

Review

Early Intervention with Parents of Children with Autism Spectrum Disorders: A Review of Programs

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Abstract: The aim of this article is to analyze the evidence against the effectiveness of intervention programs based on the participation of parents of children with autism. To obtain the data, a systematic search was carried out in four databases (ProQuest-PsychArticles, ProQuest-ERIC, ProQuest-PubMed, and Scopus). These documents were refined under the inclusion/exclusion criteria and a total of 51 empirical studies were selected. They were classified, first, according to the function of the intervention objective and, later, by the methodology applied (19 studies based on comprehensive interventions, 11 focused on the nuclear symptoms of ASD, 12 focused on the promotion of positive parenting and 9 interactions focused on children play). Once all the documents have been analyzed, the evidence indicates scientific efficacy in most studies, mainly in those based on child development and the application of behavioral analysis principles. Also, the positive influence of parent participation in such programs was demonstrated.

Keywords: Autism Spectrum Disorders; Early Intervention; Parent mediated intervention; Parental Training;

1. Introduction

Parents of children with Autism Spectrum Disorders (ASD) often report alterations in psychological well-being [1, 2, 3] and high levels of stress [4, 5]. For this reason, in the community centers of early attention in Spain, it has been included for some time, besides the attention to the child, also to the family [6, 7, 8]. However, family care has been understood as guidance, coordination, and accompaniment [8]. Providing quality, scientifically proven information is one of the best possible supports [9, 10]. The collaboration with the family and the coordination between the professionals that attend to the disorder have a common objective, the improvement for quality of life for each one of the members in the family system, and the family system as a whole [11].

The involvement or mediation of parents in the intervention of their children is another step for which many parents are not prepared. The goal of parental involvement in intervention is based on the principle that neuropsychological development is determined by interaction with the environment [12] and that the child with ASD is characterized by a deficit in basic communication and social interaction skills, and as a consequence may generate inappropriate interaction patterns with his or her parents [13, 14, 15] and add negative effects on neuropsychological development, producing a cascade effect [16, 17, 18]. These inappropriate interactions generate a double loop, on the one hand, continuing to fuel the child's development by increasingly moving him/her away from normative development, and on the other hand, generating a high level of tension and discomfort in the parents that in turn, increase inappropriate interactions [19]. The need for training and attention to parents

is made necessary among other reasons by the evidence found on parental stress related to participation in treatments [20].

Early intervention with the proper structure for both the parents and the child, would allow diminishing the cascade effects, making the development of the affected child to follow an evolution closer to the neurotypical development [21, 15], since it would benefit from a greater brain plasticity in this age [22]. The evidence for the relationship between parental behaviors and the development of children with ASD is clear [23]. Thus, when intervention is made on children who show warning signs of autism and their families, the symptoms are improved. This improvement manifests itself even years later [24]. Kim, Baly Lord [25] show that parental involvement in early intervention is a good predictor of later academic performance.

The involvement of parents in the implementation of intervention strategies designed to help their children with ASD has a long history [26, 27], having been given different names (Parental Training or parental Education). These terms are more or less vague and include everything from parent-therapist coordination, psycho-education sessions about the disorder, training in specific techniques for language development or improving social skills, as well as specific programs to discuss maladaptive behaviors [28], to Parent-Mediated Treatment [29].

Due to the large volume of publications around early intervention in children with ASD and their families, it is necessary to carry out periodic systematic reviews to organize the different current results. Among the precursors to this study are those of the Diggle team, McConachie, and collaborators [26, 30, 31].

In the present work, we make a systematic analysis of the scientific documentation about parents' participation in early care programs. It has been carried out based on the principles of a systematic review, where the criteria of search, selection, and evaluation of the documents used by PRISMA were considered [32].

2. Method

Four databases were searched (ProQuest-PsychArticles, ProQuest-ERIC, ProQuest-PubMed, and Scopus). Only those published in scientific journals with double-blind peer review were selected. The search was performed by accessing all the databases using the online search interface TROBES of the Documentation and Library Service of the University of Valencia (Spain).

2.1. Search strategy

The search terms used were ("Autism" OR "Pervasive Developmental Disorders") AND "Early Intervention" AND ("Parent Training" OR "Parental Teaching"). These terms can appear anywhere in the indexed document. The search ended in December 2019.

2.2. Inclusion criteria

The selection has been delimited to the period between the years 2010-2019. Only those articles that offer empirical data on the results of the intervention were included. On the selected articles, the bibliography was analyzed using the so-called snowball technique, to detect any other non-indexed study that could provide some relevant information.

2.3. Exclusion criteria

The articles found who followed the search criteria were 1010 of which a total of 98 duplicate articles were found and 424 articles that were excluded because they corresponded to guides and other documents. Subsequently, the summaries of the articles were read, excluding 227 documents that dealt with studies on parenting in other areas. Finally, papers from non-empirical studies, outside the early care age range (0-6 years) or dealing with non-ASD pathologies were excluded. Finally, 51 articles were found in which empirical studies were presented with intervention models involving parental participation. Figure 1 shows the flow of the search process.

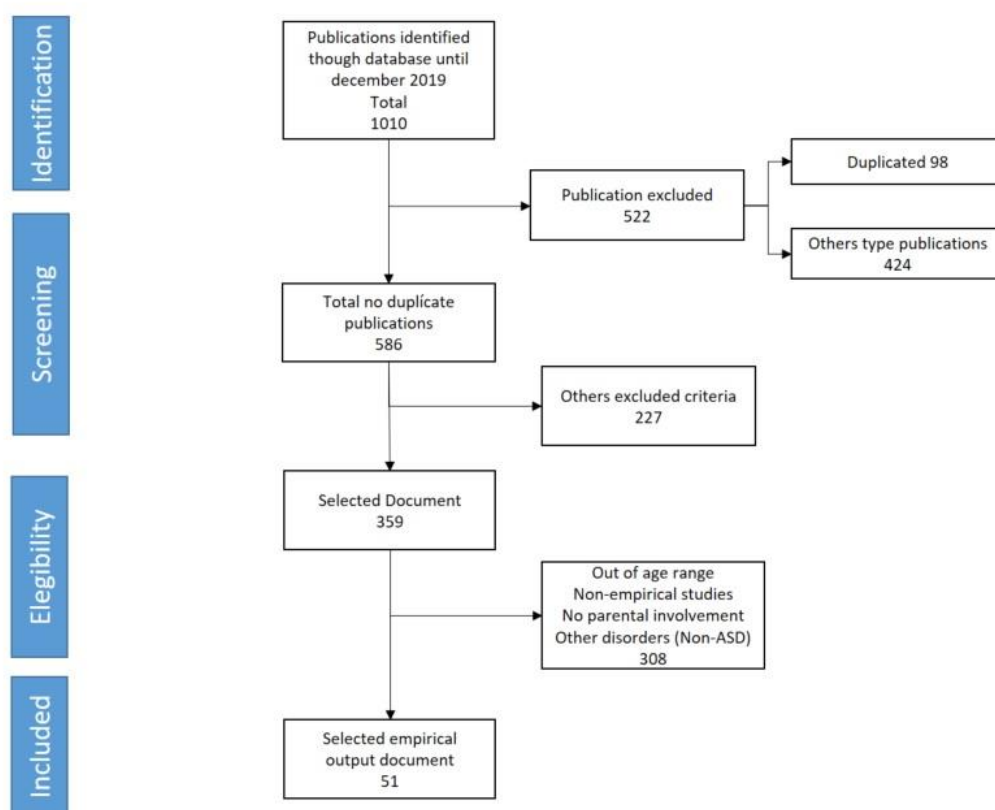


Figure 1 Flow of the document selection process following the inclusion-exclusion criteria

2.4. Quality Assessment

For the evaluation of the evidence we have chosen to follow the initiative of the "Journal of Clinical Child & Adolescent Psychology" (JCCAP), in particular the proposed adaptation [33] to evaluate the evidence of treatments in children with ASD.

The criteria we propose for this work (see tables 1 and 2), distinguishes between studies with well-established or adequate evidence (Level 1), from studies with probable or possibly effective results (Level 2). Among the first ones, at the same time, we differentiate between methods, which due to the number of published clinical trials (RCT: Randomized Controlled Trial), can be analyzed joint statistical results or meta-analysis, from those methods that only have an RCT, but this one is very robust because it has a wide stratified sample. Among Level 2 studies, it also distinguishes between RCT studies with small samples and meta-analysis of series of single case studies.

Table 1 Modified levels of evidence from the original JCCAP criteria

LEVEL 1	1 Well established evidence	1 Meta-analysis of Randomized Clinical Trials.	Individual data analysis Homogeneous studies. Different analysis techniques Meta-regression Meta-analysis Quality of studies
	2 Adequate	2 Randomized Clinical Trials developed by independent teams.	Evaluation of statistical power Multilevel Quality of the study
LEVEL 2	1 Probably effective treatments	1 Randomized clinical trial small sample.	Evaluation of statistical power Matching controls in time Quality of the study
	2 Possibly efficient	2 Meta-analysis of single-subject studies with satisfactory results	Individual data analysis Homogeneous studies. Different analysis techniques Quality of the study
LEVEL 3	1 Quasi-experimental treatments	1 Studies of two non-randomized groups with statistically significant results	Quality of the study
		2 Studies of a single non-randomized group with pre-test and post-test	
		3 Single Case Studies	
LEVEL 4	2 Questionable effectiveness	Qualitative descriptive case studies. Uncontrolled clinical series Expert committees	

Evidence from quasi-experimental studies (Level 3) are those that have not yet reached adequate levels of evidence, the results can point to new studies in the future in a positive direction. These are generally quasi-experimental studies in which one or two groups are measured. Their fundamental characteristic is simplicity and economy in development. They can be grouped in two types, of a single group with pre-test and post-test and of several groups, these last ones differ from the experimental ones properly said in that the subjects are part of natural non-random groups. These types of studies are not conclusive, but they can be a powerful tool, especially when randomized experiments are not yet possible. They allow an overview and follow-up to determine or confirm the reasons for the results found [34]. Case studies can also be considered included at this level. Single case study (SCS) research is experimental and aims to document the relationships between the independent variable (experimental treatment) and dependents. Since it is a single case, the individual differences that affect the internal validity of the experience are controlled. The accumulation of the results of different SCSs on the same problem and with the same method can

increase the evidence of this [35], increasing the external validity. Finally, there are studies (Level 4) that could be described as questionable evidence due to the characteristics of the method used.

Table 2 Assessment of study quality criteria from the methodological point of view

Study Quality Criteria	Evaluation
M.1 Design and assignment of participants to groups: The study includes two group designs with random assignment of participants to the control and treatment groups. The randomization procedure should be specified	0 No contribution
	1 Inadequate
	2 Doubtful
	3 Adequate
M.2 Independent variable well defined: It is properly defined, and manuals or treatment scripts are used	0 No contribution
	1 Inadequate
	2 Doubtful
M.3 Well-clarified reference population: The study is conducted on a well-defined population, addresses a specific problem for which the inclusion criteria have been clearly defined	0 No contribution
	1 Inadequate
	2 Doubtful
M.4 Outcome evaluation: Evaluation is done using reliable standardized tests designed to measure the specific problems targeted by the intervention.	0 No contribution
	1 Inadequate
	2 Doubtful
M.5 Adequacy of statistical analysis: Appropriate analysis methods are used, and the sample size is sufficient to detect the studied effects	0 No contribution
	1 Inadequate
	2 Doubtful
	3 Adequate

3. Results

In total, 51 studies offer empirical results about the role of parents in 15 intervention programs with different approaches that we have classified into four large groups: a) Participation in comprehensive programs, b) Participation in programs targeting the core symptoms of ASD, c) Programs aimed at improving parent-child interaction, and d) Parent-child play-based programs (see table 3).

3.1. Parent-Mediated Intervention in Comprehensive Intervention Programs

Comprehensive intervention programs are those that address all the core symptoms of ASD, therefore, they aim to develop social skills and interests, address communication difficulties, and reduce repetitive, ritualistic, or stereotypical behaviors. They are distinguished from other intervention programs that specifically address communication deficits (e.g., Picture Exchange Communication System PECS; [36], aberrant behaviors [37], self-injurious behaviors [38] or eating disorders [39]. In our study, we found documents related to parental involvement in four of these programs.

	Subjects			Level of Evidence	Quality of the Study				
	Country	Sample	Age		M1	M2	M3	M4	M5
3.1. Parent-Mediated Intervention in Comprehensive Intervention Programs									
3.1.1. Classified as Parental Training									
[43]	NL	67	12 to 42	2.1	3	2	3	3	3
[44]	USA	16	36 to 72	3.2	0	3	3	3	2
[28]	USA	180	36 to 84	2.1	2	3	3	2	3
[46]	USA	17	24 to 84	4.2	0	2	3	3	2
[45]	BR	67	48	2.1	2	1	2	1	2
[48]	USA	108	36 to 84	2.1	3	3	3	3	3
[47]	USA	80	36 to 60	2.1	2	3	3	2	3
3.1.2. Search results for "Pivotal Response Training"									
[51]	USA	28	24 to 84	2.1	1	2	3	2	2
[52]	USA	23	24 to 72	2.1	2	2	2	2	3
[53]	USA	53	24 to 72	2.1	2	2	3	2	3
[54]	USA	3	15 to 21	3.3	0	3	2	2	2
3.1.3. Search results classified as TEACCH									
[53]	USA	20	24 to 36	2.1	3	2	2	2	3
[64]	Italy	30	24 to 72	2.1	2	2	3	2	3
3.1.4. Search results classified as ESDM methodology									
[66]	USA	98	12 to 24	2.1	2	3	2	3	3
[67]	USA	7	7 to 15	2.1	2	3	3	3	3
[68]	AUS	7	24 to 72	2.1	2	2	3	3	3
[69]	USA	45	12 to 30	2.1	3	2	3	3	3
[70]	NZL	5	23 to 59	3.2	0	2	2	3	2
3.2. Parent-mediated programs focused on ASD symptoms.									
3.2.1. Search results classified as Hanen program									
[78]	USA	62	20	2.1	2	2	2	3	2
3.2.2. Search results classified as PACT method									
[79]	UK	152	24 to 48	2.1	3	3	3	3	3
3.2.3. Search results for the JASPER model									
[86]	USA	15	36 to 60	2.1	3	3	3	3	3
[87]	USA	86	22 to 36	2.1	3	3	3	2	3
[88]	USA	86	36	2.1	2	3	3	3	3
[89]	USA	85	36	2.1	2	3	3	3	3
3.2.4. Search results for the ImPact model									
[99]	USA	27	36	2.1	2	3	2	2	3
[100]	USA	8	36 to 72	3.3	0	0	2	2	3
[101]	USA	16	47	2.1	2	3	3	3	3
[102]	USA	28	19 to 73	2.1	2	3	3	3	3
[103]	USA	9	32 to 65	2.2	0	3	3	3	3
3.3. Programs for the promotion of positive parenthood and family well-being									

3.3.1. Search results for the PCIT model									
[110]	USA	1	60	3.3	0	2	2	2	2
[111]	USA	2	45 & 32	3.3	0	2	3	2	2
[112]	USA	3	24 to 84	3.3	0	2	3	3	3
[113]	USA	17	24 to 96	3.3	0	3	3	2	2
[114]	USA	36	36 to 84	2.1	3	3	3	3	3
3.3.2. Search results for the PRT-F model									
[118]	USA	2	36 to 60	3.3	0	1	2	3	3
[119]	USA	3	60 to 84	3.3	0	2	3	2	3
3.3.3. Search results for the COMPASS method									
[123]	USA	35	72	3.1	1	3	3	3	2
[124]	USA	33	96	2.1	2	3	3	3	3
3.3.4. Search results for the SSTP method									
[128]	AUS	52	24 to 108	2.1	3	3	2	3	3
[129]	AUS	64	24 to 108	2.1	2	3	2	3	3
[130]	DE	24	36 to 144	3.1	0	2	3	2	3
3.4. Play-Focused Intervention Programs									
3.4.1. Search results for the Theraplay method									
[141]	USA	8	36 to 108	3.3	0	2	2	2	2
3.4.2. Search results for the Floor Time Play method									
[145]	CA	1	42	3.3	0	1	0	1	0
[146],[147]	THA	32	24 to 72	2.1	3	2	2	2	2
[148]	TW	11	42 to 69	3.1	0	3	2	2	3
[149]	USA	128	32 a72	2.1	3	2	2	2	3
[150]	IRN	12	36 a 96	3.1	0	0	0	1	1
[151]	USA	40	24 to 72	2.1	3	2	3	2	3
3.4.3. Search results for the Focus Playtime Intervention (FPI)									
[155],[156]	USA	70	36 to 72	2.1	3	2	3	3	2

3.1.1. Parental Training (PT):

Training programs in ABA principles are called Parental Training Programs (PT) [40]. The initial objective was directed for the extinction of disruptive behavior [41], soon programs were also developed for the development of social, communication, initiation, and language skills [42], with the aim of reducing behavioral problems.

A total of eight studies have been found that provide medium or medium-high evidence of the efficacy of this intervention (see table 4). Oosterling et al [43] developed a clinical trial to compare the results after 12 months of training with parents in two groups, one complementary to the usual intervention and the other without intervention. The training focused on joint attention and language development. In total, the group consisted of 75 children (28 to 42 months old). No significant differences were found so it is concluded in this study that parent training does not add value to the overall intervention.

Bearss et al [44], proposed another trial with 16 children (3 to 6 years) who present ASD with disruptive behaviors. The intervention was prolonged for six months and was very well accepted by the parents (84% of them finished the program). Among the results, a decrease in the scores of aberrant behaviors and irritability stands out. In a later replication [28], they conducted a randomized test to measure the effectiveness of a program mediated by parents of children with ASD with behavioral problems. The study lasted 24 weeks and involved 180 children and their families, the ages of the participants were between 3 and 7 years. The results showed that a parenting program like PT can help reduce disruptive behaviors.

Video modeling has been shown to be a cost-effective and efficient tool in many cases. Bagaiolo et al [45] present a clinical trial with a control group consisting of 67 parents of children with ASD diagnosis aged 3-6 years, who attended a PT to improve their social behavior (disruptive behaviors) as part of an ABA intervention. Twenty-two working sessions were designed, in which video modeling was used in one group and not in the control group. They conclude that the video modeling method did not introduce negative effects, but positive ones, showing that it is a possible and low-cost form of intervention particularly in populations with scarce economic resources. On the other hand, the impact from the use of ICT in recent years is being studied, in particular the replacement of live sessions in the consultation with synchronous video calls to save the geographical problems arising from the dissemination of the rural population [46]. Blackman et al [47], presents a clinical trial formed by three groups of parents who received a PT program (online, in vivo, and waiting list control group) in ABA. The results show that both training methods were effective and suggest that online asynchronous training can serve as a cost-effective alternative in ABA PT programs. The content included video recordings, readings, and training modules for parents created by the professionals. Iadarola et al [48], presents a comparative study between the results of a PT program and a psychoeducation program. In total, the results of 180 children and their families were compared, and different measures of parental stress, effort, and caregiver competence were evaluated. This is possibly the largest PT trial to date, and it shows that PT reduces children's disruptive behaviors, improving competencies, and decreasing parental stress and tension.

3.1.2. Pivotal Response Training (PRT)

PRT is a program derived from and developed under the paradigms of the ABA methodology, and to some extent an evolution of it, it aims to help solve problems of generalization [49]. It focuses on fundamental areas or skills (Pivotal Areas), under the hypothesis that an improvement in these areas will produce improvements not only in the areas worked on, but also in other of functioning areas [50]. Parents or caregivers play an active role in treatment by helping to carry out the intervention [50]. In PRT programs, parents should attend training programs in which they learn techniques and ways to improve their child's motivation and self-initiation through communication and academic skills [50]. In the period analyzed, four studies have been found

Minjarez et col [51] developed a trial with the aim of evidencing the possibility of applying parent mediated PRT. They selected 26 families with children diagnosed with autism and aged between 2 and 6 years. The treatment consisted of a 10-week training package (90-minute group sessions, plus 50 minutes of personal attention). The program was developed over 18 months and the groups were made up of 8 to 10 parents. As a result, it is noted first that PRT training for parents in groups is beneficial. It was possible to increase communication between parents and children by improving the language. Consequently, it is considered that group parent training can be incorporated into PRT

programs not only efficiently and cost-effectively, but also to improve the generalization of behaviors learned in the clinical sessions.

Gengoux et al [52] attempt to answer the question of maintaining parental behaviors beyond the end of the program. They develop a trial with 23 families, developing a follow-up over 12 weeks. Empirical results support the benefits of parental involvement in the implementation of PRT leading to improvements in children's language and cognitive function and that these benefits were maintained at least 12 weeks after treatment.

In the same year Hardan et al [53], developed a new clinical trial with 53 families with children with ASD aged 2-6 years. A 12-week group training program (PRTG) and a psychoeducation program were developed. The results suggest that both parents and children who attended the PRTG training developed more communication skills and adaptive behaviors. Bradshaw [54] presents a single case study looking at the outcomes of three children (17 to 21 months). A 1-hour parent intervention was developed over 12 consecutive weeks in the family home. The intervention focused on the development of expressive verbal communication. The results show an important increase in the number of words used by the children in their communication and an increase in the communicative initiations, on the other hand the parents reported high levels of satisfaction with the program.

3.1.3. Treatment and Education of Autistic related Communication hancicapped CHildren (TEACCH)

TEACCH [55, 56] is a philosophy developed in the state of North Carolina (USA), approved by state parliament as a guide for the lifelong care of people with ASD. Eric Schopler et al [57, 58] defines the role of parents as necessary partners, creating a relationship between parents and professionals that is essential and central to treatment. Specific training actions are developed on the characteristics of the disorder and they are instructed on measures to reduce the child's difficulties (continuous and structured intervention, an adaptation of environments, and use of Alternative and Augmentative Communication Systems). The technique that has transcended the most and for which TEACCH is recognized is structured learning [59]. The premise behind this intervention is to modify the context to meet the needs of the individual with ASD. To do this, it adapts the environment, collaborating with parents, evaluating treatment outcomes, and providing generalist training. The results of TEACCH intervention programs developed by parents in the family home have been evaluated positively [60]. However, randomized clinical studies on TEACCH are not very abundant [61, 62], as seen in Table 3.

Welterlin et al [63] developed a study to evaluate the effectiveness of a TEACCH-based intervention program conducted in the family home. A total of 20 families were assigned to the intervention groups or to the waiting list. The results showed an improvement in both the children's behavior and the parents' skills. However, due to the sample size, the study is not conclusive.

D'Elia et al [64] conducted a follow-up study for the application of TEACCH in the school and in the educational center, evaluating the level of severity of the disorder, adaptive functioning, language, aberrant behaviors, and parental stress. Results suggest that the combination of home and school intervention provides benefits to children with ASD by reducing the intensity of symptoms and aberrant or maladaptive behaviors. In addition, reducing parental stress becomes a crucial factor in the success and effectiveness of the program.

3.1.3. Early Start Denver Model

ESDM (<https://autismcenter.duke.edu/> & <https://www.esdm.co/>) [65], is a methodology based on behavioral principles that takes into account the typical development of the child and was created due to the need for early and intensive interventions. This program is designed to intervene on children between 12 and 60 months of age. In it, parents receive training from professionals to replicate what they have learned in the consultation to other contexts. The main objective is to achieve progress in functional development, social skills, and language development, as well as to increase attention and motivation and improve family dynamics. The results of the search (see table 3) show a low number of studies almost all of them carried out by the same research team.

Rogers et al [66], developed a study to examine the effectiveness of the parental application of the ESDM program (P-ESDM). In this program, the emphasis was placed on promoting receptive, child-centered interaction styles, and incorporating more play opportunities than conventional treatments. This research involved 98 children at risk for ASD between the ages of 12 and 24 months and their caregivers. For the application, participants were divided into two groups at random, the experimental group and control group, the results showed no significant differences in the children who participated in the experimental group, parents of the two groups showed improvements in interaction skills, although parents who received the ESDM intervention achieved greater adherence to treatment. It should be noted that the control group (conventional treatment) received more hours of treatment with a therapist than the experimental group, so we can conclude that the program with parents was effective.

Rogers et al [67], followed this line of research developing a study during the first year of life of 7 children, the main objective of this study was to develop and test the reliability of a parent-guided intervention. The intervention targeted the reduction or modification of six symptoms and developmental patterns of autism in the early stages. For this study, the participants were divided into two groups, experimental and control, four of the children were part of the experimental group (diagnosed ASD) and the remaining three (control group) were at risk of autism only. The results showed that during the first nine months of intervention the two groups had the same changes, but when they were in the 18 to 36-month period, the experimental group achieved greater changes in symptomatology, language, and visual response. Likewise, it was observed that parents can acquire skills for the management of their children, improving parent-child relationships.

Vivanti et al [68] analyzed the effectiveness of the ESDM program applied to children diagnosed with ASD between the ages of 18 and 60 months. Divided into two groups, 27 formed the experimental group that received the ESDM program, and 30 formed the control group. The trial lasted 12 weeks with 15-25 hours/week of intervention. The parents, however, received training in six two-hour sessions on the ESDM strategies with the aim of being implemented at home in daily tasks. The results obtained were positive and demonstrated not only that ESDM is suitable for the treatment of ASD, but also that this study achieved more reliable and stronger data than previous research. Unfortunately, no action was taken, and no record was made of the parents' intervention at home.

Based on the development, two lines of work have been created, the conventional ESDM model and the P-ESDM parent-mediated model. Rogers et al [69] carried out a randomized comparative study to see if the P-ESDM parent-mediated version can generate greater changes in participants. For this research, 45 children diagnosed with ASD who were between the ages of 12 and 30 months were selected. All the children were assigned to two groups in a randomized fashion receiving the same intervention (12 sessions of 1.5 hours/week). The P-ESDM group had the same hourly intensity, adding one and a half hours per week of work at home. From the results of this study, it is

demonstrated that ESDM is effective since significant improvements in the functional development of children were observed in both groups. In addition, the P-ESDM group had better results in parent-child interaction skills. This improvement was associated with greater individual child progress on qualitative measures, although not on standardized assessments.

The last study found [70], was on five mothers of children with ASD under the age of 5, and the intervention was based on 12-week ESDM parent training. The goal of the intervention was to conduct parent training within the home where the children were to be present. Direct instruction, modeling, skill practice, and feedback were used to achieve this training. Although there is great variability in the results of each mother/child dyad, the results showed that the mothers learned to use the techniques of the model, generating positive changes in the children, among them, management of unwanted behaviors, greater commitment in the children and improvements in expressive language.

3.2. Parent-mediated programs focused on ASD symptoms.

The influence of the family environment on the development of socialization processes and communication and language development has long been known [71]. This influence is reflected in the relationship between the styles and quality of parent-child interaction with cognitive development, language, and social skills in both typically developing children [72], and those at risk for the disorder [73]. There are several programs for improving the relationship, dynamics, and communication between parents and children with therapeutic goals. In our search, we have detected a total of four such programs.

3.2.1. Hanen More Than Words

The program Hanen (<http://www.hanen.org/Home.aspx>) [74] with more than 35 years of experience is perhaps one of the oldest. Hanen's More Than Words and It Takes Two to Talk are two programs designed to improve family dynamics and parent-child communication. These are general-purpose programs not specific to children with ASD, they can be used to improve family dynamics in families with children with language delays [75, 76], intellectual disabilities, motor disorders [77], ASD, or families with internal or dysfunctional relationship problems. The number of studies found (see table 4), shows that, even though it is a very experienced program, it does not have enough evidence in the period of the search.

Carter et al [78], developed a randomized trial comparing the Hanen program with conventional treatment. A total of sixty-two children diagnosed with ASD participated, and their language and communication levels and parental responsibility to parents were assessed. The effects of the program for parents showed differential effects according to the initial profiles of the children.

3.2.2. Preschool Autism Communication Trial (PACT)

PACT [79], is an intervention program that aims to improve communication between parents and children with autism, directly affecting the social and language development of the child developed at the University of Manchester. The first trial was conducted between 2006 and 2009. The aim is to train parents to adapt their communication style to their child's abilities and to respond to their child with greater sensitivity and responsiveness. The emphasis in the program is on increasing joint attention through looking or sharing, showing, and giving, adapting the language to the child's level. Different strategies are also presented to facilitate communication and child participation (routines,

verbal scripts, use of elaborations, pauses, etc.). Through this training and with different adaptations, parental sensitivity, and positive interactions within the family context are increased. In the period analyzed, only one clinical trial has been found (see table 3).

Green et al. [79], conducted a randomized clinical trial with 152 children between 2 and 5 years old. The children and their families received the usual treatment in three specialized centers in the United Kingdom. Parents of the PACT group received more training consisting of an initial meeting and two-hour clinical sessions over 6 months. At 13 months, the severity of symptoms of children in the PACT group was reduced by 3-9 points assessed by the ADOS-G algorithm, while in the group assigned to conventional treatment the improvement was less. In conclusion, although PACT addition is not systematically recommended to conventional treatment, the help provided by such an intervention is recognized, especially in social and communication areas. Given these results, Pickles et al [80] reanalyzed the results of Green et al [79] proposing a mediation model to understand the relationships between parent and child behaviors. In a subsequent follow-up study on the same sample [81], they observe that there is an improvement in the dyadic social communication between parents and children, although no relationship with the aims of conventional intervention on the nuclear symptoms of the disorder is observed. Nevertheless, the improvement in communication attenuates behavioral problems in the family and remains in the long-term.

3.2.3. Joint Attention Symbolic Play, Engagement, and Regulation (JASPER)

JASPER [82, 83] developed at the "Center for Autism Research and Treatment, UCLA (<https://www.semel.ucla.edu/autism>), builds on previous research team studies where deficits in joint attention and symbolic play were found to be two of the important developmental issues for children with ASD [84, 82]. Kasari et al [83] developed clinical trials with parents and caregivers as mediating agents and follow-up studies [85] in which the relationship between joint attention, symbolic play and later language development is evidenced by developing the JASPER program. This is an intervention program that focuses on the fundamentals of social communication and uses naturalistic strategies to increase the pace and complexity of the social relationship. Its objective is to increase social commitment, verbal and non-verbal communication and skills during play, based on parental education, which generates commitment from parents to strengthen these areas through motivating and enjoyable activities. As shown in table 4, the number of studies is limited and, in most cases, they are developed by the same research team.

Goods et al. [86], developed a clinical trial on minimally verbal children where they evaluate the incorporation of JASPER sessions over a conventional ABA program. The intervention was developed along 12 weeks, in which the control group only received the conventional sessions of the ABA program while the experimental group, 30 minutes were substituted with JASPER sessions, demonstrating that those attending the experimental group showed greater increases in play and initiation of communicative gestures.

Giving continuity to their research Kasari et al. [87], carried out a comparative study between the JASPER model and a psychoeducational intervention for parents. The participants were 86 children in an age range of 22 to 36 months and their primary caregiver. For this study, the dyads were divided into two groups randomly. The aim of this research was to determine if the JASPER methodology has greater results in stress management and behavior control in children. The results showed that the JASPER group obtained significant and greater effects than the children in the control group.

Among the gains that were observed were high levels of relationship during play, joint attention, engagement, and social initiation.

Following the study by Kasari et al. [87], Gurlrud et al. [88] carried out a second clinical trial to determine the influence of JASPER components in increasing behavior management skills and strategies and whether this influences social engagement. To test their hypothesis, they applied the intervention to 86 children under 36 months, who were divided into two groups, experimental and control. The results obtained were positive, since it was possible to determine the four central strategies of the intervention and the role of the parents, demonstrating that this type of intervention influences positively the parent-child relationships and that there is a significant increase in the joint commitment.

In the last study found, Shiere, Gulsrud & Kasari [89] compare the application of JASPER and Parent Education Intervention programs, in order to determine which of the two intervention models generates greater changes in behavior, social communication, and commitment of both parents and children. To carry out this research, 85 children (under 36 months) and their caregivers participated. Results showed no clinically significant differences between the two groups, as all children showed gains in language use and social engagement. However, it was evident that the group of parents belonging to the JASPER intervention had changes in behavior which directly influenced the relationships with their children.

3.2.4. Improving Parents as Communication Teachers (ImPact)

ImPact [90, 91] is a program designed to integrate parents and teachers in the early intervention of children with ASD. Is developed in the "Autism Research Lab" at Michigan State University (<http://psychology.psy.msu.edu/autismlab/projectimpact.html>). It is based on numerous previous studies of the research group in which the importance of social communication [92], of imitation [93, 94, 95, 96] in the social development of children with ASD and in parental involvement in the intervention [91, 97]. Combining these elements through parent training in communication skills with their children promotes generalization of children's skills, increases parent optimism, and decreases stress [97]. Based on naturalistic and developmental behavioral intervention strategies [98], a program manual for parents and educators is developed to promote child social engagement, language, imitation, and play during daily routines and activities. In table 4, it is shown how the studies found have been mostly conducted by the same research team.

In our review we found four empirical studies, Ingersoll and Wainer [99] create a trial to evaluate the effectiveness of ImPACT program in children attending public special education centers. In total, the intervention was initiated with thirty teachers who invited the family to take part in the program. Ultimately, only twenty-four families completed the program. Among the results, we highlight a decrease in parental stress, an increase in social-communicative response with an increase in the use of language.

Following the search for evidence, Ingersoll and Wainer [100] publish a new study based on a single case design in which they accumulate a total of eight preschool children with ASD. As parents increase their use of intervention techniques, an increase in spontaneous language use is observed in six of the eight children. This suggests that there is a relationship between the use of intervention strategies and language use in children.

Another team [101], developed an ImPACT trial under a community program. It was developed over 12 weeks and applied to 30 children (2 ½ to 6 ½ years) and their parents (two groups, 16 intervention

group, and 14 control group), the study showed improvements in the children's social-communication styles as well as an increase in the same direction of parental adherence to treatment and a decrease in stress. These results suggest that ImPACT adds positive effects to conventional community intervention and is therefore recommended.

In order to test if tele-assistance could be a suitable tool to overcome the obstacles of geographical spread and distance to the treatment center, Ingersol et al [102] conducted a trial comparing the results in two ImPACT parent-mediated treatment groups. In the first, web-assisted self-implementation strategies were applied for 6 months. The password-protected URL contained a total of 12 self-administration lessons (approximately 75 minutes each). The second therapist-assisted group had the same structure and duration accessing the web, but additionally received two 30-minute sessions per week of support from an expert therapist via video conference. Both groups improved their results (parents and children) although these results were better in the group that received support by video conference. In addition, 100% of that group completed treatment while the self-administered group only did 65%.

The last of the studies [103] attempts to determine the value of low-intensity intervention (1.2 hours/week) without including parent training. A single case study is presented with a cumulative total of 9 children with ASD (3 to 8 years old). Although wide variations were observed among the children, all of them showed improvements in two or more intervention areas (expressive vocabulary, social engagement, etc.).

3.3. Programs for the promotion of positive parenthood and family well-being:

Related to the previous section, if the neuropsychological development is determined by the interaction with the environment [12] and the child with ASD has a deficit in basic communication and social interaction skills with his or her parents, it may generate inadequate parental interaction patterns, among other reasons due to the stress generated by the new situation [13]. Families (parents) who are faced with raising a child with some type of developmental disorder, suffer a greater number of sources of stress and in turn, this manifests itself with much more intensity [104, 105]. Parents of children with ASD often report alterations in psychological well-being [1, 2, 3] and high levels of stress [4, 5] by altering patterns of parent-child interaction [14, 15]. In our search, we have found four programs that aim to improve parenting and overall psychological well-being and also children's symptoms.

3.3.1. Parent-Child Interaction Therapy (PCIT)

PCIT [106], is defined as brief therapy programs based on behavioral principles and directed at solving behavioral problems of parent-child interaction. It is perhaps one of the most recognized behavioral training programs for parents. Originally, PCIT was used to solve problems of disruptive behavior and disobedience in children, but it has also shown good results in language development and emotional recognition [107]. It has also been applied in families with children with ASD [108, 109]. In the period of the search, we found five studies developed by different teams (see table 4).

To demonstrate the effectiveness of this model in children with ASD, Lesack, Bearss & Celano [110], developed a study to expose the application of a PCIT-based intervention (with adaptations) in a 5-year-old boy diagnosed with autism, who presented difficulties in expressive and receptive

communication and behavioral problems. Results showed clinically significant reductions in disruptive behaviors, gains in the child's functional development, and increases in parenting skills. The mother reported increased use of commands and communication by her child, greater engagement, and quality of mother-child relationship.

The influence of PCIT on the development of vocalizations has also been studied. Hansen & Shillingsburg [111], proposed a study under the PCIT model to determine its influence on the increase of vocalizations. For this purpose, a single case study was carried out with 2 children diagnosed with ASD at the age of 45 and 32 months. The results in both cases showed that the children increased the total number of vocalizations and the parents reported high levels of satisfaction and acceptability of the program, as well as improvements in the children's language and functional behavior

Another single case study [112], was conducted to examine the effectiveness of this program. The authors found that children had reductions in disruptive behaviors, increased parent-child communication, and in 2 of the 3 cases increased compliance with parental demands. Parents also expressed high satisfaction with the program, suggesting that this methodology may be a treatment option for children with ASD who present behavioral difficulties.

A new study of 17 children with behavioral and diagnostic problems has since been published [113]. The goal was to apply the PCIT model and determine the effectiveness and reliability of the program and to examine changes in behavior. Results showed significant reductions in disruptive behaviors and the strengthening of parenting skills. In addition, parents reported that their children had increased levels of functional development, communication, and pro-social behavior.

Finally, Parladé et al. [114], performed a study to examine the influence of a PCIT-based intervention in children with behavioral problems and autism spectrum disorders. The goal was to observe changes that may occur in parental skills, parental stress, and child behaviors. For this purpose, 36 families with children aged 3 to 7 years were recruited, which were divided into two groups: in the experimental group participated children with confirmed diagnosis of ASD and in the control group 20 children with behavioral problems. The results showed that this program helps to reduce the occurrence of behavioral problems in typically developing children with ASD. It was also shown that children with autism were able to decrease autistic symptoms and obtain improvements in social response, social skills, adaptability, and repetitive and restrictive behaviors.

3.3.2. Prevent Teach Reinforce (PTR)

PTR [115] is a model of Positive Behavior Support (PBS) designed to be applied in school environments with the support of family members [116, 117], which has also been successfully tested in families (PRT-F [118]), with children with developmental disorders [119] and particularly with families with children diagnosed with AS [118].

In the study conducted by Sears et al. [118], the PRT program was administered to two children with ASD aged 4 and 6 years and their caregivers, the main goal was to examine the effectiveness of the implementation of the PRT program on children diagnosed with ASD. The program was implemented in each child's home and the intervention was led by the parents, who received training on the skills to use. The results showed that the PTR program can be adapted and implemented at home and conducted by the caregivers, as well as evidence that both families successfully created and implemented behavioral plans. On the other hand, there was a reduction in disruptive behaviors and the appearance of proper behaviors in the children during the intervention.

Meanwhile, Bailey & Blair [119], analyze the limitations of the PRT model at the time of collecting data to prove its validity. Therefore, they make a replica of the study by Sears et al (2013 ensuring the collection of information using the Individualized Behavior Rating Scale Tool (IBRST). Three families of children with ASD and language delay with sensory problems (5 to 7 years) were invited to participate. The results showed that both families and children achieved high levels of adherence to the program and are learning to apply the intervention successfully within the home. During the intervention, a dramatic decrease in negative behaviors was observed, and with it the emergence of appropriate behaviors.

3.3.3. Collaborative Model for promoting competence and success (COMPASS)

COMPASS [120, 121], is a program designed as a conceptual framework for planning responses to individual needs identified by teachers for students with ASD. Trials have also been developed comparing face-to-face with the web-based intervention [122].). To increase the effectiveness of the program, parents were also included [123] The goal from parent training and family support programs, is to increase family competence and positive parent-child interactions, achieving a decrease in the occurrence of parental stress [124].

In the study by Ruble et al. [123], the COMPASS program was implemented in collaboration with teachers and parents of children with autism spectrum disorder. The sample used was 35 parents, teachers, and children, which were divided into experimental group (teachers trained in COMPASS) and control group. The results were not very strong because no clinically significant differences were found between the two groups. But it could be concluded that the collaboration of teachers can help children with autism to be part of educational environments more adapted to their needs.

Joining the experience of telematic assistance for teachers [122] and parents [123], this same team developed a version (COMPAS-HOPE) whose objective was the reduction of parental stress [124]. To demonstrate the changes, they conducted a randomized clinical trial on 33 families. A significant reduction in parental stress and an increase in parental competence were detected. Parents also reported a significant reduction in children's behavior problems both when comparing the rates with previous levels and when comparing them with the waiting list control group. The treatment modality (online or face-to-face) did not produce significant differences.

3.3.4. Stepping Stones Triple P

SSTP [125]) is a parenting program designed for families of a child with a disability based on the standard TP (Triple P: Positive Parenting Program [126, 127] and developed by the "Parenting and Family Support Centre, The University of Queensland" (<https://pfsc.psychology.uq.edu.au/>). Stepping Stones, a variation of the parenting training program, shares strategies focused on the processes of acquiring concrete skills such as communication using ABA principles, and affective development for parents. It is designed specifically for parents of children with disabilities including ASD.

Roux, Sofronoff & Sanders [128], performed a trial based on the group developed SSTP methodology (GSSTP) with 52 parents and children with ASD, Down syndrome, cerebral palsy, and intellectual disability. Participants were divided into two groups (intervention and waiting list). The objective of this study was to demonstrate if such intervention has positive effects on children's behavioral problems and if the program achieves improvements in parenting styles. Also, the authors wanted to evaluate parents' perception of the program. The results indicate that it is a promising intervention

for a mixed disability group, since significant improvements in children's behavior, parenting styles and high parental satisfaction with the program were demonstrated.

SSTP is a five-level intervention system with different programs that vary in intensity. Tellegen & Sanders [129], developed a randomized controlled trial to evaluate the efficacy of a short SSTP program (four sessions), applicable in primary care (Primary Care Stepping Stones Tripe P PCSSTP). They selected 74 families with children diagnosed with ASD who were between the ages of 2 and 9 years. The families were divided into two groups (intervention and control). To determine the effectiveness of the intervention, they were evaluated at three stages (pre-intervention, post-intervention, and 6-month follow-up). The results showed improvements in the behavior of the children in the intervention group, improvements in the level of parental stress, decrease in marital conflicts and increase in general well-being. However, no significant changes were found in the level of depression, anxiety, or parental rejection of the children. The effects were maintained at the six-month follow-up reporting high levels of satisfaction with the program.

Lastly, et al. [130], explored the effectiveness of SSTP as a complement to direct intervention for children with ASD. Twenty-two families and children ages 3 to 12 were recruited to conduct this study. After the intervention, there was a significant reduction in negative parental behaviors, increased parental self-efficacy, and reduced caregiver stress. It was concluded that this type of methodology can be used as a complementary intervention and can be highly effective in the treatment of children with autism.

3.4. Play-Focused Intervention Programs

This section refers to methodologies in which the game is used as an essential part of the intervention. The value of play in children's psychological development has been known for a long time [131]. Its application at a therapeutic level has also been recognized for some time [132, 133]. Play is a universal activity in all children through which they rehearse problem situations, so we can consider it as the key to develop social behaviors [134]. Intervention techniques focused on play with children with ASD, have been used for a long time, even its effectiveness has been demonstrated in meta-analysis studies [135, 136, 137], with results that demonstrate the changes produced in social-emotional and communication development. Most of the techniques focused on play are part of interventions based on pragmatic social development (Developmental Social Pragmatic (DSP) [138]). In our search we have found three programs in which play is the basic tool of intervention.

3.4.1. Theraplay

Theraplay™ [139, 140], is a play therapy approach designed to improve parents' attachment, attunement and sensitivity, and children's regulation and reflection. It focuses on non-verbal aspects of children's communication using playful interactions as a means of intervention. The intervention is carried out in a family context with a duration of 30 minutes in weekly sessions during 4 to 6 months.

A study has been found to determine the effectiveness of this methodology [141]. This study was conducted on 8 children diagnosed with autism between the ages of 3 and 9. The intervention was intensive, targeted at the children and their primary caregiver, and consisted of 1-hour interventions each day for 2 weeks. The objectives of the study were organized in three sections, the first of which corresponded to the observation of parent-child interactions, the second to determine the changes in the quality of the interactions and finally to evaluate the influence of the intervention on the families'

behaviors. The results showed that both parents and their children achieved significant improvement in interactions and acquired new tools to achieve positive interactions.

3.4.2. FloorTime Play

Floor Time Play [142], is the practical form of intervention based on the DIR© model (Developmental, Individual Difference, Relationship-Based. [143, 144, 142]). It consists of development or encouragement of spontaneous and structured or unstructured play sessions, in which relationships are built and self-regulation, two-way communication, social engagement, complex thinking and problem solving are developed.

Dionne & Mastini [145] present a unique case study. This is a 3 years and 6 months old child diagnosed with autism at 2 years and 5 months. Four sessions were conducted during 7 weeks with a duration of 45 minutes per session, all interventions were conducted jointly by the therapists and the mother of the child. Specific observational measures were used to evaluate the intervention. A total of 28 sessions were conducted over seven weeks of intervention. The results showed improvements in this variable and spontaneous communication, family relationships and exchanges during communication.

For their part, Pajareya y Nopmaneejumruslers [146] conducted a randomized controlled pilot trial to determine the possible additional benefits that this method could bring to the routine intervention. Two groups were organized, the first one only received conventional treatment while the second group received supplementary DIR/Floortime™ sessions. The thirty-two participants were assigned to each group using a stratified random assignment according to age and severity of symptoms. The results reflect an overall improvement in ASD symptom severity for all children in both groups, with the improvement being most significant in the DIR/Floortime™ intervention group. Similarly, changes were observed in the emotional development of the children participating in the experimental group.

Continuing their research and based on the results of the participants in the intervention group of the previous study [147], conducted a follow-up study to demonstrate the effect of maintenance and adherence to treatment by parents for one year under the home-based care model (Home-Based DIR/Floortime™). The results point in the same direction as the original study; in addition to having achieved improvements in the scores of each of the scales in the pre-test and post-test contrast, parents continued to relate positively to their children, which led to improvements in family relationships.

Liao et al. [148], developed a home intervention program based on the DIR/Floortime principles with the intention of enhancing social interaction and adaptive functioning. The participants were 11 children diagnosed with ASD, the intervention lasted 10 weeks. The program included 3 weeks of training to the mothers in individual sessions in which individual goals were developed for each child. At the end of the intervention conducted by the mothers, significant gains in communication, life skills and social skills were achieved.

Solomon et al. [149], developed a controlled trial on a total of 128 families with a child diagnosed with autism. They were assigned to two groups of 64 families, randomly, stratifying by age and severity level. The control group continued to receive standard treatment in community services while the experimental group received PLAY training. From the data obtained, the two groups demonstrated improvements in diagnosis, but the group that received the intervention showed greater improvements and these were statistically significant. The results also determined changes in

parent-child interactions, functional development, stress, and depression in parents. In the parent-child interaction the results indicate that the parents of the experimental program showed a significantly greater change in the quality of the interactions, in terms of functional development the experimental group showed greater changes than the control group and finally the results of the parents did not show differences in the levels of stress between the two groups.

Aali et al. [150], present an experience in Mashhad (Iran) in which they designed a family-centered intervention in combination with DIR/Floortime. A total of 12 children from 2 to 8 years old and their families participated during 5 months of intervention. Although the study speaks of three groups as independent groups (Family Centered Therapy, Floortime and control group), no detailed information has been found about the composition of these groups or the mechanism of assignment to each of them. The results mention gains in the areas of intimacy, commitment, emotional development, and self-regulation, however, the data are not conclusive, although scales such as the FEAS have been used, they are limited to making qualitative assessments.

Finally, Sealy & Glovinsky [151], performed a controlled clinical trial in Barbados with forty dyads (parent-child). All the children presented neurodevelopmental disorders related to communication and relationship, and between 2 and 7 years of age. A total of 40 dyads lasting 12 weeks participated. The objective was to evaluate developmental changes in reflective parenting functioning as assessed by the PDI (Parent Development Interview: [152]). Parent training at DIR/Floortime™ improved their reflective functioning skills suggesting that they learned to read their children's social demands and respond accordingly.

3.4.3. Focus Playtime Intervention (FPI)

Siller & Sigman [153, 154] published studies that show that parents' responsible behavior during their children's play with ASD in the early years predicts later language development. Based on these studies, they developed an experimental program that they call FPI (Focus Playtime Intervention [155]), composed of 12 training sessions in the family home (1 per week) of 90 minutes. Each session is divided into two parts, during the first part the therapist provides a standard toy pack. The parents and child are invited to take out the toys, and the professional guide is then incorporated into the interaction. Parents and professional guide alternate in the interaction with the child demonstrating different strategies. During the second part of the intervention, parents receive instruction on what happened in the session and plan tasks for the week. Results show that children who start the program at the 12-month language level benefit the most.

In a later reanalysis [156], they determine that parental involvement is relevant because parents must replicate the strategies within the home. On the other hand, modeling positive parenting styles allows for improved dynamics within the home, so they understand that PIF intervention should be part of a broader parent-mediated intervention program. The results indicate that not only are parent-child relationships improved, but, therefore, children's cognitive development, language use and independence are increased.

4. Discussion

A total of 51 documents offering empirical data on a total of 15 intervention programs have been studied. Among the global programs, the Parental Training group derived from ABA stands out for

the number of works and evidences. Also very relevant are the studies on the P-ESDM parent-mediated model.

Among the programs centered on the central symptoms of ASD, the JASPER model and ImPact stand out for the number of studies. In the case of the programs aimed at promoting positive parenting and family welfare, the PCIT model has been found in five publications although the evidence is low. Finally, in the group of programs centered on play with children, the FTP stands out for the number of publications although the level of evidence is also low. All of them make us conclude in the need to continue increasing the number of controlled clinical trials with the purpose of reaching the highest level of evidence possible. In any case, the evidence points in the direction of an increase in the effectiveness of the intervention in programs that take into account the participation of parents in order to gain generalization. In a complementary way, programs for the improvement of parent-child interaction are also efficient. Evidence supports the effectiveness of techniques and methods based on child development and the application of principles of behavioral analysis [157], including programs that emphasize the use of structured learning environments, stimulus control, development of routines, natural environments, etc. [158]. Evidence also suggests that not all children respond in the same way to all treatments or techniques [159] and that there may be other variables that affect the effectiveness of programs, regardless of the age of beginning treatment [160, 161, 162] or intensity [163, 164, 165]. The role of parents and caregivers as a success agent in early intervention has also been highlighted [148, 166]. Comprehensive programs have long-established parents on their agendas. Most of these programs incorporate training sessions on the characteristics of ASDs and as a result of increased awareness, parents' skills in advocating for their children's rights are increased, generating a sense of empowerment that in turn decreases stress and feelings of isolation [167, 168, 169]. As for the concept of "parental training", we believe that it is poorly defined or sometimes misused. We have associated it with the more behavioral comprehensive programs.

In general terms, our research allowed us to build on previous results where it is considered that parental involvement in the therapeutic process can be of great help in increasing social and communication skills in children diagnosed with ASD. As evidenced by the results of the search, there are many different methods and approaches. From training in comprehensive programs to specific programs that impact on parental training from intervention models for the improvement of general parenting. Special attention should be given to programs aimed at improving interaction between parents and children using play as a mediation.

Some of the research analyzed showed that parents increase their knowledge in the face of a diagnosis, improve their parental skills and generate positive relationships with their children. However, many of them leave aside the support that parents should receive, since they are programs that focus on psychoeducation and direct intervention with children, without taking into account that the vast majority of caregiver's present feelings of anxiety and depression, which can hinder the relationship with their children and as a consequence the adherence to an intervention program and the achievement of good therapeutic results. In view of this we consider that to achieve adequate effects there must be an approach of diverse methodologies that allow the intervention to the family in an integral manner.

Among the programs we have analyzed, there are great differences. There are many of them that are still university clinical trials that must develop a long way before they can be considered as evidence. Among other deficiencies, we find little generalization of their use, so that many of these clinical trials

have been developed by the same research team. On the other hand, many research centers and universities develop services to the public by developing interventions under one of the described intervention models. This intervention has a double effect, the first of course improving the deficits of children or family relationships, but also aims to collect data for future review and analysis. To generalize the use, they provide training for other professionals to use them. Although great efforts have been made to transfer and implement evidence-based intervention strategies to actual community intervention settings [170, 171, 172], there are difficulties in translating evidence-based practices from university settings into community experiences for various reasons, lack of appropriately qualified technical staff, inadequate settings, or lack of funding among other reasons [173, 174].

As a general conclusion, we must make the parents intervene, but giving them training and defense against the possible stress associated with the intervention and without forgetting that the main agent is the affected child and therefore, it must be the focus of our intervention. The training of the parents should be carried out using all possible resources, reading of self-administered manuals, meeting and mutual support groups, video-feedback sessions, remote support through the web or video conferences, etc. [175]. Comprehensive programs with training for parents such as the P-ESDM in which emphasis is placed on the development of play as a therapeutic element meets the optimum conditions. Perhaps it should be complemented with preventive program for managing stress and anxiety among parents.

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