and which stakeholders were involved. Although the process of adaptation was not found to influence program effectiveness, we agree with others in the field of cultural adaptation that it is important to document this process. Detailed information on the process of adaptations enables researchers and professionals to identify the range of adaptations that can be made and provides insight into the relevant procedures that could be undertaken in any process of cultural adaptation (Cardona et al., 2012; Ferrer-Wreder et al., 2012; Griner & Smith, 2006). A requirement for

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publication should be that information is provided about the process that guided the adaptations. Transparency is important because adaptations are sometimes based on perceptions of what ethnic minority parents want and a need to be politically correct, as opposed to based on empirical evidence (Morawska et al., 2011).

Strengths and limitations

A limitation of the present study is that a multivariable approach was not possible due to higher number of studies required to perform this approach. Our moderator analysis indicated that programs with cultural sensitivity were more effective; however, the presence of (confounding) study or sample characteristics might account for the differences found. Therefore, further research is required on this topic. Another limitation is the heterogeneity of outcomes in the parent training programs. The studies used a variety of validated and not validated instruments, as well as different outcome constructs for parenting and child behavior. We advocate the use of more standardized and validated instruments and specifically discourage the construction of outcomes by using elements of existing instruments and scales. This not only makes study outcomes less transparent, but it also hinders the comparability between studies. The present study analyzed the impact of methodological rigor. Sample size was found to be a moderator for effect, with stronger effect sizes in studies with small sample sizes. This might be the result of publication bias, because studies with non-significant results are less likely to be published. Based on the fill and trim method, potential publication bias does not appear to be a substantial threat to the results obtained in our meta-analysis. Griner and Smith (2006) mention inadequate funding for the larger-scale studies that are required to provide solid empirical evidence, as a hindrance to further development in the field of cultural adaptation.

Implications

Although the present study focuses on programs that target predominantly ethnic minority populations, the study samples often consisted of populations with both an ethnic minority status and a low socioeconomic status (SES). When implementing a parent training program in multi-ethnic deprived neighborhoods, one needs to be sensitive to the diversity of the target group. Ethnic minority and a low SES often coincide (Costello, Keeler, & Angold, 2001), which argues for adaptations that are sensitive across cultures. An alternative to adaptations (i.e., inbuilt changes to an intervention) is to focus on sensitivity in which interventions have an explicit inbuilt

flexibility to allow professionals and parents to adjust the program elements to their specific values and norms (Mejia, Leijten, Lachman, & Parra-Cardona, 2017).

Our findings show that the preventive effect of parent training programs on outcomes is small but positive. It is important to note that higher initial levels of behavioral problems generally predict greater improvement, due to a larger scope for improvement and more motivation to change (Leijten, Raaijmakers, Orobio de Castro, & Matthys, 2013). Caulkins et al. (2004) showed that, in preventive interventions, even a small effect size can lead to important savings for society when large groups are reached. It is reported that ethnic minorities and disadvantaged families are more difficult to recruit and retain (Furlong et al., 2012). Therefore, it is a challenging task for policymakers and providers of support to recruit ethnic minority families in the most optimal way. Although the present study does not provide information on how cultural adaptations are related to attendance rates, this is an interesting topic for future reviews.

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CONCLUSIONS

The majority of programs included in this meta-analysis made adaptations. Detailed information was provided on the type of adaptations and how this was related to program effect. The findings confirm the effectiveness of cultural sensitivity in parent training programs, with deep structure sensitivity resulting in the highest impact on parenting behavior. Only a few studies described the process that guided the adaptations made, which is a barrier to learning from relevant procedures that could be undertaken in the process of cultural adaptation.

REFERENCES

References marked with an asterisk indicate studies included in the meta-analysis.

Abidin, R. R. (2015). *Parenting stress index manual*. Charlottesville, VA: Pediatric Psychology Press.

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*(2), 137-144.

Bakermans-Kranenburg, M. J., van IJzendoorn, M.H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195-215.

Baumann, A. A., Powell, B. J., Kohl, P. L., Tabak, R. G., Penalba, V., Proctor, E. K., . . . Cabassa, L. J. (2015). Cultural adaptation and implementation of evidence-baed parent-training: A systematic review and critique of guiding evidence. *Children and Youth Services Review, 53*, 113-120.

Bernal, G., Jiménez-Chafey, M. I., & Domenech Rodríguez, M. M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based practice. *Professional Psychology: Research and Practice, 40*(4), 361-368.

* Bjørknes, R., & Manger, T. (2013). Can parent training alter parent practice and reduce conduct problems in ethnic minority children? A randomized controlled trial. *Prevention Science, 14*(1), 52-63.

Borenstein, M., Rothstein, D., & Cohen, J. (2000). *Comprehensive meta-analysis: A computer program for research synthesis [computer software]*. Englewood: Biostat.

* Brotman, L. M., Calzada, E., Huang, K. Y., Kingston, S., Dawson-McClure, S., Kamboukos, D., . . . Petkova, E. (2011). Promoting effective parenting practices and preventing child behavior problems in school among ethnically diverse families from underserved, urban communities. *Child Development, 82*(1), 258-276.

Cardona, J. R. P., Domenech-Rodriguez, M., Forgatch, M., Sullivan, C., Bybee, D., Holtrop, K., . . . Bernal, G. (2012). Culturally adapting an evidence-based parenting intervention for Latino immigrants: The need to integrate fidelity and cultural relevance. *Family Process, 51*(1), 56-72.

Caulkins, J. P., Pacula, R. L., Paddock, S., & Chiesa, J. (2004). What we can - and cannot -expect from school-based drug prevention. *Drug and Alcohol Review, 23*(1), 79-87.

* Coard, S. I., Foy-Watson, S., Zimmer, C., & Wallace, A. (2007). Considering culturally relevant parenting practices in intervention development and adaptation: A randomized controlled trial of the black Parenting Strengths and Strategies (BPSS) program. *Counseling Psychologist, 35*(6), 797-820.

Costello, E. J., Keeler, G. P., & Angold, A. (2001). Poverty, race/ethnicity, and psychiatric disorder: A study of rural children. *American Journal of Public Health, 91*(9), 1494-1498.

* Day, C., Michelson, D., Thomson, S., Penney, C., & Draper, L. (2012). Evaluation of a peer led parenting intervention for disruptive behaviour problems in children: Community based randomised controlled trial. *British Medical Journal, 344*, e1107.

Domenech Rodriguez, M. M., Baumann, A. A., & Schwartz, A. L. (2011). Cultural adaptation of an evidence based intervention: From theory to practice in a Latino/a community context. *American Journal of Community Psychology, 47*(1-2), 170-186.

Eyberg, S. M., & Robinson, E. A. (1983). Conduct problem behavior: Standardization of a behavioral rating scale with adolescents. *Journal of Clinical Child Psychology, 12*, 347-354.

* Fagan, J., & Stevenson, H. C. (2002). An experimental study of an empowerment-based intervention for African American Head Start fathers. (Cover story). *Family Relations, 51*(3), 191.

Ferrer-Wreder, L., Snudell, K., & Mansoory, S. (2012). Tinkering with perfection: Theory development in the intervention cultural adaptation field. *Child & Youth Care Forum, 41*, 149-171.

Furlong, M., McGilloway, S., Bywater, T., Hutchings, J., Smith, S. M., & Donnelly, M. (2012). Behavioural and cognitive-behavioural group-based parenting programmes for early-onset conduct problems in children aged 3 to 12 years. *The Cochrane Database of Systematic Reviews* (2), Cd008225.

* Ghosh Ippen, C. M. (1999). Testing the feasibility and effectiveness of a multicomponent program: Including parent-training, child competencies training, and tutoring. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 60*(2-B).

* Gottfredson, D., Kumpfer, K., Polizzi-Fox, D., Wilson, D., Puryear, V., Beatty, P., & Vilmenay, M. (2006). The Strengthening Washington D.C. Families project: A randomized effectiveness trial of family-based prevention. *Prevention Science 7*(1), 57-74.

Griner, D., & Smith, T. B. (2006). Culturally adapted mental health intervention: A meta-analytic review. *Psychotherapy. (Chic.), 43*(4), 531-548.

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

Gross, D., Garvey, C., Julion, W., Fogg, L., Tucker, S., & Mokros, H. (2009). Efficacy of the Chicago Parent Program with low-income African American and Latino parents of young children. *Prevention Science, 10*(1), 54-65.

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing & Health, 31*, 180-191.

Hughes, D., Rodriguez, J., Smith, E. P., Johnson, D. J., Stevenson, H. C., & Spicer, P. (2006). Parents' ethnic-racial socialization practices: A review of research and directions for future study. *Developmental Psychology, 42*(5), 747-770.

Johnson, B. T. (1993). *DSTAT 1.10: Software for the meta-analytic review of literatures [Computer software and manual]*. NJ: Erlbaum, Hillsdale.

Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology, 36*(4), 567-589.

* Kim, E., Cain, K., Boutain, D., Chun, J. J., Kim, S., & Im, H. (2014). Pilot study of the Korean Parent Training Program using a partial group randomized experimental study. *Journal of Child and Adolescent Psychiatric Nursing, 27*(3), 121-131.

4

* Kim, E., Cain, K. C., & Webster-Stratton, C. (2008). The preliminary effect of a parenting program for Korean American mothers: A randomized controlled experimental study. *International Journal of Nursing Studies, 45*(9), 1261-1273.

* Lau, A. S., Fung, J. J., Ho, L. Y., Liu, L. L., & Gudino, O. G. (2011). Parent training with high-risk immigrant chinese families: A pilot group randomized trial yielding practice-based evidence. *Behaviour Therapy, 42*(3), 413-426.

Leijten, P., Raaijmakers, M. A., de Castro, B. O., & Matthys, W. (2013). Does socioeconomic status matter? A meta-analysis on parent training effectiveness for disruptive child behavior. *Journal of Clinical Child & Adolescent Psychology, 42*(3), 384-392.

* Leijten, P., Raaijmakers, M. A., Orobio de, C. B., van den Ban, E., & Matthys, W. (2015). Effectiveness of the Incredible Years Parenting Program for families with socioeconomically disadvantaged and ethnic minority backgrounds. *Journal of Clinical Child & Adolescent Psychology*, 1-15.

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

Lundahl, B., Risser, H. J., & Lovejoy, M. C. (2006). A meta-analysis of parent-training: Moderators and follow-up effects. *Clinical Psychology Review, 26*, 86-104.

* Matsumoto, Y., Sofronoff, K., & Sanders, M. R. (2007). The efficacy and acceptability of the Triple P-Positive Parenting Program with Japanese parents. *Behaviour Change, 24*(4), 205-218.

Mejia, A., Leijten, P., Lachman, J. M., & Parra-Cardona, J. R. (2017). Different strokes for different folks? Contrasting approaches to cultural adaptation of parenting interventions. *Prevention Science, 18*(6), 630-639.

Morawska, A., Sanders, M., Goadby, E., Headley, C., Hodge, L., McAuliffe, C., . . . Anderson, E. (2011). Is the Triple P-Positive Parenting Program acceptable to parents from culturally diverse backgrounds? *Journal of Child and Family Studies, 20*, 614-622.

Resnicow, K., Baranowski, T., Ahluwalia, J. S., & Braithwaite, R. L. (1999). Cultural sensitivity in public health: Defined and demystified. *Ethnicity and Disease, 9*(1), 10-21.

Robinson, E. R., & Eyberg, S. (1978). *Systematic behavioral observation of normal and behavior problem children.*

Rosenthal, R. (1979). The file drawer problem and tolerenace for null results. *Psychological Bulletin, 86*(3), 638-641.

Sandler, I. N., Schoenfelder, E. N., Wolchik, S. A., & MacKinnon, D. P. (2011). Long-term impact of prevention programs to promote effective parenting lasting effects but uncertain processes. *Annual Review of Psychology, 62*, 299-329.

Sidhu, M. S., Gale, N. K., Gill, P., Marshall, T., & Jolly, K. (2015). A critique of the design, implementation, and delivery of a culturally-tailored self-management education intervention: A qualitative evaluation. *BMC Health Services Research, 15*, 54.

Smith, T. B., Domenech Rodríguez, M., & Bernal, G. (2011). Culture. *Journal of Clinical Psychology: In Session, 67*(2), 166-175.

* Taylor, J. A., Davis, R. L., & Kemper, K. J. (1997). A randomized controlled trial of group versus individual well child care for high-risk children: Maternal-child interaction and developmental outcomes. *Pediatrics, 99*(6), E9.

* Turner, K. M., Richards, M., & Sanders, M. R. (2007). Randomised clinical trial of a group parent education programme for Australian Indigenous families. *Journal of Paediatrics and Child Health, 43*(6), 429-437.

Viera, A. J., & Garrett, J. M. (2005). Understanding interobserver agreement: The kappa statistic. *Family Medicine, 5*, 360-363.

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

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APPENDIX 1

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┌─────────────────────────────┐        ┌─────────────────────────────┐
│ 1327 records identified through │ ──→  │ 1160 records excluded based on │
│      database searching      │        │ abstract                     │
└─────────────────────────────┘        └─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐        ┌─────────────────────────────────────────┐
│ 167 full-text articles assessed for │ ──→ │ 149 full text articles excluded         │
│         eligibility          │        │    No group programme (n=47)            │
└─────────────────────────────┘        │    No parenting behavior outcome (n=32) │
              │                        │    No preventive programme (n=17)       │
              │                        │    Not the target group (n=14)          │
              ▼                        │    No post-intervention assessment (n=10)│
┌─────────────────────────────┐        │    Incomplete data (n=7)                │
│     18 articles included     │        │    Other (n=22)                         │
└─────────────────────────────┘        └─────────────────────────────────────────┘
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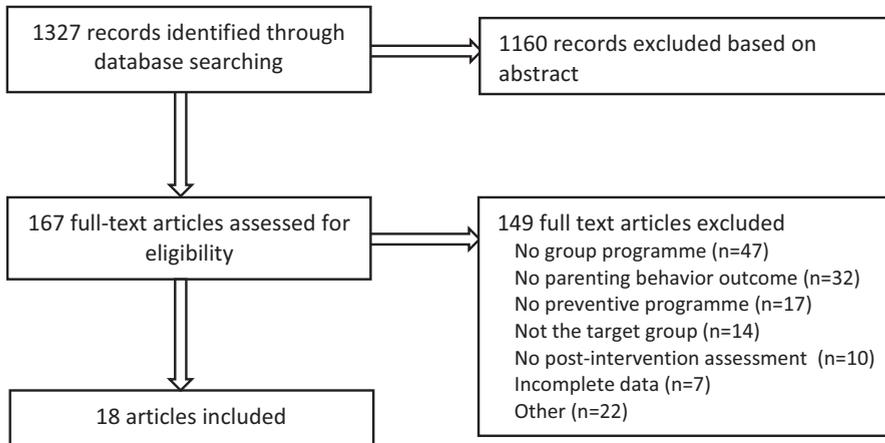**Figure i.** Flow chart of inclusion

APPENDIX 2

Table i. Assessment instruments of included studies

Bjørknes et al. (2013)			
Outcome name	**Assessment instrument**	**Information about instrument[1]**	**Reported by**
Parenting behavior	Discipline style: harsh (harsh discipline scale, Positive Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Discipline style: harsh for age (harsh for age scale, Positive Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Discipline style: appropriate discipline (appropriate discipline scale, Positive Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Positive parenting (positive parenting scale, Positive Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
Child behavior	Problem behavior: conduct problems	Constructed variable, based on Eyberg Child Behavior Inventory intensity scale (ECBI) (Eyberg & Pincus, 1999) and Parent Daily Report (PDR) (Chamberlain & Reid, 1987)	Parent
	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent
Parental perspectives			

[1] References are cited such as reported in the studies

Brotman et al. (2011)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Parenting behavior	Discipline style (appropriate discipline and clear expectations scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Parenting practices: Effective behavior management practices (Effective Parenting Test, EPT)	(Calzada & Brotman, 2002)	Parent
	Parent-child interactions: Parenting effectiveness and scaffolding of child behavior (Global Impressions of Parent Child Interactions-Revised, GIPCI-R)	(Brotman et al., 2005; Brotman et al., 2007)	Observer

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Table i. Continued

Brotman et al. (2011)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Child behavior			
Parental perspectives			

Coard et al. (2007)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Parenting behavior	Parenting practices: monitoring (monitoring scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Positive parenting (positive parenting scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Discipline style: harsh (harsh discipline scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 1998a)	Parent
	Racial socialization (Parenting Experience of Racial Socialization, PERS)	(Stevenson, 1994)	Parent
Child behavior	Problem behavior: conduct problems (conduct problems scale, Behavioral Assessment System of Children-Parent, BASC-P)	(Reynolds & Kamphaus, 1992, 2002)	Parent
	Social skills: responsibility (responsibility scale, Social Skills Rating Scale-Parent, SSRS-P)	(Gresham & Elliot, 1990)	Parent
	Social skills: cooperation (cooperation scale, Social Skills Rating Scale-Parent, SSRS-P)	(Gresham & Elliot, 1990)	Parent
	Social skills: self-control (self-control scale, Social Skills Rating Scale-Parent, SSRS-P)	(Gresham & Elliot, 1990)	Parent
Parental perspectives			

Table i. Continued

Day et al. (2012)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Parenting behavior	Parenting practices (laxness scale, overreactivity scale and verbosity scale, Arnold O'Leary parenting scale)	(Arnold, O'Leary, Wolff, & Acker, 1993)	Parent
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Ross, 1978)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Ross, 1978)	Parent
	Problem behavior (total score, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997)	Parent
	Problem behavior: conduct problems (conduct score, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997)	Parent
	SDQ: hyperactivity/inattention (hyperactivity/inattention score, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997)	Parent
	Concerns about the child (Concerns about my child measure)	(Scott, Spender, Doolan, Jacobs, & Aspland, 2001)	Parent
Parental perspectives	Parenting stress (Parenting Stress Index – short form)	(Abidin, 1995)	Parent

Fagan et al. (2002)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Parenting behavior	Racial socialization (racial oppression scale, Racial socialization - Parent version)	(Stevenson, 1997)	Parent
Child behavior			
Parental perspectives	Satisfaction with parental role (satisfaction scale, Self-perceptions of the Parental Role)	(MacPhee, Benson, & Bullock, 1986)	Parent

Table i. Continued

Gottfredson et al. (2006)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Parenting practices	Constructed variable: based on family cohesion scale, organization scale and conflict scale, Moos Family Environment Scale, FES (Moos & Moos, 1986), confidence in parenting based on measures used in Kumpfer's evaluations of SFP (no reference was made to an article) and consistency in discipline scale (modelled after Oregon youth Study, cited in Gottfredson, Harmon, Gottfredson, Jones, & Celestin, 1996)	Parent
Child behavior	Problem behavior	Constructed variable, based on hyperactivity/impulsivity scale and antisocial behavior scale of the Parent Observation of Children's Activities, POCA-R (Kellam, 1990) and Social Skills Rating System, SSRS (Gresham & Elliot, 1990)	Parent
	Child positive adjustment	Constructed variable, based on social skills scale, school progress scale and sociability scale of the Parent Observation of Children's Activities, POCA-R (Kellam, 1990) and Social Skills Rating System, SSRS (Gresham & Elliot, 1990)	Parent
Parental perspectives			

Gross et al (2003)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style (coercive discipline strategies scale, Parenting Scale)	(Arnold et al., 1993)	Parent
	Parent-child interactions: total commands (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1985b, 1998b)	Observer
	Parent-child interactions: positive parenting (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1985b, 1998b)	Observer
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson, Eyberg, & Ross, 1980)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent

Table i. Continued

Gross et al (2003)

Outcome name	Assessment instrument	Information about instrument	Reported by
	Problem behavior: oppositional (oppositional factor of the intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent
	Problem behavior: inattentive (inattentive factor of the intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent
	Problem behavior: conduct (conduct factor of the intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent
	Parent-child interactions: problem behavior (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1998b)	Observer
Parental perspectives	Parenting self-efficacy (parent's self-efficacy scale, Toddler Care Questionnaire, TCQ)	(Gross, Conrad, Fogg, Willis, & Garvey, 1995; Gross & Rocissano, 1988)	Parent

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Gross et al. (2009)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style: following through on discipline (subscale following through on discipline, adapted version of the Parenting Questionnaire, PQ)	Adapted version of the Parenting Questionnaire, PQ (McCabe, Clark, & Barnett, 1999)	Parent
	Parenting practices: warmth (subscale warmth, adapted version of the Parenting Questionnaire, PQ)	Adapted version of the Parenting Questionnaire, PQ (McCabe et al., 1999)	Parent
	Discipline style: corporal punishment (subscale corporal punishment, adapted version of the Parenting Questionnaire, PQ)	Adapted version of the Parenting Questionnaire, PQ (McCabe et al., 1999)	Parent
	Parent-child interactions: positive parenting (during play session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer

Table i. Continued

Gross et al. (2009)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
	Parent-child interactions: positive parenting (during clean-up session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer
	Parent-child interactions: total commands (during clean-up session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer
	Parent-child interactions: total commands (during clean-up session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent
	Parent-child interactions: aversive behavior (during play session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer
	Parent-child interactions: aversive behavior (during clean-up session, Dyadic Parent-Child Interactive Coding System, DPICS-R)	(Webster-Stratton, 1998b)	Observer
Parental perspectives	Parenting self-efficacy (Toddler Care Questionnaire, TCQ)	(Gross & Rocissano, 1988)	Parent

Table i. Continued

Ghosh Ippen (1998)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style: nonaggressive punishment (Discipline Styles Questionnaire, DSQ)	Scale developed for study	Parent
	Discipline style: coercive punishment (Discipline Styles Questionnaire, DSQ)	Scale developed for study	Parent
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Ross, 1978)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Ross, 1978)	Parent
	Number of conflicts (Issues Checklist, IC)	(Prinz, Foster, Kent, & O'Leary, 1979)	Parent
	Frequency of conflict (Issues Checklist, IC)	(Prinz et al., 1979)	Parent
Parental perspectives			

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Kim et al. (2008)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style: positive discipline (positive discipline scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 2007a)	Person
	Discipline style: appropriate (appropriate discipline scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 2007a)	Person
	Discipline style: harsh (harsh discipline scale, Parenting Practices Interview, PPI)	(Webster-Stratton, 2007a)	Person
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Person
	Problem behavior (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Person
	Social skills: social competence (Social Competence Scale)	(Webster-Stratton, 2007b)	Person
Parental perspectives			

Table i. Continued

Kim et al. (2014)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
Parenting behavior	Discipline style: harsh (harsh discipline scale, Korean Parent Discipline Interview, KPDI)	(Kim, Guo, Koh, & Cain, 2010)	Parent
	Discipline style: positive discipline (positive discipline scale, Korean Parent Discipline Interview, KPDI)	(Kim et al., 2010)	Parent
	Discipline style: Appropriate (appropriate discipline scale, Korean Parent Discipline Interview, KPDI)	(Kim et al., 2010)	Parent
	Parenting practices: emotion coaching (Emotion Coaching Parenting Style)	(Gottman, Declaire, & Goleman, 1998)	Parent
	Parenting practices: parental rejection (rejection scale, Parental Acceptance-Rejection Questionnaire, PARQ)	(Rohner, 1991)	Parent
	Parenting practices: parental warmth (warmth scale, Parental Acceptance-Rejection Questionnaire, PARQ)	(Rohner, 1991)	Parent
	Parent-child interactions: positive (Dyadic Parent-Child Interaction Coding System, DPIC)	(Eyberg & Robinson, 2000)	Observer
	Parent-child interactions: negative (Dyadic Parent-Child Interaction Coding System, DPIC)	(Eyberg & Robinson, 2000)	Observer
	Parent-child interactions: praises (Dyadic Parent-Child Interaction Coding System, DPIC)		
	Parenting practices: emotion coaching (Emotion Coaching Parenting Style)	(Gottman et al., 1998)	
Child behavior	Problem behavior (Pediatric Symptoms Checklist)	(Jellinek & Murphy, 1990)	Parent
Parental perspectives	Parenting self-efficacy (Parenting Self-Efficacy Scale)	(Choe & Chung, 2010)Choe & Chung 2010	Parent

Table i. Continued

Lau et al. (2011)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Parenting practices: positive involve-ment (positive involvement scale, Alabama Parenting Questionnaire, APQ)	(Shelton, Frick, & Wootten, 1996)	Parent
	Discipline style: negative discipline (negative discipline scale, Alabama Parenting Questionnaire, APQ)	(Shelton et al., 1996)	Parent
Child behavior	Problem behavior: internalizing problems (internalizing scale, Child Behavior CheckList, CBCL)	(Achenbach & Rescorla, 2001)	Parent
	Problem behavior: internalizing problems (externalizing scale, Child Behavior CheckList, CBCL)	(Achenbach & Rescorla, 2001)	Parent
Parental perspectives	Parenting stress (Parenting Stress Index - short form, PSI-SF)	(Abidin, 1995)	Parent

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Leijten et al. (2015)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style: appropriate discipline (Parenting Practices Interview, PPI)	(Webster-Stratton, 1998b; Webster-Stratton, Reid, & Hammond, 2004)	Parent
	Discipline style: harsh and inconsis-tent (Parenting Practices Interview, PPI)	(Webster-Stratton, 1998b; Webster-Stratton et al., 2004)	Parent
	Discipline style: physical punishment (Parenting Practices Interview, PPI)	(Webster-Stratton, 1998b; Webster-Stratton et al., 2004)	Parent
	Discipline style: praise and incentives (Parenting Practices Interview, PPI)	(Webster-Stratton, 1998b; Webster-Stratton et al., 2004)	Parent
	Discipline style: clear expectations (Parenting Practices Interview, PPI)	(Webster-Stratton, 1998b; Webster-Stratton et al., 2004)	Parent
Child behavior	Problem behavior (Problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Ross, 1978)	Parent
	Problem behavior: intensity (Intensity scale, Eyberg Child Behavior Invento-ry, ECBI)	(Eyberg & Ross, 1978)	Parent

Table i. Continued

Leijten et al. (2015)

Outcome name	Assessment instrument	Information about instrument	Reported by
	Problem behavior (Total difficulties scale, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997; van Widenfelt, Goedhart, Treffers, & Goodman, 2003)	Parent
	Problem behavior: conduct problems (Conduct problems scale, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997; van Widenfelt et al., 2003)	Parent
	Problem behavior: hyperactivity and inattention (Hyperactivity and inattention scale, Strengths and Difficulties Questionnaire, SDQ)	(Goodman, 1997; van Widenfelt et al., 2003)	Parent
	Problem behavior: aggressive behavior (adapted version, Teacher Rating of Aggression)	(Dodge & Coie, 1987; Hendrickx, Crombez, Roeyers, & Orobio de Castro, 2003)	Parent
Parental perspectives	Parenting stress (Parenting Stress Index)	(Abidin, 1983; De Brock, Vermulst, Gerris, & Abidin, 1992)	Parent

Matsumoto et al. (2007)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Parenting practices: laxness (laxness scale, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
	Parenting practices: overreactivity (overreactivity scale, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
	Parenting practices: verbosity (verbosity scale, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	
Parental perspectives	Parental confidence (Problem Settings and Behavior Checklist, PSBC)	(Sanders & Woolley, 2005)	Parent

Table i. Continued

Taylor et al. (1997)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Parent-child interactions (sensitivity to cues scale, response to infant distress scale, social-emotional growth fostering scale, clarity of cues scale, responsiveness of the child to the parent scale, The Nursing Child Assessment Teaching Scale, NCATS)	(Barnard, Hammond, Booth, Bee, & Spieker, 1989)	Observer
	Environment to stimulate cognitive development (emotional and verbal responsibility scale, avoidance of restriction and punishment scale, provision of appropriate play materials scale, opportunities for variety of daily stimulation scale, HOME)	(Bradley & Caldwell, 1976; van Doorninck, Caldwell, Wright, & Frankenburg, 1981)	Observer
Child behavior	Mental development (mental development index, Bayley Scales of Infant Development)	No reference cited in article	Observer
	Psychomotor development (psychomotor development index, Bayley Scales of Infant Development)	No reference cited in article	Observer
Parental perspectives			

Turner et al. (2007)

Outcome name	Assessment instrument	Information about validation	Reported by
Parenting behavior	Parenting practices: laxness (laxness scale, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
	Parenting practices: overreactivity (overreactivity scale, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
	Parenting practices: verbosity (verbosity, Parenting Scale, PS)	(Arnold et al., 1993)	Parent
Child behavior	Problem behavior (problem scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Eyberg & Pincus, 1999)	Parent

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Table i. Continued

Turner et al. (2007)

Outcome name	Assessment instrument	Information about validation	Reported by
	Problem behavior (total difficulties, Strengths and Difficulties Questionnaire - extended version, SDQ)	(Goodman, 1999; Moos & Moos, 1986)	Parent
	Problem behavior: total impact (total impact scale, Strengths and Difficulties Questionnaire - extended version, SDQ)	(Goodman, 1999; Moos & Moos, 1986)	Parent
Parental perspectives			

Webster-Stratton (1998)

Outcome name	Assessment instrument	Information about instrument	Reported by
Parenting behavior	Discipline style: harsh (Oregon Social Learning Centers Discipline Questionnaire, OSLC)	Adaptation of OSLC Discipline Questionnaire, revised for preschoolers to include discipline style and techniques (no reference cited in article)	Parent
	Discipline style: consistent (Oregon Social Learning Centers Discipline Questionnaire, OSLC)	No reference cited in article	Parent
	Discipline style: positive (Oregon Social Learning Centers Discipline Questionnaire, OSLC)	No reference cited in article	Parent
	Discipline style: appropriate limit setting (Daily Discipline Interview, DDI)	(Webster-Stratton & Spitzer, 1991)	Observer
	Discipline style: physical negative discipline techniques (Daily Discipline Interview, DDI)	(Webster-Stratton & Spitzer, 1991)	Observer
	Discipline style: verbal negative discipline techniques (Daily Discipline Interview, DDI)	(Webster-Stratton & Spitzer, 1991)	Observer
	Parent-child interactions: positive parenting (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton & Spitzer, 1991)	Observer
	Parent-child interactions: total critical statements (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer

Table i. Continued

Outcome name	Assessment instrument	Information about instrument	Reported by
Webster-Stratton (1998)			
	Parent-child interactions: total commands (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer
	Parent-child interactions: valence (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer
	Parent-child interactions: nurturing or supportive (Coder Impression Inventory, CII)	Adaptation of OSLC Impression Inventory (no reference cited in article)	Observer
	Parent-child interactions: harsh or critical (Coder Impression Inventory, CII)	No reference cited in article	Observer
	Parent-child interactions: discipline condemnation (Coder Impression Inventory, CII)	No reference cited in article	Observer
Child behavior	Social skills: positive social behavior (Social Competence Scale)	Conduct Problem Prevention Research Group (no reference cited in article)	Parent
	Problem behavior (Child Behavior Checklist, CBCL)	(Achenbach & Edelbrock, 1991)	Parent
	Problem behavior (total problem scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent
	Parent-child interactions: deviance and noncompliance (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer
	Parent-child interactions: total positive affect and prosocial behavior (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer
	Parent-child interactions: valence (Dyadic Parent-Child Interactive Coding System Revised, DPICS-R)	(Webster-Stratton, 1985a)	Observer
	Parent-child interactions: misbehavior and negative affect (Coder Impression Inventory, CII)	Adaptation of OSLC Impression Inventory (no reference cited in article)	Observer
	Parent-child interactions: positive affect and prosocial behavior (Coder Impression Inventory, CII)	No reference cited in article	Observer

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Table i. Continued

Webster-Stratton (1998)			
Outcome name	**Assessment instrument**	**Information about instrument**	**Reported by**
	Parent-child interactions: overall poor conduct (Coder Impression Inventory, CII)	No reference cited in article	Observer
Parental perspectives			

Webster-Stratton (2001)			
Outcome name	**Assessment instrument**	**Information about validation**	**Reported by**
Parenting behavior	Negative parenting		
	Parent-child interactions: harsh (variable harsh style, Parenting Practices Inventory, PPI)	Adaptation of Oregon Social Learning Center's discipline questionnaire, revised for young children (no reference cited in article)	Parent
	Parent-child interactions: negative/critical (Coder Impressions Inventory, CII)	Adaptation from the Oregon social Learning Center Impression Inventory (no reference cited in article)	Observer
	Parent- child interactions: total critical statements (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1989)	Observer
	Positive parenting		
	Parenting practices: positive parenting (one variable from the LIFT parenting practices interview)	Adaptation of Oregon Social Learning Center's discipline questionnaire, revised for young children (no reference cited in article)	Parent
	Parenting practices: monitoring (one variable from the LIFT parenting practices interview)	No reference cited in article	Parent
	Parenting practices: frequency of activities with child (one variable from the Parent Involvement Questionnaire, INVOLVE-P)	Scale derived from the Oregon Social Learning Center questionnaire (no reference cited in article)	Parent
	Parent-child interactions: emotional and cognitive stimulation (Coder Impressions Inventory, CII)	Adaptation from the Oregon social Learning Center Impression Inventory (no reference cited in article)	Observer

Table i. Continued

Webster-Stratton (2001)			
Outcome name	**Assessment instrument**	**Information about validation**	**Reported by**
	Parent-child interactions: positive affect, praise and physical warmth (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1989)	Observer
Child behavior	Conduct problems		
	Problem behavior: intensity (intensity scale, Eyberg Child Behavior Inventory, ECBI)	(Robinson et al., 1980)	Parent
	Problem behavior (Child Behavior Checklist, CBCL)	(Achenbach & Edelbrock, 1991)	Parent
	Parent-child interactions: percent time child acts inappropriate (Coder Impressions Inventory, CII)	Adaptation from the Oregon social Learning Center Impression Inventory (no reference cited in article)	Observer
	Parent-child interactions: deviance, noncompliance, no opportunity (Dyadic Parent-Child Interactive Coding System-Revised, DPICS-R)	(Webster-Stratton, 1989)	Observer
Parental perspectives			

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REFERENCES APPENDIX 2

Abidin, R. R. (1983). *Parenting stress index manual*. Charlottesville, Virgina: Pediatric Psychology Press.

Abidin, R. R. (1995). *Parenting Stress Index Professional Manual 3rd edition*: Psychological Assessment Resources.

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

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms and profiles*. Burlington: University of Vermont.

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*(2), 137-144.

Barnard, K. E., Hammond, M. A., Booth, C. L., Bee, H. L., & Spieker, S. J. (1989). Measurement and meaning of parent-child interaction. *Journal of Applied Developmental Psychology, 3*, 39-80.

Bradley, R. H., & Caldwell, B. M. (1976). The relationship of infants' home environments to mental test performance at fifty-four months: A follow-up study. *Child Development, 47*, 1172-1174.

Brotman, L. M., Gouley, K. K., Chesir-Teran, D., Dennis, T., Klein, R. G., & Shrout, P. (2005). Prevention for preschoolers at high risk for conduct problems: Immediate outcomes on parenting practices and child social competence. *Journal of Clinical Child & Adolescent Psychology, 34*(4), 724-734.

Brotman, L. M., Gouley, K. K., Huang, K. Y., Kamboukos, D., Fratto, C., & Pine, D. S. (2007). Effects of a psychosocial family-based preventive intervention on cortisol response to a social challenge in preschoolers at high risk for antisocial behavior. *Archives of General Psychiatry, 64*(10), 1172-1179.

Calzada, E. J., & Brotman, L. M. (2002). Effective Parenting Test (EPT). *Unpublished assessment instrument*.

Chamberlain, P., & Reid, J. B. (1987). Parent observation and report of child symptoms. *Behavioral Assessment, 9*, 97-109.

Choe, H. S., & Chung, O. B. (2010). A study on validity of the Parenting Efficacy Scale: A base study on development of the scale. *Korean Journal of Child Studies, 22*, 1-16.

De Brock, A. A. J. L., Vermulst, A. A., Gerris, J. R. M., & Abidin, R. R. (1992). *Nijmeegse ouderlijke stress index, handleiding experimentele versie [Nijmegen parenting stress index, manual experimental version]*. Amsterdam, the Netherlands: Swets & Zeitlinger.

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*(6), 1146-1158.

Eyberg, S., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory-Revised. Professional manuel*. Florida: PAR.

Eyberg, S., & Robinson, E. (2000). *Dyadic parent-child interaction coding system: Manual*. Seattle, Washington: University of Washington.

Eyberg, S., & Ross, A. W. (1978). Assessment of child behaviour problems: The validation of a new inventory. *Journal of Clinical Child Psychology, 7*(2), 113-116.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*(5), 581-586.

Goodman, R. (1999). The extended version of the Strengths and Difficulties Questionnaire as a guide to child psychiatric caseness and consequent burden. *Journal of Child Psychology & Psychiatry, 40*(5), 791-799.

Gottfredson, D. C., Harmon, M., Gottfredson, G. D., Jones, E. M., & Celestin, J. A. (1996). *Compendium of prevention program outcomes and instrument locator.* Ellicott City, Maryland: Gottfredson Associates, Inc.

Gottman, J., Declaire, J., & Goleman, D. (1998). *Raising an emotionally intelligent child.* New York: Simon & Schuster.

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

Gross, D., Conrad, D., Fogg, L., Willis, L., & Garvey, C. (1995). A longitudinal model of maternal self-efficacy, depression, and difficult temperament during toddlerhood. *Research in Nursing & Health, 44*, 96-101.

Gross, D., & Rocissano, L. (1988). Maternal confidence in toddlerhood: Its measurement for clinical practice and research. *Nurse Practitioner, 13*, 19-29.

Hendrickx, M., Crombez, G., Roeyers, H., & Orobio de Castro, B. (2003). Psychometrische evaluatie van de Nederlandstalige versie van de Agressie Beoordelingsschaal van Dodge en Coie [Psychometric evaluation of the Dutch version of the Agression Scale by Dodge and Coie]. *Gedragstherapie, 36.*

Jellinek, M. S., & Murphy, J. M. (1990). The recognition of psychosocial disorders in pediatric office practice: The current status of the pediatric symptom checklist. *Journal of Developmental & Behavioral Pediatrics, 11*(5), 273-278.

Kellam, S. G. (1990). Developmental epidemiological framework for family research on depression and aggression. In G. R. Patterson (Ed.), *Depression and aggression in family interaction.* Hillsdale, New Jersey: Lawrence Erlbaum.

Kim, E., Guo, Y., Koh, C., & Cain, K. (2010). Korean immigrant discipline and children's social competence and behavior problems. *Journal of Pediatric Nursing, 25*, 490-499.

MacPhee, D., Benson, J. B., & Bullock, D. (1986). *Influences on maternal self-perceptions.* Paper presented at the Fifth Biennial International Conference on Infant Studies, Los Angeles, California.

McCabe, K. M., Clark, R., & Barnett, D. (1999). Family protective factors among urban African American youth. *Journal of Clinical Child Psychology, 28* (2), 137-150.

Moos, R. D., & Moos, B. S. (1986). *Family environment scales manuel.* Palo Alto, California: Consulting Psychologists Press Inc.

Prinz, R. J., Foster, S., Kent, R. N., & O'Leary, K. D. (1979). Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behaviora Analysis, 12*(4), 691-700.

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

4

Reynolds, C. R., & Kamphaus, R. W. (2002). *The clinician's guide to the Behavior Assessment System for Children (BASC)*. New York: Guilford.

Robinson, E. A., Eyberg, S., & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology, 9*, 22-29.

Rohner, R. (1991). *Handbook for the study of parental acceptance and rejection*. Connecticut: University of Connecticut: Storrs.

Sanders, M. R., & Woolley, M. L. (2005). The relationship between maternal self-efficacy and parenting practices: implications for parent training. *Child: Care, Health and Development, 31*(1), 65-73.

Scott, S., Spender, Q., Doolan, M., Jacobs, B., & Aspland, H. (2001). Multicentre controlled trial of parenting groups for childhood antisocial behaviour in clinical practice. *BMJ, 323*(7306), 194-198.

Shelton, K. K., Frick, P. J., & Wootten, J. (1996). Assessment of parenting practices in families of elementary schoolage children. *Journal of Clinical Child Psychology, 24*, 317-329.

Stevenson, H. C. (1994). Validation of the scale of racial socialization for African American adolescents: Steps towards multidimensionality. *Journal of Black Psychology, 20*, 445-468.

Stevenson, H. C. (1997). Rationale for the measurement of racial socialization beliefs and experiences. *Unpublished manuscript, University of Pennsylvania, Philadelphia*.

van Doorninck, W. J., Caldwell, B. M., Wright, C., & Frankenburg, W. K. (1981). The relationship between twelve-month home stimulation and school achievement. *Child Development, 52*(3), 1080-1083.

van Widenfelt, B. M., Goedhart, A. W., Treffers, P. D. A., & Goodman, R. (2003). Dutch version of the Strengths and Difficulties Questionnaire (SDQ). *European Child & Adolescent Psychiatry, 12*(6), 281-289.

Webster-Stratton, C. (1985a). Comparison of abusive and nonabusive families with conduct-disordered children. *American Journal of Orthopsychiatry, 55*(1), 59-69.

Webster-Stratton, C. (1985b). Mother perceptions and mother–child interactions: Comparison of a clinic-referred and non-clinic group. *Journal of Clinical Child Psychology, 14*, 334-339.

Webster-Stratton, C. (1989). Dyadic Parent-Child Interaction Coding System - Revised. *Unpublished manuscript, University of Washington, Seattle*.

Webster-Stratton, C. (1998a, 1998). Parent Practices Interview. Retrieved from http://www.ssb.no/english/subjects/02/01/10/innvbef_en/.

Webster-Stratton, C. (1998b). Preventing conduct problems in Head Start children: Strengthening parenting competencies. *J Consult Clin Psychol, 66*(5), 715-730.

Webster-Stratton, C. (2007a). Parent practice interview. Retrieved from http://www.son.washington.edu/centers/parenting-clinic/.

Webster-Stratton, C. (2007b). Social Competence Scale. Retrieved from http://www.son.washington.edu/centers/parenting-clinic/.

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 & Adolescent Psychology, 33*(1), 105-124.

Webster-Stratton, C., & Spitzer, A. (1991). Development, reliability and validity of the Daily Telephone Discipline Interview: DDI. Behavioral Assessment, 13, 221-239.

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APPENDIX 3

Table ii. Details of the coding for the moderator adaptations

Study	Cultural sensitivity	Process of adaptation	Program delivery
Bjørknes et al. 2013	Deep (and surface) structure sensitivity - Sessions directly translated into Somali/Urdu by bilingual assistants - Somali/Urdu versions of parent material - Mother-only groups - Extensive use of role play in Somali/Urdu versions of parent material - Specialized content: expanded focus on large sibling groups and emotion control.	Detailed information - The study reports what adaptations were made to the parent training program, and referred to a pilot study for more information	Basic program delivery
Brotman et al. 2011	Deep (and surface) structure sensitivity - A well-known male African American television personality is the narrator of video segments - Specialized content: two sessions that focus on cultural and contextual influences on parenting and child development - Culture was explicitly discussed in each group	No to little information - The study reports a combination of activities regarding adaptations of the program (e.g. informed by prevention science, developmental literature, input and collaboration from community stakeholders, parents and teachers), but no specific details were given on how this resulted in the adaptations made	Enhanced program delivery - Meals during/after sessions - Free childcare for young children, creative art groups for older children

Table ii. Continued

Study	Cultural sensitivity	Process of adaptation	Program delivery
Coard et al. 2007	Deep (and surface) structure sensitivity - Use of African American language expression, common language - Emphasis on African American values about collective responsibility, cooperation, and interdependence - Use of African proverbs, sayings and affirmations, poems, quotes, symbols and pledges - Use of prayer, role-playing, storytelling, extended family participation, and humor - Use of a setting and motif representative of the population - Group leaders are African American - Specialized content: racial socialization	Detailed information - Study refers to recent literature on parenting challenges of African American families and details were given on the specific content added to an empirically supported standard program	Enhanced program delivery - Meals during/ after sessions - Free childcare
Day et al. 2012	Surface structure sensitivity - Local parents as peer facilitators	No to little information	Basic program delivery
Fagan et al. 2002	Deep (and surface) structure sensitivity - All male staff, training of fathers to become facilitators - Specialized content: racism in society, negative images of African American men, racial socialization, and the effect of racism on fathering	No to little information - The study reports a combination of activities regarding adaptations of the program (e.g. literature, empowerment practice approach), but no specific details were given on how this resulted in the adaptations made	Basic program delivery
Ghosh Ippen 1998	Surface structure sensitivity - Program was led in Spanish and English - Program materials translated in Spanish	No to little information	Enhanced program delivery - Meals during/ after sessions - Free childcare

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Table ii. Continued

Study	Cultural sensitivity	Process of adaptation	Program delivery
Gottfredson et al. 2006	Basic sensitivity	No to little information	Enhanced program delivery - Food vouchers - Free childcare
Gross et al. 2003	Surface structure sensitivity - At least one group leader was from the same ethnic background as the majority of parents in the group	No to little information	Enhanced program delivery - Free childcare
Gross et al. 2009	Surface structure sensitivity - At least one group leader was from the same ethnic background as the majority of parents in the group - Videotaped scenes in parents' homes and public spaces to portray situations that are familiar relevant and stressful for parents; multi-ethnic display of ethnicities in videos	Detailed information - Information on the development of the parent training program in collaboration with a parent advisory group. The authors reported what advise was given by the advisory group and how this was incorporated in the program to make it culturally and contextually relevant for ethnic minority and low-income parents.	Enhanced program delivery - Free childcare
Kim et al. 2008	Surface structure sensitivity - Program materials translated to Korean - Program delivered in Korean	No to little information	Basic program delivery
Kim et al. 2014	Deep (and surface) structure sensitivity - English and Korean program materials - Group leaders are bilingual and bicultural - Specialized content: cultural elements and parenting practices that parents perceive to be effective (e.g. a common physical punishment method used by Korean parents, biblical principles, Korean parenting virtues)	Detailed information - Multiple theories were used to bring together cultural elements and parenting practices that were relevant for the target population, and examples are given on how this resulted in adaptations	Basic program delivery

Table ii. Continued

Study	Cultural sensitivity	Process of adaptation	Program delivery
Lau et al. 2011	Surface structure sensitivity - Program delivered in Mandarin and Cantonese - Specialized content was encompassed in five sessions: cognitive restructuring, communication training, positive proactive parental involvement	No to little information	Enhanced program delivery - Meals during/ after sessions - Free childcare
Leijten et al. 2015	Surface structure sensitivity - Interpreters were present during intervention sessions - Mother-only groups - Pictures added to homework assignments to make it easier to understand for mothers with limited language skills	No to little information	Enhanced program delivery - Free childcare - Program delivered in families own neighbor-hoods - Sessions de-livered during school hours
Matsumoto et al. 2007	Surface structure sensitivity - Translated materials - Japanese group leaders	No to little information	Basic program delivery
Taylor et al. 199	Basic sensitivity	No to little information	Basic program delivery
Turner et al. 2007	Surface structure sensitivity - Each group was co-facilitated by one indigenous health worker	No to little information - Study reports that adaptations were made with exten-sive community consultation, but no specific details were given on how this resulted in the adaptations made	Basic program delivery
Web-ster-Strat-ton 1998	Surface structure sensitivity - Four parents were trained as group leaders - Families shown on videotapes came from a variety of ethnic and socioeconomic background	No to little information	Basic program delivery

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Table ii. Continued

Study	Cultural sensitivity	Process of adaptation	Program delivery
Web-ster-Strat-ton et al. 2001	Surface structure sensitivity - Program translated in Vietnam-ese and Spanish - Program delivered by trained leaders in Vietnamese and Span-ish - Families shown on videotapes came from a variety of ethnic and socioeconomic backgrounds	No to little information	Basic program delivery

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