



Pivotal Response Treatment (PRT) - Parent Group Training for Young Children with Autism Spectrum Disorder: A Qualitative Study on Perspectives of Parents

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Abstract

Pivotal Response Treatment (PRT) is considered to be an empirically supported parent-mediated treatment for children with autism spectrum disorder (ASD), but research on parental experiences is lacking. This qualitative study examined the perspectives of parents of young children with ASD who participated in a 14-week PRT with parent group training (PRT-PG). Semi-structured interviews ($n = 12$) were carried out, based on Grounded Theory principles. Results indicated that facilitators and barriers were related to timing and expectations, training setting and characteristics, and participant characteristics. Perceived effects were related to improved child's social-communication skills and well-being, parental insights into their child's needs and own habitual patterns in communication and behavior, and positive changes in family cohesion. The findings indicate that in general parents value PRT-PG as feasible and effective.

Keywords Pivotal response treatment (PRT) · Parent group · Autism spectrum disorder (ASD) · Young children · Qualitative research · Parent-mediated

Autism spectrum disorder (ASD) is a neurodevelopmental disorder with considerable impact on a child's development and family life. Children with ASD show deficits in social communication and interaction, as well as repetitive and/or restricted behaviors and sensory abnormalities (American Psychiatric Association, 2013). Symptoms of ASD generally manifest during early childhood and commonly lead to parental concerns and a need for support services (Ozonoff et al., 2008). Most common concerns are related to the child's speech and communication, social problems, and challenging behaviors (Gaspar de Alba & Bodfish, 2011; Richards et al., 2016).

Nowadays, there is growing awareness of the importance of early detection and treatment of ASD, given its significant impact on developmental trajectories and long-term outcomes (e.g. Estes et al., 2015; Towle et al., 2020). Since parents/caregivers play a key role in the development of their child, many intervention programs for young children with ASD are considered parent-mediated interventions (Bearss et al., 2015; Lord et al., 2020). These types of intervention focus on parents as mediators in targeting core symptoms of ASD or other behaviors or skills (Bearss et al., 2015). Therefore, insight into parents' views and opinions is valuable and indispensable to develop a feasible and effective intervention.

Among the various intervention programs, behavioral and developmental interventions have become the predominant treatment approach for children with ASD (Lord et al., 2020; Oono et al., 2013; Schreibman et al., 2015). The following components are often incorporated: intervention delivery in naturalistic environment, individualized goal selection, application of behavioral learning principles in intrinsically motivating interactions, systematic evaluation of outcomes, and parental involvement (Schreibman et al., 2015). In young children with ASD, the involvement of parents

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as co-therapists—also known as parent-mediated intervention—allows an intensive, naturalistic, and tailored intervention related to the daily environment of the child. This will facilitate generalization of learned (social communication) skills of children with ASD (Althoff et al., 2019; Oono et al., 2013). Further, providing a parent-mediated intervention may also have positive effects on the well-being of the parents themselves. The parents of children with developmental delay experience high levels of stress and have lower levels of perceived social competence and self-efficacy, which may affect the parent–child interaction and family cohesion (Guralnick et al., 2008; Karst & Van Hecke, 2012). Since the efficacy of any parent-mediated intervention is highly dependent on the engagement and commitment of parents, it is important to provide parents a feasible and effective intervention.

Pivotal Response Treatment (PRT) is a parent-mediated intervention for children with ASD, using the principles of Applied Behavior Analysis (Koegel & Koegel, 2018). Parents are taught to promote pivotal skills (i.e. self-initiation, motivation for social contact, self-management, and responding to multiple cues). The hypothesis is that targeting these pivotal skills will result in improvement in more widespread areas of functioning (e.g. eye contact, adaptive behavior). Systematic reviews of PRT have provided evidence that parents are to some extent able to learn PRT techniques and that children show improvement of core language and social-communication skills and also widespread gains in play skills and challenging behavior (Ona et al., 2019; Verschuur et al., 2014). However, given the variability in treatment delivery and research methodology (Verschuur et al., 2014), it is still unclear which aspects of PRT training influence the feasibility and outcomes of this approach.

With the focus on parents as primary agents in the intervention, more attention is given to developing and delivering parent group training. Group settings may provide mutual support and may promote treatment adherence (Burrell et al., 2020; Steiner et al., 2012). Parent group delivered PRT has been demonstrated to significantly improve children's social-communication skills (Hardan et al., 2015; Minjarez et al., 2011; Verschuur et al., 2019) and adaptive functioning (Baker-Ericzén et al., 2007). Furthermore, benefits have been reported with respect to parental stress and self-efficacy (Verschuur et al., 2019) and family empowerment (Minjarez et al., 2013). It is unclear, though, whether the change in the parents' psychological state is due to the techniques that they learned, the improvement in their child's skills, the interaction with other parents facing similar issues, or a combination of these factors (Minjarez et al., 2013). Further, as in PRT studies in general, differences in the delivery of parent group-delivered PRT exist, ranging from only parent group training (Minjarez et al., 2011; Verschuur et al., 2019) to the combination of parent group training with individual

parent–child sessions with a clinician (Hardan et al., 2015). This limits the ability to indicate which specific aspects contribute to treatment outcomes in children with ASD and their family.

In research into parent-mediated intervention programs such as (group-based) PRT, quantitative outcome measures typically are used to gain insight into factors contributing to program feasibility and efficacy. However, complementary qualitative and mixed methods research is considered important to gain a better understanding of quantitative parameters and to explain the heterogeneity of experiences (van Schalkwyk & Dewinter, 2020). In this manner, sensitivity to the needs of parents and their offspring with ASD and the involvement of stakeholders and frontline practitioners is facilitated. As far as we know, only three qualitative studies of PRT have been reported (Alshirawi et al., 2018; Kim & Trainor, 2020; Stahmer et al., 2012). Stahmer et al. (2012) conducted focus group meetings to examine teachers' perspectives on the use of PRT in the classroom. Suggestions for adaptation were based on teacher judgments of the importance and ease of implementation of PRT components. Kim & Trainor (2020) examined the cultural responsiveness of a PRT intervention for Korean American children with ASD and their parents ($n=4$) in a community setting, with the collection and analysis of interviews, observations, and field notes. The study of Alshirawi et al. (2018) examined parents' perspectives regarding the impact of PRT integrated in horseback riding sessions ($n=8$) by using semi-structured interviews and a focus group. Parents reported that children showed improvement in social communication (verbal and nonverbal), social motivation, and sensory processing. Parents also gained a better understanding of the characteristics of autism and how to address its symptoms. Lastly, the intervention enhanced positive interaction among family members. Up to now, there have been no qualitative studies of parental perspectives of (group-based) PRT intervention programs in clinical settings.

To ensure that group-based PRT parent-mediated intervention programs are transferable to everyday clinical settings and daily practice, a better understanding is needed of how parents perceive the intervention. In this manner, intervention procedures can be optimized to the needs of children with ASD and their parents (O'Cathain et al., 2013). Within the context of a quantitative study on the efficacy of a 14-week PRT with parent group training (PRT-PG) program for parents of children aged 2–6 years old with ASD (de Korte et al., 2021), the current qualitative study was conducted to allow a bottom-up exploration of parental perceptions of participating in the intervention. Therefore, the aims of this qualitative study were to examine how the parents of young children with ASD perceive participating in PRT parent group training and to gain insight into perceived facilitators and barriers, and the effects of the training.

Methods

Study Design

This qualitative study was carried out along with a nonrandomized quantitative exploratory study of a 14-week program of PRT-PG for the parents of children aged 2–6 years with ASD. Inclusion criteria for children were a (provisional) clinical diagnosis of ASD, based on a thorough diagnostic assessment by a multidisciplinary expert team and according to DSM-5 criteria (American Psychiatric Association, 2013), and the ability to speak with at least single words. At least one parent had to be available to attend all the sessions. No parents had received PRT training before. A detailed description of the full study protocol and eligibility criteria is available on request. The study protocol was approved by the Institutional Review Board of the treatment institute and written informed consent was obtained from the parents. The Consolidated Criteria for Reporting Qualitative Research were followed (COREQ; Tong et al., 2007; see Supplemental Table 1).

Participants

Participants of this qualitative study were parents who had participated in the 14-week program of PRT-PG. Data collection took place between August 2019 and July 2020. A consecutive sampling method was used, and all participating parents were approached to participate in semi-structured individual interviews, except for the parents of the first two groups ($n = 8$) since this qualitative study had not started at that time. In total, 15 families agreed to participate and were interviewed. Because of the COVID-19 pandemic, the last group ($n = 4$) had to follow the intervention mainly by video-conferencing. One family in this group discontinued the intervention, because of family problems during the pandemic. Therefore, 12 families who had participated in the PRT-PG program were included for the main analyses of this study. Participant characteristics are given in Table 1. Parents ranged in age from 27 to 51 years, with a mean age of 36.17 ($SD = 6.09$). Interviews were held with mothers only ($n = 8$) or with parent couples ($n = 4$). In addition, parental perspectives of the online PRT-PG intervention ($n = 3$, two mothers and one parent couple) are described to investigate this treatment format.

Procedure

Parents who completed the PRT-PG intervention were invited by phone or e-mail for a semi-structured interview to talk about their experiences. Information on the aim of the study was provided and written informed consent

Table 1 Demographic Characteristics

	N (%)	Mean (SD)
Parents (N = 17)		
Age in years (range 27–46)	17	36.17 (6.09)
Sex		
Male	5 (29)	
Female	12 (71)	
Marital status		
Married/co-habituating	15 (88)	
Single	2 (12)	
Highest level of education		
Associate degree or higher	11 (65)	
Below degree level/no qualifications	5 (29)	
Unknown	1 (6)	
Children (N = 12)		
Age in years (range 3–7)	12	5.01 (1.20)
Sex		
Male	12 (100)	
Female	0 (0)	
Intelligence quotient (IQ)	12	94.88 (16.29)
Psychiatric comorbidity ^a		
AD(H)D	4 (33)	
Other	2 (17)	
Medication use		
Stimulants	2 (17)	
Antipsychotics	0 (0)	
ADOS-2 baseline		
CSS (range 3–8)	12	5.83 (1.47)

AD(H)D attention deficit (hyperactivity) disorder, *ADOS-2 CSS* Autism Diagnostic Observation Schedule-Second Edition Calibrated Severity Score (1–4 low, 5–7 moderate, 8–10 severe), *SD* standard deviation

was obtained from all parents. Parent interviews were conducted by two female interviewers (first two authors), within two months of completion of the intervention. One interviewer was a psychologist and PRT therapist with prior experience in quantitative research into PRT and the other was a qualitative researcher with no prior PRT research experience. The interviews (35–90 min) took place at the healthcare institution, or by phone or videoconferencing, depending on the participants' preference. There were no other people present. Prior to the interviews, the researchers explained their reasons for the interview, as well as their role in the qualitative study. During the interviews, field notes were made based on the researcher observations. The interviews were audio-recorded and transcribed verbatim by two BSc students. Transcripts were anonymized. All parents were given the opportunity to review the content of the transcript,

resulting in one parent asking for some adjustments. There was no need to repeat interviews.

Topic Guide

Both interviewers followed a topic guide, including two main open-ended questions: (1) How did you experience the PRT-PG?, (2) Which effects did you notice in your family because of the PRT-PG? Probing questions were asked for more detail on a particular matter, such as: “Can you explain that?”, “Could you tell me more about ...?”, “How did you feel about that?”, “What do you mean with..?”. To allow the interviewee to share any thoughts or opinions that they felt they needed to talk about, interviews were ended with the question “Is there anything else you’d like to add before we end?”.

Qualitative Analysis

The transcripts of the interviews were entered into ATLAS.ti version 8.4, a qualitative software package (Scientific Software Development GmbH, Berlin, Germany). All semi-structured interviews were coded and analyzed by the interviewers in a multistage process (open coding, axial coding, and selective coding), based on principles of Grounded Theory (Glaser & Strauss, 2017). After a couple of interviews, once the interviewers had become familiar with the data, the first transcripts were coded independently. Open codes were created as closely related as possible to the participant’s quotes. The codes were compared and after consensus a first coding tree was developed. For the following interviews, data gathering, transcription, and analysis were conducted in parallel. New codes were added to the coding tree and some codes were combined or changed during the process. To ensure interrater reliability, the coders compared the codes and discussed them until agreement was reached. Subsequently, during the phase of axial coding, codes were related to each other, and categories within each research question were developed. The majority of the interviews (9/15) were coded independently, with interim meetings being held to discuss the codes and to reach consensus. An independent BSc degree student was involved in different stages of the coding process (i.e. coding new interviews and discussion of the coding tree). Memos about new insights were written. During the last phase of coding, categories were compared to each other and (sub) themes were constructed and conceptualized. Data interpretation was an inductive process, whereby the researchers used the analysis of the data to generate an understanding of the concepts associated with the main research questions in this study. In this way, coding was data driven instead of theory driven. The ‘thematic saturation’ process was used in this study, by which data collection and analysis continue until no new themes are identified

(Guest et al., 2006). After 12 interviews, the researchers concluded that thematic saturation had been reached. Then, the thematic structure was finalized and illustrative quotations were selected. A meeting with a larger group of researchers was held for further discussion and verification of the data. Since the researchers had different theoretical backgrounds—ranging from no prior knowledge or involvement in PRT (research) to familiarity with PRT (research)—the researchers reflected on their experiences and assumptions and discussed this within the research team. In this manner, the potentially deleterious effects of preconceptions were mitigated (i.e. bracketing; Tufford & Newman, 2010). The participants were not involved in discussion of the findings.

Results

The results are divided into two sections (1) facilitators and barriers and (2) perceived effects. With regard to facilitators and barriers, five broad themes could be identified: *timing and expectations*, *training setting*, *training characteristics*, and *participant characteristics*. Some of these themes could be further divided into subthemes. Themes and subthemes could be both facilitators and barriers. Perceived effects were related to *child, parent, and family cohesion*, and included further subthemes. Quotes are presented as translated from Dutch. See Table 2 and 3 for an overview of the themes and subthemes.

Facilitators and Barriers

Timing and Expectations

Children were often referred for the PRT-PG intervention shortly after their ASD diagnosis. The impact of receiving this ASD diagnosis for their child varied between parents, ranging from feelings of relief and being recognized, to feelings of loss and grief. Although the parental response to the ASD diagnosis falls outside the scope of this study, the emotional state of the parents at the start of the intervention could be perceived as being both a facilitator and a barrier for PRT-PG. Parental expectations and hopes differed across participating parents. Some parents said that they did not experience social-communication deficits of their child in the home situation, but that they were willing to participate if this would help their child. Some parents felt impotence and were open for any input. Others had specific hopes that the intervention would help them to improve their child’s social-communication skills and to promote their child’s development. Two parents said that although the intervention was helpful, it did not fully match their needs for their child (i.e. decrease of disruptive behavior). Some parents

Table 2 Overview of Themes and Subthemes regarding Facilitators and Barriers

Facilitators and barriers	Facilitators	Barriers
Timing and expectations	Open/willingness for help	High variance in emotional states after ASD diagnosis
Treatment setting		
Parent group	Sharing experiences Recognizability	Parents asking question that fell out of scope PRT
Individual parent–child session	Practicing by direct feedback Therapist demonstrates how to interact	Feeling insecure and uncomfortable Wished for more demonstrations of how to interact
Teacher- and social network sessions	Facilitating generalization of PRT techniques More recognition and understanding of their child's behavior	Frequency: insufficient for training on PRT Teachers have other purpose First knowledge and acceptance of ASD is needed
Training characteristics		
Videos	Insight into behavior and communication patterns	Feeling uncomfortable and vulnerable
Time investment	Needed to achieve goals	Intensive and time-consuming
Role of therapist		
Emphatic connection	Therapists were patient, emphatic and accessible Support in concerns and insecure feelings	
Expertise	Listening well to parents' and child's needs Clear individualized intervention goals Two therapists	Wished for more directive approach regarding homework
Participant characteristics		
Variation in child's (developmental) age	Insight into future/past Same age: recognition	Less recognizability and less sharing of experiences
Parents' characteristics	Own diagnosis ASD	

Table 3 Overview of Themes and Subthemes regarding Perceived Effects

Perceived effects		
Child		
Social-communication skills	Improved functional question asking (i.e. asking for an object/activity, asking for help), Adequate vocally protesting (i.e. expressing feelings or thoughts, indicating misunderstanding etc.) Extended verbal utterances More eye-contact Improved social question asking (i.e. asking for someone's opinion, experiences, thoughts or feelings)	
Collateral gains and well-being	Calmer Less disruptive behavior More self-confidence	
Parent		
Awareness and insight	Insight into and awareness of own behavior and communication	
Acceptance	Acceptation of their child's behavior and ASD diagnosis	
Feelings of competence	More confidence in their own parenting skills	
Generalization	Using the PRT techniques for their own personal life and development	
Family cohesion		
	Parent–child interaction improved Sibling interaction improved Situation and atmosphere at home was more relaxed and calmer	

mentioned that they adjusted their expectations during the intervention.

At the beginning of the intervention, I thought that my child would learn skills. However, as the sessions progressed, I found out that I was the one who needed to learn and that only in that way my child could also learn.” (24)

Treatment Setting

Treatment setting was considered as a theme, which could be further divided into subthemes, namely, *parent group*, *individual parent–child sessions*, *teacher- and social network sessions*.

Parent Group A main facilitator, mentioned by all parents, was the opportunity to share experiences during the parent group sessions. Parents expressed that they felt supported and understood by the exchange of experiences with parents in the same situation. Watching PRT practice videos together (e.g. from individual parent–child sessions or home situations) and sharing parental struggles regarding their child’s behavior was facilitating and led to recognition and new insights. Parents could learn from each other and share tips and tricks.

I liked to hear the experiences of other parents, to hear that they also struggled with some situations. It gave me the feeling that we were not the only one... For instance, that it is normal if you sometimes feel ashamed about your child when he has a tantrum on the street. I don’t blame him, but I also feel responsible for his behavior. When I heard that other parents have the same feelings, I felt reassured. (20)

The ability to share experiences in the group sessions also led to questions and situations that fell out of the scope of PRT but which were related to parenting a child with ASD. Most parents seemed to see this as a facilitator. However, one parent mentioned that these kinds of question would be better suited to a separate session since this limited their time to discuss PRT. In general, all parents mentioned that the group size (i.e. four families) was efficient. The group size enabled sufficient opportunity to interact and connect with other parents. Some parents reported that not every parent invested equally in homework (i.e. making videos in home situation). This was considered a barrier.

Individual Parent–Child Sessions Individual parent–child sessions acted as both facilitator and barrier. In general, parents found these sessions valuable and essential addition to the parent group sessions. Furthermore, their children liked the sessions, because they could spend quality time with their parent(s). It was facilitating for parents that they could practice the PRT techniques during a parent–child interaction, with the therapist providing direct feedback. Also, watching the therapist apply the techniques

was mentioned as being very educational and helpful for parents.

The combination of watching how the therapist applied the techniques and practicing myself during the sessions was very helpful. (10)

Some parents mentioned that this therapist modeling was a key facilitator. They would have liked to watch the therapist implement the technique in more sessions, commenting that more individual sessions were needed to correctly implement the PRT technique. Many parents said that the individual parent–child sessions were helpful but very intensive. Barriers were that they felt insecure and uncomfortable in having a parent–child play interaction (i.e. called themselves not a ‘play’ parent) while the therapist was in the room to give feedback and while the interaction was video recorded for later review.

Teacher- and Social Network Sessions Beside the combination of parent group sessions and individual parent–child sessions, all parents thought that the possibility of involving the whole network of the child (i.e. teacher, grandparents, babysitter etc.) was facilitating. This would enable generalization of the child’s social-communication skills. However, the limited number of teacher- and social network sessions was perceived as a barrier, as there was not enough time to train the childcare providers in the PRT techniques. Regarding the teacher sessions, a number of parents mentioned that school had an academic purpose rather than being there to improve the children’s social-communication skills.

I think that a lot of teachers don’t feel the urgency to do something with the PRT techniques at school. Especially when the child doesn’t cause problems in the classroom. (11)

On the other hand, some parents mentioned that the PRT sessions with the teacher prompted an update on their child’s progress, learning skills, and well-being at school. With regard to the social network session, some parents specifically expressed that this session facilitated a sense of involvement of their family and provided more recognition and understanding of their child’s behavior. A few parents felt that this session was not appropriate in their situation, because there was first need for explanation (and acceptance) of ASD within their family.

We had the intention to invite the grandparents of [child’s name], but we noticed that they were not aware of the characteristics of autism at all. So, for them this social network session was a step too far. (19)

Training Characteristics

Training characteristics was considered as a theme, which could be further divided into subthemes, respectively: *videos* and *time investment*.

Videos A key component in the intervention is that individual parent–child sessions are video recorded and reviewed in parent group sessions. Parents also had to practice and video record the implementation of the PRT techniques during parent–child interaction in the home setting. Most parents found this to be both a facilitator and barrier to this process. On the one hand, videos were a facilitator in gaining insight into the behavior and communication patterns of themselves and of their child. In this manner, they were able to become more attuned and responsive to their child’s needs and they could also recognize positive aspects of their interaction with their child. On the other hand, parents felt uncomfortable and vulnerable when making and analyzing the videos. They described that it felt as ‘being under the spotlight’. However, after a couple of sessions, parents became used to the process and valued this part of the intervention. They also suggested that this aspect of treatment should be kept in the intervention.

During the first sessions, I didn’t feel comfortable because I was being recorded on video. Eventually, after a couple of sessions, I was like ‘Okay, this is just part of the therapy and it helps me and my child’. At that moment, I felt more relaxed and I had more confidence that it was going well. (17)

Some parents mentioned that their child was uncomfortable with the videos as well – the child acted differently or refused to play. One parent couple said that their child did not like being filmed during the intervention and refused to cooperate.

Time Investment In general, parents described the PRT-PG as intense and time-consuming. Beside the weekly sessions over a period of 14 weeks, they also had to practice daily at home. A busy schedule and everyday hustle and bustle limited home practice and the application of learned techniques. One parent quit her job and one parent took short-term care leave because of the intervention and the situation of their child. However, all parents mentioned that the investment was worth it and necessary to achieve goals. One parent couple said that, even though they benefited from the intervention, in hindsight, another intervention (intensive home intervention) might have been more appropriate. However, all parents would recommend the intervention to other parents of a child with ASD.

It is not just the sessions; you have to find ways to practice at home all the time. Because if you don’t apply the techniques at home and the intervention is finished, your child will not benefit from it. (10)

Role of Therapist

The role of the therapist was considered as a theme, which could be further divided into subthemes, respectively: *emphatic connection* and *expertise*.

Emphatic Connection All interviewed parents were positive about the PRT therapists and mentioned that the therapeutic relationship was an important facilitator in the intervention, mainly because they had concerns regarding their child and felt insecure. Therapists were described as patient, emphatic, and accessible. Most parents said that they (and their child) felt an emphatic connection with their therapist. For some, this was their first experience in receiving recognition of, and guidance for, the problems of their child.

As parents, you have concerns regarding your child for a longtime. It is very pleasant to feel that someone is focused on guiding you in the right direction. (18)

Expertise Parents considered their therapist as very professional and competent. They described that the therapists could clearly explain the PRT techniques, listened well to their own and their child’s needs, and were able to define clear individualized intervention goals. Parents said that the presence of two therapists during the parent group sessions was facilitating as the therapists were well attuned to each other and created a safe and pleasant atmosphere.

The therapists were complementary to each other and that felt really pleasant to me. Their instructions were loud and clear, and they facilitated a comfortable atmosphere during the group sessions. (20)

Some parents greatly appreciated that the therapists validated and acknowledged the parents’ expertise and capabilities. The therapists encouraged the parents to think along with each other and to value their own expertise in their parenting role. As a barrier, two parents mentioned that they missed a concrete intervention plan that could systematically be evaluated. Further, some parents suggested that the therapist could have been more directive in giving homework (i.e. making videos at home), since some parents perceived this as being voluntary and did not bring along videos during the group sessions.

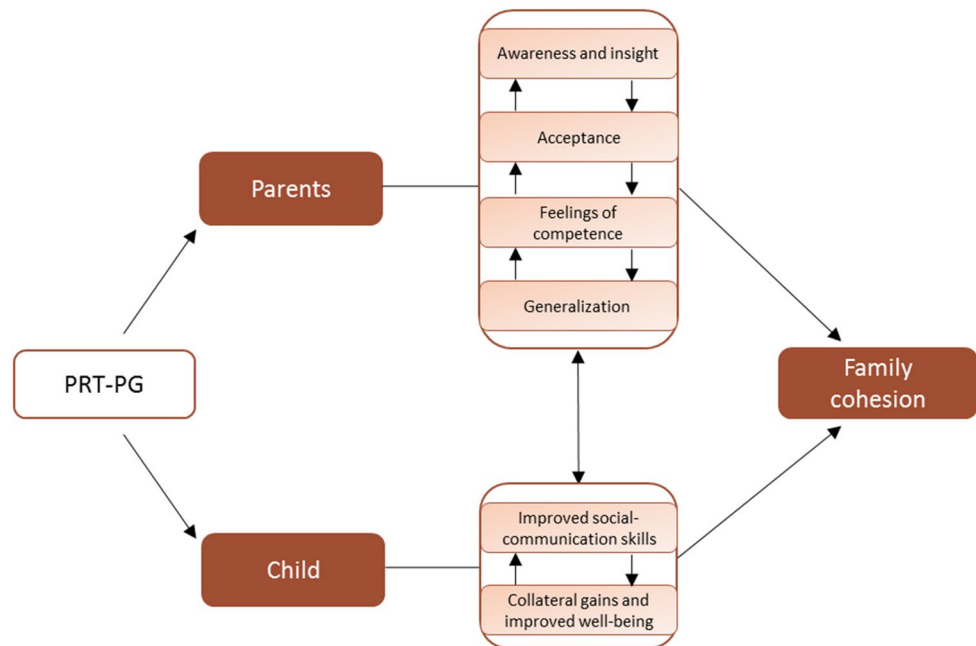
Of course, I understand that it is your own responsibility that you learn from the intervention by doing your homework. However, the therapists could have been more explicit in telling the parents that, as part of the intervention, it was necessary to make videos at home. (11)

Participant Characteristics

Participant characteristics was considered as a last theme, which could be further divided into *variation in child’s (developmental) age* and *parents’ characteristics*.

Variation in Child’s (Developmental) Age Some parents mentioned that the variation in the children’s age was a barrier, as this resulted in less recognizability and less sharing of experiences. However, some parents considered this variation as a facilitator, providing insight into communication

Fig. 1 Perceived Effects regarding the Child, the Parents and Family cohesion



goals for when their child was older (i.e. in case their own child was younger) or feeling proud about the progress they had already achieved with their child (i.e. in case their own child was older).

There was one family with an older aged boy in the group. I liked to hear and see what those parents were practicing with their boy. It gave me information about what we could possibly expect when our own son is that age. (19)

Parents' Characteristics Some parents shared their own ASD diagnosis with the other parents. This was considered to be a facilitator, because these parents could reflect on situations on the basis of their own experience and perspective. Further, parents considered that openness and willingness to share are important characteristics for a safe group environment.

One mother of the group had an ASD diagnosis herself. She could explain very well how she experienced situations from her own perspective, for example regarding eye contact or transition difficulties. I recognized those difficulties in my child and it was very helpful to hear that she had also struggled with that and that it'll be fine. (20)

Perceived Effects

Parental perceived effects were related to *child, parent, family cohesion* and included further sub-themes: (a) *social-communication skills, collateral gains and well-being*, and (b) *awareness and insight, acceptance, feelings of competence, generalization of PRT techniques*. Themes and sub-themes are shown in Fig. 1.

Child

Social-Communication Skills All parents described an improvement in the social-communication skills of their child. Specific skills that most parents mentioned as improved were functional question asking (i.e. asking for an object/activity, asking for help), adequate vocal protesting (i.e. expressing feelings or thoughts, indicating misunderstanding etc.), extended verbal utterances, and more eye contact. Furthermore, a number of parents described an improvement in social question asking (i.e. asking for someone's opinion, experiences, thoughts or feelings). Several parents said that their child was more polite.

He is responding more frequently and he is making much more eye contact. And what also changed, what he didn't do before, is that he is asking about others' feelings. For instance, he asks 'Are you happy? Are you sad? Are you grumpy?' I think he wants to learn to recognize emotions. (12)

Improved social-communication skills were also noticed when the child was at the daycare center or school. Several parents described improved social relationships with other children and siblings. Almost all parents mentioned that the manifestation of these social-communication skills (and the level of help of their parents) varied across different settings and situations and was highly dependent on the mental state of their child. When there was sensory overstimulation, the child was less able to show adequate social-communication skills than when the child felt calm and comfortable.

If he's relaxed and there is no sensory overload, it's just going well. When I say something like 'that reminds me of something' at that moment, he spontaneously asks a question. But when he experiences overstimulation or when stress increases, you have to go all the way back and give prompts in what he can say. (10)

Some parents found it hard to determine if (and which) improvement was related to PRT or to the regular development of their child. One parent couple said that at some point (when the child became aware of what was expected), reverse effects in social communication emerged and their child refused to talk during parent-child game play. After a while they had noticed a subtle improvement in the social communication skills of their child, but the child's behavior continued to be challenging.

Collateral Gains and Well-Being Parents mentioned an overall improvement in the well-being of their child. Most parents said that in general their child felt and behaved in a calmer fashion. More specifically, parents perceived less anger and disruptive behavior (i.e. yelling, scratching, kicking, hitting).

In general, he showed a lot of progress. He does not hit or scratch anymore and he doesn't need to go to the corner of the house as often. We can see his tantrums coming. (12)

Some parents mentioned that because of the improvement in social-communication skills, their child showed more self-confidence. In addition, more self-confidence resulted in more openness and willingness to communicate and interact with one another.

Since he knows that he can ask us if he wants something or if he needs help, it is less likely that he gets angry or frustrated. He knows that it is okay to ask.. It gives him more confidence. (13)

Parents

Awareness and Insight Parents reported that their awareness of their child's problems had improved because of the PRT-PG intervention. They also became aware of their own habitual patterns in communication and behavior. Most parents reported that they used to react immediately to their child's inappropriate manner of asking or commenting. The intervention helped them to realize that their own interactional style was related to their child's social-communication skills.

I noticed that I was asking a lot of my child and that I had high expectations. The training helped me realize that I had to slow down and to have confidence in my child and his development... Having fun together was the key for me. (16)

Acceptance A number of parents reported that they had a greater acceptance of their child's behavior and ASD diagnosis. Some parents said that they were more realistic about

what they could expect from their child. They stopped trying to fit their child to the norms or standards of others. One parent said she felt less embarrassed about her child.

We both concluded that it was important to listen to our child's needs and work very hard on it, regardless what it's called or what other people think of it. (10)

Feelings of Competence Almost all parents said that they felt more competent. Because of the training, parents felt more confident in their own parenting skills. They had learned techniques to help their child develop social-communication skills and felt more competent in handling the behavior of their child. Some parents said that the training helped them to recognize factors that stressed their child and that they've learned how to calm him/her down.

I was very insecure about myself and my parenting skills concerning [child's name], because I tried so much and nothing seemed to help... I became more self-confident and now I'm like 'I'm not doing anything wrong, but there are some adjustments possible. (14)

Generalization of PRT Techniques Several parents said that using the PRT techniques in the interaction with their child became a natural way of communicating and went automatically. A few parents said they used the PRT techniques for their own personal life and development; some parents used the techniques in the interaction with their partner, and one parent used the techniques at work (i.e. waiting instead of acting immediately and wanting to be in control).

The most important thing what I've learned is waiting. I think it's a very valuable technique. I also use it at my work now. (11)

One parent became aware of her own perfectionism and acted on that; one parent wanted to become a PRT therapist herself after following the training.

Family Cohesion

The majority of the parents mentioned that the atmosphere at home was more relaxed and calmer. Also, parents felt more relaxed because they were more aware of, and accepted, their child's problems, and because they felt competent to help their child. At the same time, their child also learned to communicate effectively or to ask their parent for help. In that way, the parent-child interaction improved (i.e. more reciprocity) and behavioral problems decreased or could be prevented.

We now have a better idea of what's going on with [child's name]. Before the intervention, we thought that he became angry out of the blue. We used to get upset too. Now, we understand that there might be triggers that we didn't notice or that something was building for a period of time. It helps us to deal with these situations and to react adequately. (13)

A few parents said that their child's siblings also applied the PRT technique in the interaction with their brother or sister with ASD. Some parents specifically mentioned improved relationships within the family. They enjoyed time with their child and described an open and pleasant atmosphere at home.

As parents, it is your responsibility to stimulate your child in his/her development. When our child didn't speak at all and we didn't know what to do, it felt like we were failing as parents. And now, if I hear the kind of sentences he can make, it makes me emotional. "Then I'm like 'oh boy what progress you've, mommy is so proud of you!' (15)

Online PRT-PG

Because of the COVID-19 pandemic, three interviewed parents had mainly followed the PRT-PG intervention online via videoconferencing. All parents were grateful the intervention could be continued in this way. Online parent group sessions were held in the evening and online individual parent-child sessions were—as far as possible—set up in the same way as in the in-person session (i.e. the therapist gave feedback during a 'live' parent-child play interaction). Parents mentioned that the online group sessions enabled their partner to attend, which was not possible if the sessions were during the day at the clinic (because of travel time and work). Parents thought that the online intervention was accessible and they also mentioned that it gave a sense of solidarity during the pandemic. However, there were also some barriers to the online parts of the intervention. Parents had less help and direct feedback from their therapist in practicing the PRT technique and they said they missed watching the therapist use PRT. In some family situations (e.g. very young child, distraction of other family members being at home), parent-child interaction during videoconferencing with their therapist was not possible. Further, one parent did not have the appropriate devices to follow the online intervention optimally and discontinued the intervention after seven sessions. One parent mentioned that if she had the choice, she would prefer face-to-face sessions, as this would allow more personal and individualized communication and subtle nonverbal interactions.

Father: I think the online training facilitated accessibility and it felt safe to participate from your own living room... Also, we didn't have to rush to go to Nijmegen, we could just open our laptop.

Mother: Yes, but on the other hand it was hard for me to notice the emotions of the other parents in the group during the online sessions. It felt if we were less connected with each other. (22)

Discussion

To the best of our knowledge, this qualitative study is the first to investigate the views and opinions of the parents of young children with ASD about parent group delivered

PRT. This enabled us to identify facilitators and barriers of the treatment format and the perceived effects of this 14-week PRT-PG intervention. With regard to *facilitators and barriers*, five key themes could be identified: timing and expectations, training setting, training characteristics, role of therapist, and participant characteristics. *Perceived effects* were related to the child, parents, and broad family. Themes were further described by subthemes. The majority of the subthemes on feasibility included both perceived barriers and facilitators. Overall, the PRT-PG format was perceived as intensive and time-consuming (barrier) but at the same time very helpful and worthwhile (facilitator). Timing and initial expectations, and the role of the therapist, played an important role in the therapeutic process. Further, the perceived effects seem to be inseparable from the perceived treatment feasibility.

Facilitators and Barriers

The facilitating elements of parent group sessions (i.e. sharing experiences and recognizability), individual parent-child sessions (i.e. therapist showing parents how to act and parents practicing with direct feedback from the therapist), and teacher-and social network sessions (i.e. facilitating generalization of child's skills), as described by the parents, contribute to the feasibility of this treatment approach. However, the PRT-PG intervention also included characteristics that were seen as barrier such as the time-consuming format and vulnerable and uncomfortable feelings related to making and discussing videos. That said, after a couple of sessions, parents became used to the process of making videos and highly valued this part of the intervention. They recommended keeping this aspect in the treatment protocol. Although previous research has demonstrated the effectiveness of video-feedback in parent-mediated interventions for children with ASD, such as improved parental competence and parent-child relationships after Video-feedback Intervention to promote Positive Parenting adapted to Autism (VIPP-AUTI; Poslawsky et al., 2015), data on how parents perceive video-feedback are lacking. The current findings highlight potential feelings of insecurity and vulnerability that parents may experience. Almost all parents described that the empathetic connection with the therapists and the therapists' expertise played a significant role in supporting them in this process but also in the whole therapeutic journey. The beneficial effects of a collaborative parent-professional relationship have been reported in previous evaluations of parent-mediated ASD interventions (Freuler et al., 2014; Leadbitter et al., 2020). Furthermore, a strong therapeutic alliance – defined as the affective and collaborative aspects of the relationship- has been shown to improve therapeutic outcomes (de Greef et al., 2017). A recent systematic review highlighted that the therapeutic

alliance partially mediated therapeutic outcomes in 70.3% of the studies (Baier et al., 2020). Although empathy and expertise were mentioned as facilitators in this study, more research is needed to get insight into the therapeutic characteristics that influence this alliance. With regard to parental characteristics, parents mentioned general skills, such as openness and being willing to share, as highly important for a collaborative relation with the therapist and other parents in the group. In addition, some parents valued the presence of a parent with ASD in the group sessions, because it provided information from an ASD perspective. However, the role of parental psychopathology such as ASD on children's treatment outcomes is inconclusive (Shalev et al., 2020), and nothing is known about this in the context of group interventions. Other parental characteristics, such as parent's cultural background, educational level, marital status, and sex might affect parent adherence to intervention implementation and should be examined in future research (Verschuur et al., 2019).

Perceived Effects

In the current study, almost all parents mentioned improved child social-communication skills, collateral gains and an overall improvement in well-being. This is in part inconsistent with the outcomes reported in a quantitative study of the efficacy of PRT-PG (de Korte et al., 2021). In the quantitative study results showed no significant improvement in parent-rated general social-communication skills (i.e. as measured with the Social Responsiveness Scale- Second Edition, SRS-2; Constantino & Gruber, 2012), although a significant improvement was observed in clinical global functioning (i.e. as measured with the Clinical Global Impression- Improvement scale, CGI-I; Guy, 1976). A possible explanation is that the use of a quantitative outcome measure, such as the SRS-2, insufficiently reflects changes in social communication after the group-based PRT intervention. Notably in the current qualitative study, almost all parents mentioned that the need for parents' support in social communication varied across different settings and situations and was highly dependent of the mental state of their child (i.e. more parental support was needed when the child experienced sensory overload). Another explanation is the relatively small sample size and the lack of a control group in the quantitative study design. Nevertheless, the current results for child outcomes support previous evidence that PRT results in an improvement in core language and social-communication skills and in widespread gains in play skills and challenging behaviors (Ona et al., 2019; Verschuur et al., 2014).

The findings of this study also revealed perceived effects on parents themselves and the wider family context. Parents

mentioned that the parent group sessions were helpful in noticing that other parents had the same struggles. They also described parental awareness and acceptance of their child's problems, and increased feelings of competence to help their child. As a consequence, parents struggled less with their parenting skills and felt calmer.

These results are consistent with previous research describing the internal process that parents may experience after a diagnosis ASD, from avoidance to accepting and acting on the possibility of ASD in the first place, to feelings of grief and loss, and subsequently to acceptance of the lifelong needs of their children (e.g. Gentles et al., 2020; Russell & Norwich, 2012).

Parent-Mediation: Mechanism of Change

The current results give insight into the mechanisms underlying a parent-mediated intervention such as PRT. Parents learned PRT techniques, which resulted in improved sensitivity and responsiveness when interacting with their child. At the same time, their child also learned skills to communicate effectively or they learned how to ask their parents for help. In that way, the parent-child interaction improved (i.e. more reciprocity), which resulted – along with improved sibling-child interaction – in improved family cohesion. Therefore, the present findings shed light on the essential mediating role of parents in the outcomes of young children with ASD (Althoff et al., 2019; Oono et al., 2013).

Strengths and Limitations

This is the first study to qualitatively explore facilitators and barriers of group-based PRT training for children with ASD and their parents. Both completers and dropouts were included, and also participants who followed the PRT-PG training online owing to the COVID-19 pandemic at the time of the study. An extensive qualitative analysis was performed in accordance with COREQ (Tong et al., 2007). Member checks were performed to ensure the validity of the verbatim transcripts and data saturation was reached. Nevertheless, the results should be interpreted bearing in mind certain limitations. First, systematic data were collected by different means, because of the COVID-19-pandemic. Interviews were mainly done by phone or videoconferencing ($n = 10$) and sometimes face-to-face ($n = 5$), based on participants' preferences and what was possible at that time. This could potentially have resulted in the interviewers missing aspects of nonverbal communication in some interviews. A second limitation was that only parents were interviewed in this study. The perspectives of other stakeholders (e.g. school-teachers, clinicians) could be valuable to evaluate the feasibility and effectiveness of this approach. Further, inherent for qualitative data analysis, coding and categorization in

themes involved researchers' interpretation. More specifically, one of the researchers (first author) was also involved as a PRT therapist. This researcher was aware of this possible confirmation bias and therefore extensive discussion and reflection sessions with other, independent researchers were held to limit subjectivity.

Clinical Implications

First, our findings highlight parental differences regarding expectations before the intervention (post-diagnostic period) and insights and acceptance of their child's needs, which may reflect the way parents evaluated the PRT-PG. To offer an adequate intervention approach for parents, such as the PRT-PG, it is very important that clinicians are aware of the family context and the emotional state of parents following an ASD diagnosis and the timing of the intervention. Parents may, for instance, first need therapeutic support to increase their knowledge of ASD or they may need advice and support to create an appropriate home and/or school environment. Therefore, our findings emphasize the importance of individual adjustment and flexibility in the timing of the intervention and how the intervention is delivered. If parents are not ready or able to share experiences and videos with other parents, or if there is need to adapt the trajectory (frequency, dose, type of sessions) to the family's needs, individual PRT training might be more appropriate than PRT-PG training. Further, a wholly or in part online intervention (i.e. telehealth) may reduce the time and resources families need and offers promising opportunities to expand access to the intervention. More research (with larger sample sizes) is needed to explore the role of telehealth in PRT intervention programs.

Secondly, the role of the therapist (i.e. therapeutic alliance) was emphasized in this study. It is important that therapists understand what parents are going through after an ASD diagnosis and during the intervention. More specifically, general therapeutic skills, such as empathy and commitment, and also specific expertise about ASD are described as important characteristics. Further, therapists should be aware of potential parental feelings of insecurity and vulnerability during parent-child interactions, especially when the interaction is recorded on video for later review. The involvement of parents who have received the intervention earlier or who have an ASD diagnosis themselves might provide peer support in the parents' therapeutic journey.

Furthermore, this study revealed that themes associated with treatment feasibility can be perceived as both barriers and facilitators, and are highly dependent on the training setting and parent and child characteristics. Further, the perceived treatment feasibility seem to be inseparable from perceived effects. Many challenges are related to the

mechanisms of therapeutic change, in which initial resistance, discomfort, and feelings of insecurity can change when parents perceive positive outcomes during the intervention (Leadbitter et al., 2020). However, some challenges reflect practical aspects, such as the therapist taking a more directive approach to making videos during the group sessions, therapists showing parents how to interact with the child during individual parent-child sessions, and a greater focus on teachers and/or social network.

Overall, this qualitative study adds to existing quantitative evidence supporting group-based PRT. More specifically, this study provides a deeper understanding of parental experiences of facilitators, barriers, and effects of PRT on children with ASD, parents, and the wider family context. Findings also provide insight into how PRT works in a complex and heterogenous ASD population, in a way that would have not been possible with standard quantitative measures alone. The process of gathering information from parents represents the first step in a collaboration between clinical practice and researchers to design an effective PRT approach for young children with ASD that is related to parental needs. Future research could further investigate therapeutic, family, and social network characteristics and the role of telehealth, in order to determine the most beneficial intervention model for (young) children with ASD and their families.

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Author Contributions Manon W.P. de Korte, M. van Dongen-Boomsma, J.K. Buitelaar, and W.G. Staal contributed to the study conception and design. Material preparation, and data collection were performed by M.W.P. de Korte. Data analysis was performed by M.W.P. de Korte, Shireen P.T. Kaijadoo, and M. van Dongen-Boomsma. The first draft of the manuscript was written by M.W.P. de Korte and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Declarations

Conflict of interest Jan K. Buitelaar has been in the past three years a consultant to/member of the advisory board of/and/or speaker for Takeda/Shire, Roche, Medice, Janssen Cilag, Angelini, and Servier. He is not an employee of any of these companies, and not a stock shareholder of any of these companies. He has no other financial or material support, including expert testimony, patents, royalties. All other authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in this study involving human participants were in accordance with ethical standards of the institutional and national research committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from the parents included in this study. All parents included in this study signed informed consent regarding publishing their data.

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