Chapter

An Intersubjectivity Parental-Based Intervention (I-PBI) for Preschoolers with ASD

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Abstract

Given the influence of parents' qualities and dyadic characteristics on child developmental outcomes, recent findings strengthened the importance of involving caregivers during the intervention to increase dyadic syntonization levels and to extend the acquisition of competencies in naturalistic contexts. The Intersubjectivity Parental-Based Intervention (I-PBI) presented throughout this chapter is delivered involving caregivers in two different modalities: first, in the therapeutic setting, together with the child to support interactions within the dyad. Second, the focus is on the parental representation of the child and the caregivers in their role. Trained psychologists deliver the intervention after receiving specific licenses on developmental intervention models for children with autism spectrum disorder (ASD). Finally, the team is constantly supervised at least once every month by an expert psychotherapist. Unlike parent-mediated intervention and parent training, the I-PBI does not require home assignments or fidelity schedules, and the therapist entirely delivers the intervention. Throughout this chapter, the structure and therapeutic techniques of the intervention will be presented. Further, results considering the child's developmental trajectories and changes in caregiver-child interaction will be discussed.

Keywords: autism spectrum disorder, intervention, parental involvement, caregiver-child interaction, Italian context

1. Introduction

Parents are genetically predisposed to intuitively capture and understand children's signals with typical development. However, parents may struggle to understand the signs and needs of children with autism spectrum disorder (ASD), and their approaches might not always be successful.

Given the influence of parents' qualities on child developmental outcomes, recent findings strengthen the importance of involving caregivers during the intervention to increase dyadic syntonization levels and extend the acquisition of competencies in naturalistic contexts (e.g., home) [1–4]. Currently, many guidelines [5, 6] recommend parental inclusion during intervention with children with ASD. A significant amount of research showed that involving the parent during the intervention enhances outcomes in children with ASD [3, 7–11]. Specifically, parental involvement

during intervention seems to be extremely important in order to guarantee the adaptation to the child's difficulties and impairments, allowing the child to respond with enhanced communicative and social development [9], long-term symptom reduction [12], and to generalize these outcomes across settings [13]. Further, marked difficulties in social communication and responsiveness in parents of children with ASD might create a potential barrier to care for their children. In line with this, recent findings suggest that parental involvement was able to guarantee more noticeable results considering caregivers.

Interestingly, some research found a significant relationship between the degree of change in parental interaction and the rate of the child's improvement [14], underlying the importance of the dyadic relational aspects in child developmental outcomes. Because parents are central in ensuring success and a good prognosis, it is critical to include them throughout the intervention process. These findings shed new light on the idea that if parents are adequately informed during the intervention and if they constantly deliver intervention strategies in naturalistic contexts, the intensity of the intervention dwindles on intervention outcomes. In line with this, caregivers can continue to teach competencies to their children in the home context, improving parent-child interactions and increasing the amount of treatment they receive. Findings considering the evaluation of Naturalistic Developmental Behavioral Interventions (NDBI) are mainly focused on child outcomes demonstrating the improvements in both child's social engagement and cognitive development [4]. Child gains are predominantly assessed through outcome measures using standardized instruments such as Autism Diagnostic Observation Schedule [15] and Griffiths Scales [16–22]. Although empirical efforts have been made in this field, most of the research on interventions for ASD is focused on child outcomes more than parental outcomes [23]. However, a recent systematic review underlined the importance of a greater focus on both parents to provide tailored intervention [24]. Some evidence in this field showed that parents increased well-being and quality of life after being involved in the therapeutic setting with their children [25, 26].

2. Intersubjectivity parental-based intervention (I-PBI)

With this chapter, we want to present and describe an intervention plan that has been implemented in the Laboratory of Observation, Diagnosis, and Education (ODFLab) of the Department of Psychology and Cognitive Science, University of Trento (Italy). ODFLab is a clinical and research laboratory specialized in the multimethod assessment and evidence-based intervention programs for individuals with typical and atypical neurodevelopment. Specifically, the ODFLab is a national reference center for assessment and intervention for autism spectrum disorders (ASDs) and learning disabilities (LD). In the context of ASD, ODFLab implements an "Intersubjectivity Parental-Based Intervention" (I-PBI), which combines empirically validated scientific principles with guidelines following the Italian Health System [6, 27, 28]. This intervention integrates developmental and relationship-based principles with behavioral ones, taking inspiration from the elements of the American Early Start Denver Model [29, 30]. In addition, the I-PBI emphasizes the fundamental role of reciprocity between caregiver and child, supporting intersubjective exchanges and promoting the child's intentionality during interactions. The purpose of the intervention is to increase the intersubjectivity within the dyad, providing the child with the

relational experience to reach several stages of development. The intervention allows children with atypical development to establish empathy relations with the parent and acquire essential primary communication skills. Furthermore, given possible caregivers-child maladaptive interactive circuits in dyads with children with ASD, the I-PBI involves caregivers in the therapeutic setting to allow parents to learn appropriate strategies to deal with their children. In addition, parents play a fundamental role in the generalization of child competencies. In fact, through parental involvement, caregivers may effectively use the acquired strategies in more naturalistic contexts (e.g., home). The intervention is adapted following the child's age, specific interests, and individual functional profiles. Further, intervention goals are constantly changed and revised depending on the child's developmental improvements. Moreover, unlike parent-mediated intervention and parent training, parental involvement does not require home assignments or fidelity schedules, and the therapist delivers the intervention entirely. In fact, during these weekly sessions, parents are not delivering the intervention, and therapists remain the key figures, structuring activities and creating opportunities for the caregivers and the child to interact and play together. Thanks to this, caregivers may have the opportunity to experience more functional interactions with their child characterized by more adequate proposals and significant awareness of the child's difficulties. This may lead to increased dyadic pleasure, increased parents' self-efficacy, and significant motivation to interact with their children while reducing stress and frustration. This intervention also refers to the highly validated Preschool Autism Communication Trial - PACT [9] procedure aimed to enhance parental sensitivity and responsiveness, and consequently, being beneficial in terms of more pronounced parental synchronous response to the child, child initiations with adults, and joint attention between parent and child. Considering the child, the intervention is based on three different levels: (1) Relationship, consisting of specific intervention on parent-child interaction; (2) Behavior, through learning adaptive modalities in the interaction with others by using alternative augmentative communication (CAA) and use of images or sounds in order to structure sequential organization of activities; (3) Development, consisting of individual rehabilitative interventions such as music therapy, psychomotricity, cognitive activation, speech therapy, and occupational therapy. Every intervention should be planned considering individual and specific characteristics. However, some primary indications are divided into four phases that would adapt to each child.

Phase 1 – Intensive Intervention: after diagnosis, the intervention should be intensive and highly structured, consisting of 6/8 hours per week (3/4 hours for individual rehabilitation and 3/4 involving parents during intervention). Further, meetings with parents alone are provided during this phase. The intensive intervention should last a minimum of 6 months, depending on each case. Generally, this first phase can be considered concluded when the adult can interact appropriately with the child and contain him/her.

Phase 2 – Consolidation of Intervention: this phase consists of a maximum of 4 hours of intervention per week in a group of peers to develop social play skills. However, during this phase, parents are supported by a psychotherapist or a psychologist through meetings every 2/3 weeks.

Phase 3 – "Conclusion" of Intervention: there is no actual conclusion of the intervention, and support for families is always present. When children acquire suitable and sufficient abilities, they may receive other direct interventions in specific moments, such as challenging situations or essential transitions in life.

2.1 Parental intervention

Considering parents, there are several phases below described in detail.

Phase 1 – Parent-Child Interaction: during this phase, the intervention setting is not highly structured to offer spontaneous and ecological interactions that are easily replicable at home or other contexts. The main goal of parent involvement in a therapy room is teaching adults to detect and promptly respond to the child's cues, decreasing the child's frustration and anxiety. During the first phase, especially during the first meetings, the therapist has a leading role in dealing with the child to comprehend which ways are appropriate and well accepted by the child, reactivating a synchronic interactive exchange. The therapist uses specific techniques to create an appropriate context within the dyad and help parents get closer to their children. The main focus of the intervention is the parent-child interaction and, in particular, the promotion of a synchronic and responsive interaction that acts as a framework for the child's development. Therefore, working on identifying dysfunctional interactive patterns is fundamental to understanding how to replace them with more adequate and effective interactive methods. Improvements in relationship quality imply constant support to the parents to help them acquire the ability to maintain a balance between the child's exploration and structured activities, respecting the timing and the methods of a child that follows different evolutionary paths. The main intervention objectives are:

- To increase the general *level of emotional availability* and the degree of reciprocal accessibility through a significant awareness to read and respond adequately to the partner's emotional cues.

- To increase synchrony levels in the exchanges that occur in *shared play moments*. Another salient aspect of the work is the play with the child. After carefully analyzing the child's level of functioning, the therapist selects the activities in line with the development and functional profile. The play activity can be without the object if the child can establish vis-a-vis or physical contact. The choice of the play is guided by the focus on the child's attention.

- When the child is interested, the therapist will try to engage the child as long as possible, initially *imitating* what the child does and then gradually introducing elements of differentiation such as a different rhythm and the amplification of behaviors. To build an intersubjective exchange with the child, the therapist uses the imitation of all vocal, expressive, and motor behaviors or functional use of objects. The child's imitation by the therapist allows the formation of primary intersubjectivity. The therapist's purpose is not to push the child to imitate but to experience the feeling of being with another at his level by activating a series of basic social behaviors such as eye contact.

- To promote exploration through *environmental structuring* in which the therapist allows the child to use all objects and spaces of the therapeutic context.

- To regulate emotions through *verbalization of emotional states.* The therapist reflects on the emotional states and the child's intentions with affective meaning. The therapist explains this verbally so that the child lives the experience of being understood by the other. At the same time, the parent begins to attribute meaning to some child's behaviors that often appear misunderstood, excessive, and inadequate.

Phase 2 – Parental Representation: during this phase, every 2–3 weeks, parents meet another therapist, and through video recording technology, they discuss interactive moments with their children. The intervention provides specific work on parents' representations to build a more truthful image of the child and themselves as parents, enhancing their ability to reflect on their own and the child's behaviors. In addition, during these meetings, parents have the opportunity to share and discuss their difficulties, hopes, and worries. The intervention provides specific work on parents' representations to build a more truthful image of the child and themselves as parents, enhancing their ability to reflect on their own and the child's behaviors.

The meeting is divided into two phases: an initial one that follows the classic clinical interview method and a more structured one that involves video analysis. During the first phase, parents can talk freely about previous weeks' events. The therapist intervenes to share and process painful feelings and to support positive affects when the parents tell pleasant episodes connected to the relationship with the child. In addition, the therapist gives several concrete suggestions on supporting and managing certain aspects of the child's development. The therapist has previously selected clips of interaction that are first watched together and then commented on. The psychotherapist guides the parent in observing their behaviors' effects on the child (e.g., respecting the child's timing leads the child to respond to a request; or a too high-pitched voice causes the child's withdrawal behaviors). These events are of such a short duration that, generally, no attention is paid to them during the flow of the interaction. However, observing, evaluating, and discussing their presence are fundamental for truthful caregivers' representations.

Finally, parents are guided in the comprehension of their behavior through questions about feelings considering themselves and the child to promote their reflective function.

In summary, the therapist's objectives in this phase are:

- To reduce adverse effects
- To increase the ability to reflect on children's behavior
- To support a more realistic representation of the child
- To build a self-image as a parent

Phase 3 – Parent's group: in this phase, different parents of same-aged children discuss their difficulties and worries, support each other, and share thoughts and ideas about parenting. Thanks to the confrontation with families of children in the same condition, parents may feel understood in their difficulties and less alone.

3. Highlights

To sum up, the I-PBI focuses on:

1. To increase the ability to structure the environment to make it accessible to the child.
2. To reduce behaviors that hinder the processes of exploration and self-regulation.

3. To reduce negative effects such as boredom, disappointment, and hostility.

4. To increase the ability to reflect on the child's behaviors, capturing the mental states hidden behind some anomalies and bizarre features.

5. To build an aware and truthful representation of the child's difficulties and abilities.

6. To build an image of oneself as a more competent parent.

Trained psychologists deliver the intervention after receiving specific licenses on developmental intervention models for children with ASD. Finally, the team is constantly supervised at least once every month by an expert psychotherapist.

4. Evaluation of parental involvement during intervention with children with ASD

The heterogeneity in the symptomatology of ASD also reflects in several intervention outcomes [31]. Hence, it is difficult to identify one kind of intervention with the highest degree of efficacy compared with others, given that a specific intervention can be helpful for specific domains and patients but not for others [30, 32, 33]. A significant amount of research reported the efficacy of different kinds of intervention on the developmental trajectories of children with ASD during the intervention [19, 20, 22, 34]. Previous literature on parental involvement focused more on the evaluation of treatment response, considering the child outcomes demonstrating the improvements in both child's social engagement and their cognitive development [4], often without deepening dyadic and caregivers' variables associated with the response. Moreover, some research showed that without involving caregivers, a child's variables tend to remain more stable over time [9, 35]. Child gains are predominantly assessed through developmental outcome measures using standardized instruments such as Autism Diagnostic Observation Schedule [15] and Griffiths Scales [16]. However, these instruments, when used to assess the treatment outcomes longitudinally, might suffer from the issue of sensitivity to change. Standardized diagnostic and cognitive test items are, in fact, neither proximal to the treatment nor necessarily sensitive to small changes in social communication and interactive skills that may be occurring as treatment progresses. For this, the detection of change may be enhanced by using observational measures of social responsiveness [36]. In line with this, analyzing the dyad's interactive component through observational and behavioral measures might provide a sensitive-to-change perspective to investigate caregiver and child improvements in the relational context.

4.1 Changes in child developmental trajectories

In order to monitor preschool children with ASD during the parental-based intervention, children's developmental trajectories have been analyzed before and after treatment. Evaluating the developmental trajectories of about 30 preschool children with ASD, we found an improvement of both cognitive and socio-communicative domains [18]. We found a significant improvement in the general quotient of children exposed to the early intensive intervention line with previous literature [27, 29, 37].

Specifically, our data showed that linguistic-communication abilities present the most improvements.

This may be in line with the ground idea of developmental models of treatment for ASD that focus on a wide range of socio-communicative abilities instead of rehabilitating specific areas of cognitive development [4, 21]. These findings may also be explained by the parental involvement that supports parents in displaying appropriate strategies in different contexts of the child's life, extending effective social interactions in naturalistic settings besides the laboratory room, leading to better children's outcomes.

Another fundamental aspect is the decreased general behavioral expressions of ASD significantly, especially considering the socio-communicative area [38]. The social-affect area focuses on communicative abilities and social affect and considers different modalities and their integration. This supports the idea that treatment impacts developmental trajectories by improving a wide spectrum of socio-communicative abilities, including receptive and expressive communication, but also precursors of verbal communication such as gestures, imitation, and joint attention, fundamental elements to initiate or respond adaptively to the social exchange. Furthermore, in line with previous literature, interventions tend to focus more on supporting cognitive and social abilities rather than the restrictive and repetitive behaviors that tend to be more stable over time [39, 40]. Despite this, in the intervention group, we found a slight change considering this domain, probably associated with the targeted work on anxiety reduction, emotions, and self-regulatory mechanisms during the parental-based intervention.

This study shed new light on the developmental trajectories of children with ASD, strengthening the importance of specific work on early relationships to gain better outcomes and integrating different techniques during the intervention to optimize the child's improvements.

4.2 Changes in parent-child interaction

Considering the role of caregiver-child interactions for the child's development in both typical and atypical contexts, our intervention focused on relationship-based principles that aim to restore interactive circuits. Given the importance of parental involvement in the therapeutic setting and the paucity of studies highlighting parental and dyadic changes during the intervention, we analyzed caregiver-child dyads with ASD with several observative instruments that assessed the affective quality, play skill abilities, and parental speech.

An interesting result is a significant improvement in the mother's general level of sensitivity, especially in the domain of awareness of timing during the interaction, suggesting that mothers were more likely to wait for the appropriate moment to propose or interrupt the child during dyadic exchanges. In line with this, previous literature reported significant parents' acceptance and comprehension of the child and more positive dyadic patterns [3, 41].

Further, some findings suggest that parents show changes in their interactive strategies pre and post-intervention [42], besides evolutions in child's behaviors. In line with this, parents showed an increased ability to structure adequately the exchange with the child. Particularly, they seem to structure just the right amount according to the child's needs, using both verbal and non-verbal strategies. These results are especially relevant in the context of ASD. In fact, given the impairments in communicative abilities, the use of verbal indications displayed by parents may not

be enough to scaffold an appropriate interaction effectively, and the use of nonverbal strategies plays a crucial role. While structuring is about guidance and mentoring, intrusiveness is the actual over-direction, over-stimulation, and interference in a child's behaviors and activities. In particular, parents seemed to be more able to follow the children's demands, interfering less with their activity. In line with this, verbal and physical interferences decreased significantly, indicating more suitability in dealing with children, which showed fewer signs indicating that the adult is intrusive in their activity. These results appear to be particularly relevant, considering that research in parenting in the context of neurodevelopmental disorders pointed out the tendency of caregivers to be more intrusive during interpersonal interchanges [43, 44]. Concerning the child, the increases found in the responsiveness domain might be influenced by more appropriate maternal behaviors during the intervention with parental involvement, which gives them the possibility to experience positive exchanges, first of all, mediated by the therapist and then gradually alone with the child. Therefore, the therapist gradually leaves space for the dyad, supporting them only when necessary to facilitate reciprocal attunement. By experiencing positive exchanges, parents might be more motivated and facilitated to reproduce specific social routines in the domestic context.

Another aspect that we took into consideration was play abilities during interactions since play skills are related to cognitive skills, and play is considered a primary opportunity for learning, especially when carried out in the context of child-adult interactions [45]. On this basis, dyadic play during intervention represents a key mediator of the whole interactive process [46]. After the intervention, parents' and children's play levels are more associated. In particular, the child's play was correlated with that of the parent after the intervention but not before, suggesting the presence of a greater ability for dyadic synchronization. This change reinforces higher levels of reciprocal syntonization, supporting the importance of directly intervening in the dyad to foster bidirectional exchanges.

Furthermore, considering the importance of parental linguistic elements in child development [47, 48], we also wanted to investigate longitudinal changes in parental speech pre and post-intervention. In fact, after the evaluation of affective and playful aspects during the intervention, we also aimed to examine how parents adapt their speech to their children over time. In line with the results considering increased relational affect, parents display more affective than informative speech after the intervention.

Further, parents increased their descriptions of the child's actions, suggesting an enhanced verbal structuring while sharing the attentive focus on what the child is doing during the exchange, supporting a non-intrusive linguistic style. It is relevant to note how sensitive and responsive modalities that parents acquired during the intervention also reflect on their linguistic speech directed to children. Linguistic and affective elements together seem relevant for the child's involvement.

5. Conclusion

The ground idea of the parental-based intervention is working with parents, rather than working for parents, to find personalized modalities to deal with a child with ASD. In fact, during treatment, parents acquire adequate strategies to respond to the child's signals, leading to more extended and more functional exchanges with the child. On the other side, it extends strategies in a more naturalistic setting, helping

the child maintain and generalize competencies. During intervention with parental involvement, the therapist acts as a promoter of the exchange, supporting both the partners in establishing functional and adaptive social routines in which caregivers can experiment with themselves adequately and pleasantly, following their spontaneous adaptation to the child.

Coherently, after the intervention, the affective quality of the exchange results in enhanced syntonization to the child's needs with greater structuring abilities in a less interfering way. The involvement of caregivers should not only consider the work in the therapeutic setting with the child and the therapist, but a guided re-elaboration provided by the therapist to the parents alone is necessary for decoding strategies, observing the strengths and weaknesses of their child and themselves as parents. Thanks to this, parents may have better tools to understand the child's communicative signs. The increased awareness becomes a protective factor in preventing secondary deficits emerging from dysfunctional interactions when the fathers do not understand the child's difficulties.

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