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Positive Parenting: Babies and Toddlers Group-Based Parental Interventions

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Abstract

Early childhood development is increasingly recognized as a key public issue. Parenting interventions form an important evidence-based strategy to foster infant-toddler cognitive and language skills, motor and socio-emotional development and adaptive behavior. This systematic review investigated the effectiveness of group-based parenting interventions focused on families with children about 0-2 years old, living in vulnerable populations. As well as children development assessments, parenting skills, attitudes and knowledge were examined as outcomes. A range of databases were systematically searched and randomized trials and quasi-experimental approaches included. Fourteen studies with 4,082 parents of babies and toddlers, in nine countries, reported findings which favored interventions on a range of parenting measures and children outcomes, though some studies show mixed results. There is a great heterogeneity in terms of the length of the intervention, the qualifications requires for the instructors and the program components that accompany the group intervention. Thus, it is crucial to assess the cost of each intervention to evaluate the feasibility of its implementation in a developing country with scarce resources. Most of the studies included lacked this cost analysis.

Keywords: Positive Parenting, Early Childhood, Babies, Toddlers, Intervention

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1. Introduction

This paper focuses on the effect that group-based parenting interventions have on children from 0 to 36 months and their parents. Although this has been a very common preventive program for parents of older children (from 3 to 16 years old) (Bodenmann et al., 2008; Gallart & Matthey, 2005; Hoath & Sanders, 2002; Ashori et al., 2015; Heinrichs et al., 2014; Leung et al., 2013; Sanders et al., 2011; Prinz et al., 2009; Plant & Sanders, 2007; Chamberlain et al., 2008; Roberts et al., 2006; Cann et al., 2003; Brotman et al., 2008; Hand et al., 2013; Quinn et al., 2007; Weber & Fernald, 2016), only in recent years it has been extended to families with babies and toddlers.

As Álvarez (2014) explains in her thesis, it is from age 0 to 5 that the developmental basis of a person is stablished. Children begin to develop their motor skills, discover the world and process and give sense to the information they receive. They also develop language skills and begin to express, understand and regulate emotions, as well as gaining autonomy and social skills. In this sense, parents play a key role in their child's skill formation process and defining their future trajectories (Álvarez, 2014; Attanasio et al., 2016; Hackworth et al., 2017; Reichle et al., 2012; Aboud, 2007; Jones et al., 2016; Hutchings et al., 2017).

At the same time, socio-economic inequalities affect children's development. Low-income families are more at risk of suffering from poor nutrition, disturbed mother-infant interactions or low maternal sensitivity due to depression, stress or parent's lack of self-regulation (Walker et al., 2015; Hackworth et al., 2017; Hutchings et al., 2017; Álvarez, 2014; Hayes et al., 2008). These factors lead to the infant's inadequate stimulation, and by the time he/she enters primary school, lags behind their

peers in emotional, cognitive, behavioral and language skills (Hackworth et al., 2017; Hutchings et al., 2017; Álvarez, 2014; Walker et al., 2015). Following this path also determines that these children will attain lower levels of education, which in turn contributes to lower future income, continuing with the poverty cycle (Walker et al., 2015).

It has been proven that parents have direct influence on children's linguistic, cognitive and social-emotional development (Hackworth et al., 2017). What is more, they can learn a set of skills that help them prevent and react to children's misbehavior, resorting to positive responses like encouragement and praise and engage in cognitively stimulating activities (Álvarez, 2014; Wilson, 2010; Gross et al., 2003; Evans et al., 2017; Jones et al., 2016; Hackworth et al., 2017). This is why, early childhood becomes a key moment to intervene; teaching parents how to help their children thrive and develop. This would put them on a good development trajectory, beginning school with the basic skills required and leading in turn, to creating a more equal society (Gross et al., 2003; Álvarez, 2014; Walker et al., 2015; Hackworth et al., 2017).

Finally, we limit our review to group-based interventions, given its potential for a cost-effective intervention, as they increase the number of families covered (Cunningham et al., 1995).

2. Method

2.1. Information Sources

The following databases were searched: Google Scholar and TIMBO. TIMBO is an online platform available in Uruguay that gives access to more than 19,000 scientific

magazines and 34,000 e-books, conference abstracts, databases, citations, etc. from all over the world. As the site explains, it enables access to the latest bibliography and scientific literature through the different collections available: Science Direct, IOP Science, Sage, Emerald, Scopus, OvidSP, Reaxys, Springer, NPG, EBSCO Host, IEEE, The Cochrane Library, and JStor. We also looked up information on the webpages of two intervention programs: Incredible Years and Triple P.

This review considers studies written in English or Spanish. The research terms (keyword "group-based" in combination with "early childhood", "toddler", "baby", "positive parenting") were restricted to titles, abstracts and keywords. We included papers from around the globe, and only considered those focused on group-based interventions and work with parents of babies or toddlers.

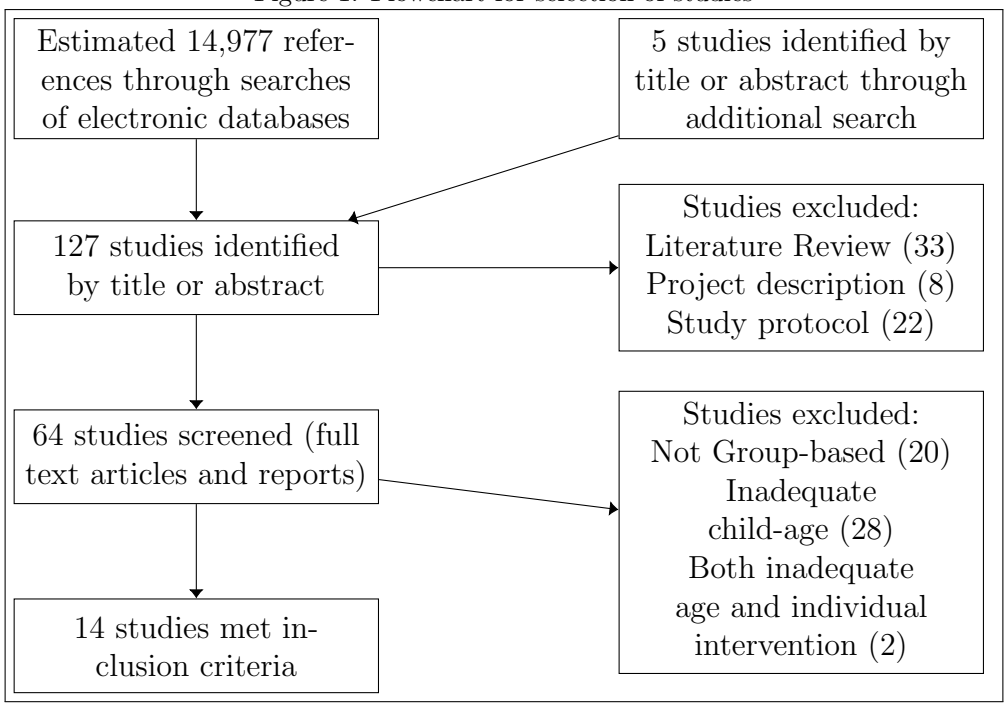
Another strategy was the use of pearl growing, identifying through citation in research papers, other keyword, descriptions, and themes. In addition, unpublished reports were sought by Google Scholar.

Finally, four experts on the subject of early childhood interventions were contacted in order to seek their help to exhaust all the possible literature available. The criteria for the selection of the experts was the relevance of their research in accordance to the topic of the present review and their background. All of them were asked for published or unpublished articles, reports, monographies, thesis, congress proceedings, etc. that they may know about.

Figure 1 summarizes the process of identifying, collecting, and screening studies that met the inclusion criteria. Based on the search strategies, we identified about 14,977 references to group-based, early childhood interventions. Only 127 were identified as potentially relevant so we proceded to review its abstracts (or executive

summaries). 5 other studies were identified by title or abstract through additional search. 64 studies were excluded because they were not evaluations, and another 50 studies did not meet the inclusion criteria. In the end we were left with 14 evaluations in the form of articles or thesis.

Figure 1: Flowchart for selection of studies



2.2. Study Characteristics

2.2.1. Design and Sample Size

Table 1 shows that sample sizes range from 43 (Wilson, 2010) to 1460 (Attanasio et al., 2016) children. Table 2 reports the methods used for the evaluations that met the inclusion criteria: randomized control trials (Walker et al., 2015; Niccols, 2008; Hutchings et al., 2017; Gross et al., 2003; Attanasio et al., 2016; Hayes et al., 2008; Evans et al., 2017; Wilson, 2010; Hackworth et al., 2017), non-randomized pre- post-

control group design (Reichle et al., 2012), post-test only intervention-control design (Aboud, 2007), repeated measures (pre- post-) quantitative study (Jones et al., 2016; Evans et al., 2015) and Quasi-Experimental (Eickmann et al., 2003).

2.2.2. Settings and Participants

The studies were conducted in 9, very diverse countries, in terms of income. According to the World Bank (2017), one is classified as Lower Middle Income (Bangladesh), three are Upper Middle Income countries (Jamaica, Brazil and Colombia) and five are High Income Countries (Germany, Canada, the United Kingdom, the United States and Australia).

Most studies targeted low-income families (Walker et al., 2015; Niccols, 2008; Aboud, 2007; Eickmann et al., 2003; Hutchings et al., 2017; Jones et al., 2016; Gross et al., 2003; Hackworth et al., 2017). Others focused on young, first time parents (Reichle et al., 2012) or parents of premature babies (Evans et al., 2017). Evans et al. (2015) and Attanasio et al. (2016) treat rural families from Wales and Colombia, respectively; and Hayes et al. (2008) and Wilson (2010) focus on families whose child has behavioral issues.

2.2.3. Characteristics of the interventions

Each intervention has different characteristics in terms of their design. Some of the key elements to be highlighted are: their length, the facilitators that carry out the meetings and the content covered in said meetings. We summarize this information in Table 2.

The longest intervention spans for 15 months (Walker et al., 2015) while the shortest one was only a day long (Hayes et al., 2008). Three interventions lasted a

year (Jones et al., 2016; Aboud, 2007; Hutchings et al., 2017) while one lasted 10 months (Attanasio et al., 2016). The rest took less than a semester to implement (Reichle et al., 2012; Gross et al., 2003; Evans et al., 2015; Hackworth et al., 2017; Eickmann et al., 2003; Evans et al., 2017; Wilson, 2010; Niccols, 2008).

Not all of them are solely group interventions. Some combine a group intervention with home visits, phone calls and individual meetings in order to re-inforce the topics covered in the meetings. We expand this characteristic in subsection 3.5.

The group sessions were conducted, in most cases, by professionals in fields like: occupational therapy, nursing, psychologists, psychiatrists and social workers (Eickmann et al., 2003; Evans et al., 2015; Gross et al., 2003; Hackworth et al., 2017; Hayes et al., 2008; Hutchings et al., 2017; Jones et al., 2016; Niccols, 2008; Reichle et al., 2012; Walker et al., 2015; Wilson, 2010). Only Aboud (2007) and Attanasio et al. (2016) require that facilitators have at least some secondary education and Evans et al. (2017) requires them to have been trained in the implementation of 'Baby triple P'.

Finally, even though the studies cover a wide array of topics, they mostly focus on teaching how to develop children's cognitive and language skills and help them to learn, handling child misbehavior and setting limits and how to improve parent-child interaction. They also cover subjects such as sanitation, nutritional practices, sleeping patterns and child directed play. On the parents side, they try to help them cope with emotions, improve their communication skills and mental health, and reduce stress.

Table 1: *Characteristics of participants in included studies*

Study	Country	Intervention	Participants		Sample Size (n)
			Child age	Group	
Aboud (2007)	Bangladesh	Group	0 - 32 months	Poor mothers in rural Bangladesh.	329
Attanasio et al. (2016)	Colombia	Individual and Group	0-24 months	Rural families in Colombia.	1460 children
Eickmann et al. (2003)	Brazil	Group and Individual	From birth until 18 months-old	Poor, urban families.	156 families
Evans et al. (2015).	Wales	Group	Under 6 months of age	The Children and Young People's partnership in Powys, a rural county in East Wales.	79 parents
Evans et al. (2017)	Australia	Group	Newly Borns	Parents of very preterm infants born at $<$ 32 -weeks, recruited from the Royal Brisbane and Women's Hospital (RBWH) and the Mater Mothers' Hospital (MMH),Neonatal Intensive Care Units (NICUs) between February 2012 and July 2013.	120 families with 145 infants
Gross et al. (2003)	USA	Group	2 and 3 year-old children	Participants were parents of 2- and 3-year-old children enrolled in 1 of 11 participating day care centers in Chicago that serve low-income families.	208 parents

Table 1 (Continued): *Characteristics of participants in included studies*

Study	Country	Intervention	Participants		Sample Size (n)
			Child age	Group	
Hackworth et al. (2017)	Australia	Group and Group-Individual	Infants: 6 - 12 months. Toddlers: 12 - 36 months	Parents who have a child in the age range for the offered program and at least one indicator of social disadvantage (low parents family income, receipt of government benefits, single, etc). They also can not be younger than 18.	Infant: 986 parents Toddlers: 1200
Hayes et al. (2008)	Australia average	Individual and Group (SD 6.04)	7.81 on months	Mothers who had self-referred to the Queen Elizabeth Center in Victoria, Australia after experiencing difficulty managing their infants or toddlers.	118 mothers
Hutchings et al. (2017)	Wales	Group	12 to 36 months	Families from eight Flying Start (highly targeted disadvantaged areas)	89 families
Jones et al. (2016)	United Kingdom	Group	2 to 16 weeks at baseline	Mothers with infants aged between 2 and 16 weeks at baseline and who were living in an area where trained leaders were planning to deliver the IYPB program within the study schedule.	80 mother-child pairs

Table 1 (Continued): *Characteristics of participants in included studies*

Study	Country	Intervention	Participants		Sample Size (n)
			Child age	Group	
Niccols (2008)	Canada	Group	At least 9 months old	Vulnerable mothers who spoke English who had not taken part in the program yet.	76 mother-child pairs
Reichle et al. (2012)	Germany	Group	Expecting parents or with less than one-year-old toddlers	Young, first time parents	172
Walker et al. (2015)	Jamaica, Antigua and	Group and Individual St. Lucia	3 -18 months-old	Vulnerable families	426 mother-child pairs
Wilson (2010)	USA	Group	18-36 months	Families with children diagnosed a developmental delay with behavior problems	43 children

Table 2: *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Aboud (2007)	2003	post-test only intervention control design	1 year	Women with some secondary education	17 days of basic training plus 4 days of supervision and monthly refresh courses.	Hygiene, sanitation, breastfeeding, micronutrient deficiencies, stages of cognitive and language development. How to encourage children's development. Positive discipline gender equality and childrens' rights.
Attanasio et al. (2016)	2014 - 2016	Randomized controlled trial	About 10 months	Women with at least a high school degree	Trained 3.5 weeks and 85 hours. Continuous suppor and coaching provided to program facilitators by professional tutors every 5 weeks.	Promote child development, mother-child interaction and maternal self -efficacy, provide best nutritional practices for young children and promote maternal self-esteem and mental health.

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Eickmann et al. (2003)	-	Quasi-Experimental	5 months	Two occupational therapists specialized in child development	-	The importance of play and interaction to promote children's development
Evans et al. (2015)	2011 - 2013	Pre- and post-course measures	12 weeks	Nurses, psychologists, psychiatrists and social workers with knowledge on child development and social learning theory. With experience on working with parents and children	A day workshop led by Carolyn Webster-Stratton (program developer). Ongoing supervision and feedback by Deborah Gross	Child directed play, helping young children learn, using praise and rewards, setting effective limits, handling misbehavior, and problem solving.
Evans et al. (2017)	2014	Randomized controlled trial	About 2 months	Facilitators who had completed Baby Triple P (the program) training	Baby Triple P Training	Sleeping patterns, supporting your partner and coping with stress.

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Gross et al. (2003)	-	Randomized controlled trial	12 weeks	Nurses, psychologists, psychiatrists and social workers with knowledge on child development and social learning theory. With experience on working with parents and children	A day workshop led by Carolyn Webster-Stratton (program developer). Ongoing supervision and feedback by Deborah Gross	Child directed play, helping young children learn, using praise and rewards, setting effective limits, handling misbehavior, and problem solving.
Hackworth et al. (2017)	01/2011 - 03/2013	Randomized controlled trial	From 6 to 12 weeks	Group and home coaching sessions were delivered by 114 early childhood staff employed by the participating institutions. Half had vocational qualifications (e.g. diploma or certificate) and the rest held either a bachelor degree or a post-graduate degree. Qualifications were predominantly in the fields of community services, education and health.	Staff received 2 or 3 days (depending on role) training from the research team in program content and processes.	SMALLTALK: Parenting strategies, guided practice and help to plan and review their use of the strategies at home. STANDARD: age-relevant parenting issues (i.e. feeding, sleeping, safety, exercise and behavior).

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Hayes et al. (2008)	-	Randomized Controlled Trial	1 day	The Queen Elizabeth Center team has a staff-parent ratio of 1 : 2 and includes one maternal and child health nurse and two early childhood workers.	No additional tranining	Feeding, sleeping, managing difficult behavior parental well-being, parent-child interactions, child development, child behavior, play, safety, feeding/diet, settling/sleep, and daily routine.
Hutchings et al. (2017)	08/2008 - 07/2009	Randomized Controlled Trial	1 year	Professionals with masters, higher degrees or diplomas in fields such as psychology, psychiatry, social work, nursing, or counselling, with knowledge of child development and social learning theory and experience of working with parents and children	About 5 days of workshops in groups up to 25.	Respect and understanding children and their developmental abilities, modelling social skills, child directed play, balancing power, descriptive commenting, academic, social, emotional and persistence coaching, positive parenting, controlling emotions and improving relationships, effective communication skills, family problem solving, enhancing children?s learning, anger management, and managing conflict. Establishing rules, predictable routines and children?s responsibilities.

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Jones et al. (2016)	2015	Repeated measures (pre-post) quanti-tatitve study.	1 year	Professionals with masters, higher degrees or diplomas in fields such as psychology, psychiatry, social work, nursing, or counselling, with knowledge of child development and social learning theory and experience of working with parents and children	About 5 days of workshops in groups up to 25.	Respect and understanding children and their developmental abilities, modelling social skills, directed play, balancing power, descriptive commenting, academic, social, emotional and persistence coaching, positive parenting, controlling emotions and improving relationships, effective communication skills, family problem solving, enhancing children?s learning, anger management, and managing conflict. Establishing rules, predictable routines and children?s responsibilities.
Niccols et al. (2008)	-	Randomized Controlled Trial	8 weeks	Infant development specialists with educational backgrounds in psychology, early childhood education, and/or social work, and additional training and experience in parent education and intervention with families of infants at risk.	Twenty hours of training and attended weekly su-pervision meetings with the originator, and completed Self- Moni-toring Checklists.	Attachment security ('What is it and why is it important?'), parent-child interaction ('How do you show me you love me?'), the impact of parent and child temperament on interaction, disengage ('I don?t like it') cues, approach ('I like it' and 'I need you') cues, following the child?s lead, and building a healthy relationship

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Reichle et al. (2012)	-	Non-randomized pre- post-control group design	About 3 months	Professionals with degrees in education, psychology, health care, social work or nursing	In two-day training of a self-selected sample of professionals were taught to apply the modules and were provided with all the necessary training materials.	Communication between parents, baby?s self-regulation tasks, prevention of negative feelings toward the child, and stress prevention.
Walker et al. (2015)	2011-2013	Randomized controlled trial	15 months	Nurses and community health workers	Community health workers: three-day workshop, manual and working with a supervisor. Nurses: two-day workshop	Love, comforting baby, talking to babies and children, praise, using bath time to play and learn, looking at books, simple toys mothers can make, drawing and games, and puzzles.

Table 2 (Continued): *Study characteristics*

Study	Date of the data	Methodology of evaluation	Characteristics of the intervention			
			Length	Facilitators	Additional training	Content
Wilson (2010)	-	Randomized controlled trial	8 weeks	Speech therapist, physical therapist, credentialed teacher, and master-level psychologist.	There were a total of six individuals who served as group leaders. All attended a formal Incredible Years workshop	Child development, behavioral problems, and the importance of strengthening the parent/child relationship through child-directed play. Behavior modification principles in which parents learn about giving appropriate commands, compliance and persistence training through praise, and positive limit setting (e.g., ignoring and time-out).

Table 3: *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Aboud (2007)	Knowledge about good practices.	Improved ($p < 0.0025$)	Child receptive vocabulary.	No effect
			Weight for height.	($p < 0.02$)
	Home Observation for measurement of the environment.	Improved ($p < 0.002$)	Preventive health practices.	($p < 0.002$)
	Mother - Child interaction.	Improved ($p < 0.02$)		
Attanasio et al. (2016)	Home Environment Quality (HOME)	Improved ($p < 0.000$)	Cognition	Improved ($p < 0.020$)
			Receptive Language	Improved ($p < 0.036$)
	Uses violent discipline	No effect	Expressive Language	Improved ($p < 0.029$)
	Parental knowledge	No effect	Gross Motor	Imprved ($p < 0.044$)
	Maternal self efficacy score	Improved ($p < 0.1$)	Fine Motor	No effect
			Weight (Kg)	No effect
			Height (cm)	No effect
			Food Insecurity Status (ELCSA)[a]	No effect
			Underweight	Decreased ($p < 0.093$)
			Wasting	Decreased ($p < 0.027$)
			Stunting	No effect
			Overweight by BMI	Improved ($p < 0.082$)
			Obesity by BMI	No effect
			Risk of Stunting	Decreased ($p < 0.034$)
			Risk of Wasting	No effect
			Socio-Emotional Development (ASQ:SE)	No effect

a: Latin-American Scale for the Measurement of Food Insecurity Risk of Wasting

Table 3 (Continued): *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Eickmann et al. (2003)			Mental Development Index (Bayley Scale)	12 months - No effect 18 months - Improved ($p < 0.001$)
			Psychomotor Development Index (Bayley Scale)	12 months - No effect 18 months - Improved ($p < 0.001$)
			Weight for age	12 months - No effect
			Length for age	12 months - No effect
			Hemoglobin Concentration	12 months - No effect
			Home Stimulation Index	12 months - No effect
Evans et al. (2015)	Karitane Parent Confidence Scale (KPCS)	Improvement ($p < 0.01$)		
	Mental Health and Wellbeing (GQH30)	Improved ($p < 0.05$)		

Table 3(Continued): *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Evans et al. (2017)	Mother-infant relationship :		Responsiveness	6 months - No effect
	Sensitivity	6 months - No effect		12 months - No effect
		12 months - No effect	Involvement	6 months - No effect
	Structuring	6 months -No effect		12 months - No effect
		12 months - No effect		
	Non-intrusiveness	6 months - No effect		
		12 months - No effect		
	Non-hostility	6 months - No effect		
		12 months - No effect		
	Maternal and postnatal attachment scale	6 months - No effect		
		12 months - Improvement ($p < 0.021$)		
	Maternal infant responsiveness	6 months - No effect		
		12 months - No effect		
Gross et al. (2003)	Parenting self-efficacy	1 year - follow-up Improved ($p < 0.01$)		
	Discipline strategies	Parent training programs 1 year follow- up. Improvement ($p < 0.01$)		
	Positive parent behavior	1-year follow up - No effect.		
	Parent commands	1-year follow up - Improved ($p < 0.01$)		
	Classroom Behavior Problems	1- year follow up - Improved ($p < 0.01$)		

Table 3(Continued): *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Hackworth et al. (2017)	INFANT TRIAL:			
	Smalltalk group vs. standard:			
	Irritability	32 weeks - Improved ($p < 0.05$)		
	Smalltalk plus vs. standard:			
	Verbal responsivity	12 weeks - Improved ($p < 0.05$)		
	Home learning activities	12 weeks - Improved ($p < 0.05$)		
	Home literary environment	12 weeks - Improved ($p < 0.05$)		
	Following their child's lead	12 weeks - Improved ($p < 0.05$)		
	Use of descriptive language	12 weeks - Improved ($p < 0.05$)		
	TODDLER TRIAL:			
	Smalltalk vs. standard:	No effect		
	Smalltalk plus vs. standard:			
	Use of descriptive language	12 weeks - Improved ($p < 0.05$)		
		32 weeks - Improved ($p < 0.05$)		
	Maintaining their child's interest	12 weeks - Improved ($p < 0.05$)		
		32 weeks - Improved ($p < 0.05$)		

Table 3(Continued): *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Hayes et al. (2008)	Depression anxiety scale	Improved ($p < 0.01$)		
	Parent sense of competence	Improved ($p < 0.001$)		
	Difficult behavior assessment	Improved ($p < 0.001$)		
Hutchings et al. (2017)	Home environment	No effect	Child development	No effect
	Parent mental health and competence	No effect	Child behavior	No effect
	Observed positive parent	No effect		
	Observed negative parent	No effect		
	Observed praise	Improved ($p < 0.05$)		
Jones et al. (2016)	Karitane Parental Confidence Scale (KPCS)	No effect	Griffiths Mental Development Scale	Improved ($p < 0.001$)
	Warwick-Edinburgh Mental Well Being Scale (WEMWBS)	No effect		
	Infant Toddler Home Observationfor Measurement of the Environment Inventory (IT HOME)	Imropved ($p < 0.001$)		
	Parent Infant Play Observation code (PIPOc):			
	global	Improved ($p < 0.001$)		
	physical encouragement	No effect		
	verbal engagement	Improved ($p < 0.001$)		
	sensitive parenting	No effect		

Table 3 (Continued): *Outcome measures*

Study	Parents' outcome measures	Summary effects	Children's outcome measures	Summary effects
Niccols et al. (2008)	Maternal Sensitivity: *Maternal Behavior Q-Sort (MBQS)*	No effect	Infant Attachment (AQS)	Group vs. Home visiting and control: Pre-test to 6-month follow-up Improved ($p < 0.05$)
	HOME Responsivity Scale	Group vs Control: pre-test to post-test Improved ($p < 0.05$)		
Reichle et al. (2012)	Parent's knowledge	Pre- post- evaluation: Improved ($p < 0.001$)		
	Parent's anger control and problems in interacting with the child	No effect		
	Marital Satisfaction	Declined ($p < 0.05$)		
	Parent's security in interacting with the child	Improved ($p < 0.05$)		
Walker et al (2015)	Parenting knowledge	Improved ($p < 0.05$)	Children's cognitive development	Improved ($p < 0.05$)
	Maternal Practices (HOME)	No effect	Language development	No effect
			Hand and eye coordination	No effect
			Vocabulary Score (CDI) [b]	No effect
			Head circumference- for - age z-score	The median value for z-scores are close to the median value of zero indicating that growth was comparable to the World Health Organization growth standards
			Weight-for-height z-score	
Wilson (2010)	Emotional Reactivity	Reduced ($p = 0.002$)	Attention Problems	No effect
	Parental Stress	Decreased ($p = 0.01$)	Aggressive Behaviors	Decreased ($p = 0.000$)

3. Results

In this section, we summarized the interventions and its results according to the setting in which they were applied. These are: hospital based, family and day care centers, rural areas and disadvantaged urban areas. None of them study long term effects. Most follow ups were carried out at 6 and 12 months after the intervention was finished. So, we can not know the effect that they may have when the child begins primary school for example.

Most of the research focuses on both, parents and children's outcomes (Aboud, 2007; Attanasio et al., 2016; Evans et al., 2017; Hutchings et al., 2017; Jones et al., 2016; Niccols, 2008; Walker et al., 2015), while the rest target only the parents (Evans et al., 2015; Gross et al., 2003; Hackworth et al., 2017; Hayes et al., 2008; Reichle et al., 2012). Only Eickmann et al. (2003) analyzes the effect their program has on children.

3.1. Hospital Based

Walker et al. (2015), Hayes et al. (2008) and Evans et al. (2017) all study the effect of an intervention whose participants were recruited from or treated at a hospital in their respective countries.

Walker et al. (2015) evaluated a parenting program that is integrated into a primary health center visit in Jamaica, Antigua and St. Lucia. The authors implemented a group delivery of five routine visits that comprised: short films on child development and maternal practices, revising information and playing with the children. They also included two home visits per month, were community health workers carried out play sessions in order to improve mother-child interaction and to increase feasibility. Com-

paring health center only with control in all 3 countries showed significant benefits for cognitive development and parents' knowledge from the health center intervention.

Hayes et al. (2008) studies an intervention with mothers who had self-referred to the Queen Elizabeth Center in Victoria, Australia after experiencing difficulties managing their infants or toddlers. The authors focused on the following outcome measures: parental distress, parental self-efficacy and parent reported child behavior. The intervention consisted on a single intervention of 6 hours delivered by the Queen Elizabeth Center team, composed of 1: 2 staff-parent ratio including maternal and child health nurse and two early childhood workers. Parents were assigned to groups of 6, where they fed, slept and managed their child's difficult behavior. At the beginning of the day, a staff member worked through a care plan with the mother, identifying areas of competence and of need that could be addressed during the day. During group work, nurses worked on: parental well-being, parent-child interactions, child development, child behavior, play, safety, feeding/diet, settling/sleep and daily routine. These group workshops were complemented with individual practice sessions. The authors found that mothers who attended the program reported improvement in depression, anxiety, stress, parental satisfaction, and decreases in problematic child behavior. What is more, these improvements were maintained at 6-week follow up. Their major contribution is the cost-effectiveness of an intervention that lasts only a day.

Evans et al. (2017) study the effect of the parenting intervention called Baby Triple P, with parents of very preterm infants born less than 32-weeks. This parents were recruited form the Royal Brisbane and Women's Hospital and the Mothers' Hospital Neonatal Intensive Care Units. They focus specifically on the quality of

mother-infant relationship and mother's attachment and responsiveness to her infant at 6-weeks and 12-months corrected-age. Baby Triple P consists on 4 in-hospital 2-hour group sessions followed by a 30 minutes telephone consultation. This phone call aims to support parents in putting the session content into practice and to assist them in setting and reviewing goals covered in the previous group meeting. It is important to consider that, to measure a pre-term baby's development, researchers have to use their corrected age. This is equal to the baby's age in weeks minus the number of weeks the baby was preterm. The authors found that at 6-weeks corrected-age, there were no significant differences between the treatment and control group. At 12-months corrected-age, control mothers scored significantly higher on the self-reported maternal attachment score, compared to those assigned to treatment.

3.2. Family and Day Care Centers

Reichle et al. (2012) study the effect of a preventive intervention for young parents and parents of toddlers in 15 Family Centers from Rhineland-Palatinate, Boden-Wuerttemberg, and Bavaria. The aim was to help young parents to accomplish the most critical tasks: formation of a nurturing relationship between parent and child and positive development of the couples' relationship. A group of psychologists delivered 10 sessions of 90 minutes each, in which participants learned about: communication between parents, baby's self-regulation tasks, prevention of negative feelings towards the child and stress prevention. Some of the techniques employed included: relaxation tasks, how to read the new born's non-verbal behavioral expressions, coping strategies, appropriate nutrition, etc. The authors ran a non-randomized pre-post control group design with training group parents and control group ones. They found that treated parents showed more knowledge concerning the developmental milestones, regulatory

tasks like feeding, soothing, crying and sleeping, meanings of the baby's expressions, parental sensitivity, and attachment. The parent's security in interacting with the child increased, and their marital satisfaction did not decline.

Gross et al. (2003) tested the effectiveness of Incredible Years, a 12-week parenting training program with parents and teachers of 2-3 year olds in 11 day care centers serving low-income families of color in Chicago. These centers were assigned to 4 different groups: parent and teacher training, parent training, teacher training and waiting list control, with the aim of improving: parent self-efficacy, discipline strategies, behavior, stress and depression as well as reducing child behavior problems reported by both parents and children. Parent and teacher groups were led by nurses who had graduate degrees. They also completed a day workshop with Carolyn Webster-Stratton who developed the Incredible Years program. In the sessions, they worked on child directed play, helping young children learn, using praise and rewards, setting effective limits, handling misbehavior, and problem solving. Group members viewed and discussed brief videotaped vignettes of parent and child models followed by discussion questions and homework assignments. The authors found that those who received the parent training had higher parent self-efficacy and less coercive discipline and were observed to have more positive behaviors than control and teacher training parents. Most effects were even retained a year after the intervention had finished.

Wilson (2010) studies the effect of an intervention on families with children diagnosed a developmental delay with behavior problems and who qualified for services at the Children's Developmental Center in the Tri-Cities area in Washington, United States. The intervention consists on 8 weekly sessions of 2 to 3 hours each. They were

conducted by staff from a wide variety of human services specialities: speech therapists, physical therapists, credentialed teachers, and master-level psychologists. They all attended an Incredible Years workshop and directed the meetings in pairs. The first three sessions focused on psycho-educational topics that discussed child development, behavioral problems, and the importance of strengthening the parent/child relationship through child-directed play. The remaining sessions focused on behavior modification principles in which parents learn about giving appropriate commands, compliance and persistence training through praise, and positive limit setting. Each session consisted on parents watching video vignettes followed by a discussion of important points. They also used other techniques such as role play, and at the end of each session received handouts with reminders of what was discussed and homework tasks to implement the new skills acquired. The author found that the intervention significantly improved parent reported aggressive behavior and emotional reactivity in their children compared to ratings of parents in the control group. Stress related to parents was also found to significantly decrease for those who were part of the treatment group.

Hackworth et al. (2017) designed and evaluated a brief parenting intervention called "Smalltalk" aimed to enhance the home learning environment of young children from disadvantaged families. It was tailored to the parents of infants in the maternal and child health service and parents of toddlers in the facilitated playgroup service in Australia. The program was delivered in two levels: Smalltalk Group-Only and a combination of the group program with home visits called Smalltalk Plus. The authors designed two randomized controlled trials: one for each service sector, to compare outcomes of the Smalltalk Group-Only and Smalltalk Plus inter-

ventions with Standard Care. All of the three branches consisted on 6 weekly-group sessions, for parents of infants and 10 weekly-group sessions for parents of toddlers respectively. All of the sessions lasted about 2 hours each. They were delivered by staff experienced in early childhood development, employed by the participating local government authorities, with qualifications predominantly in the fields of community services, education and health. They were also trained on the program content and process by the research team. In the Smalltalk groups, the facilitators discussed the parenting strategies, guided practice in the group and assisted parents to plan and review their use of the strategies at home. In the Smalltalk Plus groups, the sessions were reinforced using a narrated DVD which guided the coach and parents through practice of key parenting strategies (with modeling and video-feedback), planning and reviewing their use. In the Standard Care system, parents received the same number of sessions as the rest of the groups, but conducted, according to the guidelines, for government-funded playgroups. The measures were taken at baseline, 12 and 32 weeks. The main outcome variables studied were: parent verbal responsivity to their child, parental warmth, parent irritability, home learning, literacy and chaos and parent-child interactions. For infants in the 12 week follow up, the authors found significant positive differences between those who participated in the Smalltalk Group Plus and the Standard Care in verbal responsivity, home learning activities, home literacy environment, following their child's lead and use of descriptive language. Between Smalltalk Group only and Standard Care, the only improvement found was in following the child's lead and at 32 weeks follow-up there is even an increase in irritability. For toddlers, at 12 week-follow up, those who participated in Smalltalk Plus had greater descriptive language and were better at maintaining their

child's interest than those who took part in the Standard Care program. At 32 weeks follow-up, Smalltalk Group Only parents had greater verbal responsivity and home learning activities than Standard Care ones. Finally, Smalltalk Plus showed better descriptive language and maintained their child's interest than the standard ones.

3.3. Rural Areas

Aboud (2007) studies the effect of group-based intervention in rural Bangladesh. In order to do so, the author compares mothers and their children, who had attended a year of educational sessions, with those from neighboring villages who did not have access to the program. The intervention consisted on 90-minute weekly sessions for a year in which they were taught about common diseases and oral rehydration solutions, hygiene, sanitation, breastfeeding, weaning foods, micronutrient deficiencies, stages of cognitive and language development, how parents can help children learn, how to encourage language development, positive discipline, gender equality and child rights. Facilitators had some secondary education and in addition had 17 days of basic training. The author finds that the parenting mothers did not communicate differently with their children and, in turn, children did not show benefits in variables such as language comprehension and weight for age. Receptive vocabulary scores correlated negatively with age, indicating that when they got older, children declined in relation to norms appropriate to their age. Finally, the better educated the mother is, the more it benefited from the program, increasing their knowledge on good practices.

Evans et al. (2015) study the effect of the Incredible Years Toddlers Parent Program in Powys, a rural county in Wales, on twelve groups with pre- and post-course measures. The program consists on 12 weekly sessions of 2 to 2.5 hours, carried out by two group leaders. Using the Karitane Parenting Confidence Scale (Črnčec et al.,

2008) and the General Health Questionnaire 30 (Goldberg et al., 1988), the authors found that this program has significant benefits for parents in terms of improved mental health and parenting confidence post-course.

Finally, Attanasio et al. (2016) evaluate the effects of the implementation of a structured early stimulation curriculum and a nutritional intervention through public parenting support services for vulnerable families living in rural areas in Colombia, on children's development and parental behaviors. They focused on children's nutritional status, cognitive, receptive and expressive language, and fine and gross motor skills. On parents, they evaluated: mothers' parenting skills, parental knowledge and perceptions, parental self-efficacy, mental health, and the home environment. The intervention consisted on two group sessions per month for pregnant women, two sessions per month for breastfeeding women, and one weekly group session for parents of children between 0 and 24 months of age. To reinforce the topics covered during group meetings, families received one monthly 1-hour home visit. They found significant positive results on child cognition, receptive language, expressive language and gross motor development. They also find a reduction in underweight and in the risk of chronic malnutrition. On the other hand, they did not find effects on socio-emotional development.

3.4. Disadvantaged Urban Areas

Eickmann et al. (2003) study a group-based program in a poorly resourced area in north-east Brazil. They focused on 13 to 17 months-old children with low mental and psychomotor development index (≤ 100) on the Bayley Scales of Infant Development (Bayley, 1993). The intervention consisted on 14 contacts. These comprised an initial home visit, three workshops and 10 reinforcement home visits. The workshops lasted 3

hours while the home visits lasted 30-45 minutes. It was delivered by two occupational therapists specialized in child development. Parents were taught the importance of play and interaction to promote children's development at a monthly workshop: at 13, 15 and 16 months respectively. The first one focuses on the different aspects of child development and demonstrated how these could be promoted through play and interaction. The second one focused on the use of discarded materials to make toys, learning how to use everyday activities, like bathing the child and household chores, like doing the laundry, to promote interaction and development. Finally, the third one consisted on a group talk about what they have learned and their opinions on the workshop. The authors found significant effects on mental and psychomotor development at 18 months follow up, however it was greater for those with an initially low score (≤ 100).

Hutchings et al. (2017) evaluated the effectiveness of the Incredible Years Toddler Parenting Program (IYTPP) with parents of 1-year old and 2-year-old children recruited in disadvantaged Flying Start areas across Wales. Flying Start is a government-led program that consists on: free high-quality childcare for all 2-year-olds, increased support from dedicated FS health visitors, parenting programes and parent-child language and play schemes. It consisted on 12 sessions of 2 to 2.5 hours, for a year. Each session was carried out by two group leaders who had a Masters, a higher degree or diploma in fields such as psychology, psychiatry, social work, nursing, or counseling, that know about child development and social learning theory and have experience on working with parents and children. Sessions focused on respecting and understanding children and their developmental abilities, having developmentally appropriate expectations for the child according to their age, temperament and develop-

mental abilities, positive parenting, controlling emotions and improving relationships, effective communication skills, enhancing children's learning, anger management and managing conflict. Some of the group methods include: discussions, goal setting and problem solving, exercises on benefits and barriers, group brainstorming to identify social learning principles, DVD vignettes of parents, etc. The authors found that at 6 months post baseline intervention, families had significant improvements in parental well-being relative to controls and significant improvements in the level of praise. Finally, none of the 12-month scores dropped below baseline levels.

Jones et al. (2016) reports an intervention with mothers and their infant children aged between 2 and 16 weeks, recruited from nine areas in the United Kingdom. As in Hutchings et al. (2017) it is based on Incredible Years Toddler Parenting Program. At 6 months follow-up, the authors found significant increases in Griffiths Mental Development evaluation for children (Griffiths, 1954), Infant-Toddler Home Observation for Measurement of the Environment Inventory (IT HOME) (Bradley & Caldwell, 1976; Bradley & Corwyn, 2005) and Parent Infant Play Observation in global terms and its verbal engagement component (Jones et al., 2015). The authors find that the results obtained provide limited evidence for the effectiveness of this group-based program, delivered in the first year of life. They suggest that further evaluations need to be carried out in order to confirm and extend these results, specially with parents who are prone to have poorer outcomes.

Niccols (2008) study the effect of a group-based intervention with a home visiting one. The main objective is to improve infant attachment security, which the author claims is a protective factor for future health. Participants were voluntary and eligible if they were able to complete a questionnaire in English and had not previously

attended any portion of Right From The Start (RFTS). The group sessions were held at convenient locations with free parking, transportation assistance, incentives (food and prizes), and onsite childcare, in order to minimize barriers to access and maximize participation. Both interventions were carried out by infant development specialists with educational backgrounds in psychology, early childhood education, or social work. They also attended a 20-hour training, and had to follow a facilitator's manual. The RFTS sessions focused on attachment security, parent-child interaction, disengaging cues, approaching cues, following the child's lead and building a healthy relationship. In order to achieve this, they used a wide array of techniques: video clips, small and large group discussions, homework assignments and peer support. They found that RFTS is as effective as the home visiting program to improve infant attachment security and maternal sensitivity.

3.5. Results in terms of the intervention design

Even though all of the studies included have a group intervention component, many of them combine it with home visits, phone calls, and individual meetings. In this section we revise the results obtained according to the intervention design, which we summarized in table 3.

Hackworth et al. (2017) compares a group intervention (Smalltalk) with one that combines group meetings and home visits (Smalltalk Plus). For infants in the 12 week follow up, the authors found significant positive differences between those who participated in the Smalltalk Group Plus and the Standard Care, in verbal responsivity, home learning activities, home literacy environment, following their child's lead and use of descriptive language. Between Smalltalk Group only and Standard Care, the only improvement found was in following the child's lead and at 32 weeks follow-up

there is even an increase in irritability. For toddlers, at 12 week-follow up, those who participated in Smalltalk Plus had greater descriptive language and were better at maintaining their child's interest than those who took part in the Standard Care program. At 32 weeks follow-up, Smalltalk Group Only had greater verbal responsivity and home learning activities. Finally, Smalltalk Plus showed better descriptive language and maintained their child's interest than the standard ones. Finally, Nicols (2008) compares the effect of a home visiting program with a group-based one, finding that the group sessions are as effective as the home visits.

Two of the studies analyzed the effect of combining group sessions with home visits instead of comparing one with the other: Attanasio et al. (2016) and Eickmann et al. (2003). Both studies find significant positive results in psychomotor development as wells as mental development. Hayes et al. (2008) goes a step further and studies a treatment in which they comprise group and individual work in one day. They found that mothers who attended the program reported improvement in depression, anxiety, stress, parental satisfaction, and decreases in problematic child behavior.

Aboud (2007), Evans et al. (2015), Hutchings et al. (2017), Reichle et al. (2012), Walker et al. (2015) and Wilson (2010) study group-based interventions without any other component. Evans et al. (2015), Hutchings et al. (2017) and Reichle et al. (2012) focus solely on parent's outcome measures while Aboud (2007), Walker et al. (2015) and Wilson (2010) also studied the effect that their respective interventions had on children. Aboud (2007) reports that the program had no effect on children's outcomes like vocabulary scores but it did have a positive influence on their physical development. On the other hand Walker et al. (2015) does find a positive effect on children's cognitive development but no effect on their language development and

hand-eye coordination. Walker et al. (2015) finds an improvement of children's aggressive behaviors but no effect on their attention problems. When it comes to parents' outcomes, Aboud (2007) and Walker et al. (2015) find a significant improvement on parent's knowledge. Aboud (2007), Reichle et al. (2012) and Evans et al. (2015) find also a significant improvement in parent's confidence, specially when it comes to interacting with their child. Other significant results with respect to parents are also, their improvement in emotional resiliency and reduction in parental stress (Wilson, 2010).

Gross et al. (2003) evaluates a group intervention given to parents, parents and teachers, teachers only and a control group. They found greater improvement for those children whose parents received treatment compared to those whose teachers were the only treated ones.

Finally, Jones et al. (2016) and Evans et al. (2017) study the effect of a group intervention on babies. Jones et al. (2016) focused on a group-based only intervention, while Evans et al. (2017) incorporated a 30 minute phone call to review what was covered in the meeting. Neither of them find significative results for small babies.

3.6. Risk of Bias Across Studies

The body of evidence in this review comes from nine randomized control trials, two pre- post- evaluations a post-test only intervention control design, a quasi-experiment and a non-parametrized pre-post control group design. They involve 5427 children in eleven different countries. They all report on outcome variables and all except Evans et al. (2015) report on baseline demographic data. Finally, they were all evaluated by independent assessors. In table 4 we present the overall assessment that every paper received in this review.

Table 4: *Characteristics of participants in included studies*

Intervention name and description		Aboud (2007)	Attanasio et al. (2016)	Eickmann et al. (2003)	Evans et al. (2015)
Child outcomes	Child development	√	√	√	
	Receptive and cognitive vocabulary	√	√		
	Child behavior				
Parents' outcomes	Caregiver knowledge	√			
	Caregiver depression				√
	Caregiver stress				
	Sensitive parenting [a]	√			√
Study design	Experimental		√		
	Quasi-Experimental	√		√	√
Quality assessment	Adequate control group		√	√	√
	Low risk of bias		√		
	Adequate sample size	√	√	√	
	Unbiased assessors	√	√	√	√
	Overall assessment[b]	2	4	3	2

[a] Ability to assess child's needs, parent discipline strategies, and mother-child interaction

[b] "Overall assessment" collects the sum of the four components "Quality assessment". The minimum value that could take is 0 and the maximum 4.

Table 4: *Characteristics of participants in included studies*

Intervention name and description		Evans et al. (2017)	Gross et al. (2003)	Hackworth et al. (2017)	Hayes et al. (2008)	Hutchings et al. (2017)
Child outcomes	Child development					
	Receptive and cognitive vocabulary					
	Child behavior		√		√	
Parents' outcomes	Caregiver knowledge					
	Caregiver depression				√	
	Caregiver stress		√		√	
	Sensitive parenting [a]	√	√		√	√
Study design	Experimental	√	√	√	√	√
	Quasi-Experimental					
Quality assessment	Adequate control group	√	√	√	√	√
	Low risk of bias	√	√	√	√	√
	Adequate sample size	√	√	√	√	
	Unbiased assessors	√	√	√	√	√
	Overall assessment[b]	4	4	4	4	3

[a] Ability to assess child's needs, parent discipline strategies, and mother-child interaction

[b] "Overall assessment" collects the sum of the four components "Quality assessment". The minimum value that could take is 0 and the maximum 4.

Table 4 (continued): *Characteristics of participants in included studies*

Intervention name and description		Jones et al. (2016)	Niccols (2008)	Reichle et al. (2012)	Walker et al. (2015)	Wilson (2010)
Child outcomes	Child development				√	
	Receptive and cognitive vocabulary				√	√
	Child behavior					√
Parents' outcomes	Caregiver knowledge		√	√	√	
	Caregiver depression				√	
	Caregiver stress				√	√
	Sensitive parenting [a]	√	√	√	√	√
Study design	Experimental		√	√	√	√
	Quasi-Experimental	√				
Quality assessment	Adequate control group	√	√		√	√
	Low risk of bias		√		√	√
	Adequate sample size			√	√	
	Unbiased assessors	√	√	√	√	√
	Overall assessment[b]	2	3	2	4	3

[a] Ability to assess child's needs, parent discipline strategies, and mother-child interaction

[b] "Overall assessment" collects the sum of the four components "Quality assessment". The minimum value that could take is 0 and the maximum 4.

3.7. Cost Analysis

Only two of the papers included do a cost-benefit analysis.

Following a conservative estimation procedure Walker et al. (2015) say that the Health Center Intervention has a Cost-Benefit ratio of 5.3 while the Home visiting programe is of 3.8, indicating that the group-based intervention is more beneficial. Finally, Niccols (2008) also finds that the group-based intervention costs significantly less than the home visiting one ($p < 0.001$).

4. Discussion

Overall, as we explained above, most of the studies included, reported results on both parents and children. However, we do not know much about the long term effects that these interventions had on children as they become older.

All in all, very few coincide on the variables that were positively affected by the group-based intervention. The main positive effects on parents were: parent's knowledge about good practices, mental health, anxiety, stress, parent's satisfaction and well-being, parent's attachment, sensitivity, security in interacting with the child, self-efficacy, aggressive behavior, praise and home learning environment. However, no more than two papers found support for each of these variables.

When we consider the effects found on children, researchers focus on: cognitive, psycho-motor, verbal and socio-emotional development and problematic behavior. We found support for positive cognitive development effects in three of the papers included (Walker et al., 2015; Attanasio et al., 2016; Eickmann et al., 2003). However, the rest of the variables do not appear to have been positively affected by more than two of the interventions.

What is more, two of the papers reviewed do not seem to find positive effects on neither parents nor children (Aboud, 2007; Jones et al., 2016).

All this may lead us to conclude that group-based programs may be more beneficial to parents rather than children, or that its effect on children may take longer to be captured as it is channeled through the effect the programs have on parents. This is why it is important to have more waves of evaluation after the intervention has finished, in order to capture longer term effects.

In terms of the studies' design, many include complementary elements such as phone-calls, home visits and individual meetings in order to re-enforce what was covered in the group meetings.

All of these elements impede us to conclude on what are the benefits of a group-based intervention, as they differ in the positive results found as well as the design of the intervention and thus leaving room for further research.

5. Limitations to research

We have made efforts to identify all the studies - published or unpublished - on the subject. However, for the moment very few projects include cost analysis, thus there is almost no indication that the programs would be replicable and feasible if adopted to other culture or settings.

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