

Online Independent Intervention Program Training for Parents of Children with Autism: An Evaluation

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Abstract

Independent Intervention Program (IIP) Training or Pelatihan Program Intervensi Mandiri (PIM©©) is an Indonesian training model designed to develop parents' ability in intervening the social skill of their children with autism. The offline training, however, came with some limitations; it had limited number of participants—all coming locally and were only accessible on certain time slots. As a response to these limitations, the IIP training is held online. The research began with spreading of the information regarding the training, analyzing the registered individuals, and appointing them participants when the main criterion is fulfilled: the participant must be a parent of a child with autism. Out of 84 registered individuals, 11 participants were selected, all agreeing to follow through all the training steps. The effectivity of the training was measured using a self-evaluation questionnaire for the participants, as well as evaluation given by instructors. Based on the findings, the online IIP training comes with several advantages: 1) improving parents' knowledge and ability regarding the intervention on the social skill of their children with autism; 2) having a wider target of participants compared to its offline counterpart; 3) in terms of time and place, offering greater flexibility for participants to access materials for the training. As an implication of the evaluation result, a new strategy is needed to ease online interaction process between instructors and parents in planning the intervention program and implementing it on their children.

Keywords: children with autism, social skill, parents, offline IIP training, online IIP training

1. Introduction

A diagnosis of autism may have a significant and lasting effect on families. According to Lee (2009), there are substantial disparities in coping abilities, rates of sadness and anxiety, and the prevalence of autism spectrum disorders among parents of children with autism compared to parents of children who do not have autism. The act of obtaining a diagnosis, in addition to the manner in which the information is communicated, is a factor that contributes to the acceptance of the situation on the part of the parents, including stress levels and coping techniques. The prolonged process of getting a diagnosis is very stressful for the patient (Ayyash et al., 2023). Many children are not properly diagnosed with autism until long after the age of 3, according to Hertz-Picciotto & Delwiche (2009). This is despite the fact that some studies has suggested that the onset of autism is prenatal. Autism, also known as autism spectrum disorder or ASD, is a developmental disorder that is characterized by difficulties with social skills, nonverbal and verbal communication, and repetitive behaviors (American Psychological Association, 2014). Autism is also more generally known as ASD. Autism spectrum disorder is estimated to affect 1 in 68 children in the United States (Centers for Disease Control and Prevention, 2022). ASD stands for autism spectrum disorder. Despite the fact that many children don't be diagnosed until much later in life, the majority of parents mention their concerns within the first year of their child's existence (Lord et al., 2006). According to one set of findings, the typical age at which an individual is identified as having autism spectrum condition is sixty months (van 't Hof et al., 2021). However, according to Lord et al. (2006), it is now possible to have a diagnosis made by an experienced medical practitioner

before the age of 2. According to (Sameroff, 2009) Transactional Model of Child Development, the method in which a parent and child connect is a two-way street in which the child responds to the parent and the parent responds to the child. This is the basis of the parent-child relationship. Observing how a youngster communicates and interacts with his or her parents can provide insight about the child's social, relational, and communication skills. This is a dynamic process that is moulded by the social opportunities and circumstances that the caretakers provide for the individual. Beaudoin et al. (2019) observed that the quality of exchanges between parents and children has a significant role in the connection between neurobiological risk factors and child development. Higher quality parent-child relationships are connected to higher development in domains such as cognitive (Evans & Porter, 2009; Feldman, 2007), social-emotional (Cerezo et al., 2008), and language development (Topping et al., 2013). This is proven by reciprocal and engaging dyadic interactions. Autism is a genetic disorder that can be handed down from parent to kid. It is also detrimental to a child's ability to communicate and socialize. As a result, the likelihood that parents and children with an Elevated Likelihood (EL) for autism will have relationships that are less gratifying than those that parents and children with a Typical Likelihood (TL) for autism would have is increased (Del Rosario et al., 2023).

Independent Intervention Program (IIP©) is an intervention program designed to empower parents as both a planner and an intervener to improve the social skill of their children with autism spectrum disorder (ASD). The aforementioned term refers to a group of complex neurodevelopmental disorders causing hinderance or difficulties in social interactions and verbal and nonverbal communication, as well as repetitive behaviors in various degrees, emerging in the first three years of life and developing over time (Herlina, 2018). Herlina (2018) also highlights a wide variety of findings serving as a foundation for designing IIP©. The first group of findings shows that ASD is the most complex and comprehensive disorder (American Psychological Association, 2014), thus requiring treatments as early and as effective as possible (Milgramm et al., 2022). In addition to this, the disorder also negatively affects life aspects of the individual (Autism Bedfordshire, 2019) and their family (Autism Bedfordshire, 2019; Howell et al., 2015; Magyar, 2011; Mansell & Morris, 2004). Second, several findings show that interventions for individuals with autism cost highly (Järbrink et al., 2007), even more than one for other disorders (Wang et al., 2013). At the same time, they are not easily accessible by low-income families (Poling & Edwards, 2014), have not been received by most individuals with autism (Y. S. Kim et al., 2011; Salomone et al., 2016), and, in terms of implementation, are mostly performed directly by an expert on the children (Bailey et al., 2022). Lastly, the third group of findings note that parents' involvement play a crucial role in the success of the intervention (Aziz, 2015; Elder, 2013; Gupta & Singhal, 2005; Kasari et al., 2010; Moroz, 2015; Negri & Castorina, 2014; Steiner et al., 2012).

IIP© comprises two main activities. The first activity is a workshop for parents and the second one is the practice of intervention by parents on their children. The result from the offline IIP© training shows that the intervention program effectively improved parents' skill in performing intervention on their children as reflected in cognitive and affective aspects, as well as in the planning and the implementation of the intervention, further leading to an improvement in the children's social skill (Herlina, 2018). It was delivered in one of the state primary and secondary school in Bandung city, Indonesia.

The implementation of offline IIP© training, however, met a number of limitations. First, the training was attended only by parents living relatively close to the training venue. Training materials were also accessible by participants only during the session, meaning that parents were not be able to access the materials if they were not present. Lastly, the training organizer required significant budget to duplicate materials and provide training accommodation, transportation fee for training instructors, and refreshments for training participants.

Given the situation above, online IIP© training was designed to tackle the aforementioned challenges. It is an IIP© training program held online through Zoom platform. All printed materials previously given during offline IIP© training session offline were converted into digital files and uploaded to a website accessible by registered participants (Susilana et al., 2020).

According to (Kolb, 2007), online training provides a variety of benefits for participating parents. For one, the training does not require transportation fee. Participants have more time to access the training materials, allowing them to take care of their children without significant inconvenience. From the perspective of the organizer, online training allows for better efficiency, reaching more participating individuals from different places without accommodation and transportation fees. It also becomes the empowering factor in order to enable them with the challenges from the university in various ways such as; environmental support, capability, and emotional (Azila-Gbetteo et al., 2023).

This study is expected to shed some light on the effectivity, advantages, and disadvantages of offline and online IIP© trainings.

2. Method

2.1 Research Design

The study was conducted using pre-test post-test field experiment design. Online IIP© training served as a treatment, given through Zoom and WhatsApp platforms and performed based on the IIP© Model by Herlina (2017), further elaborated as follows:

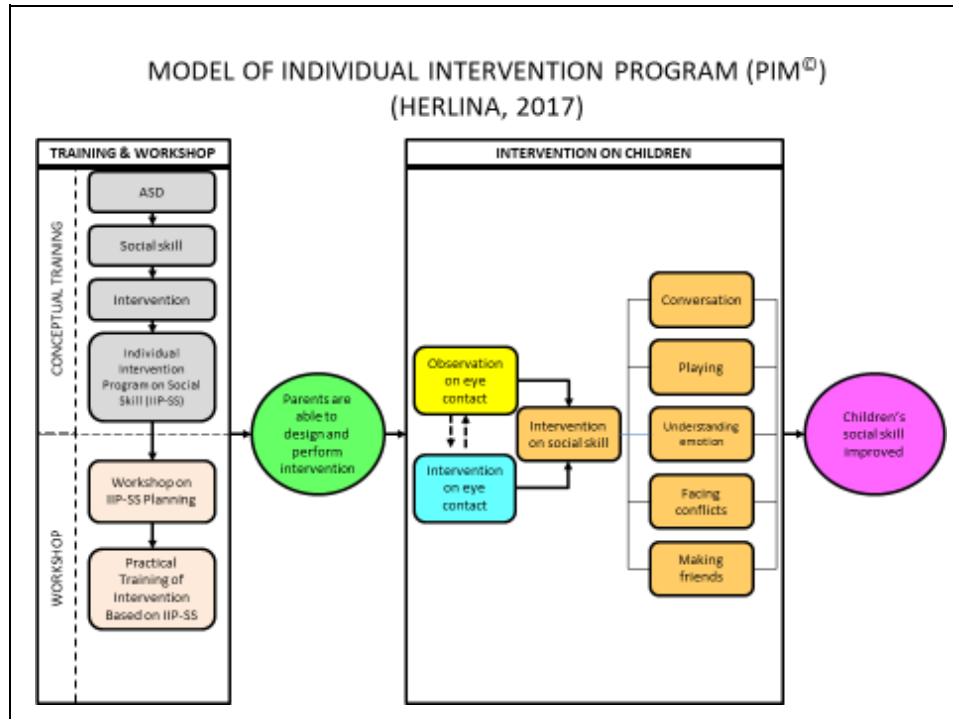


Figure 1. IIP© Model

The training consisted of two sub-activities: 1) conceptual training and workshop for parents, and 2) parental intervention practice on children. The activities can be further elaborated as follows:

Conceptual Training and Workshop for Parents

On the training phase, parents were given four materials covering ASD, social skill, intervention, and Individual Intervention Program on Social Skill (IIP-SS). Each material was presented by the team through Zoom, with each meeting reserved for one material. Parents could access the materials from the web prior to the Zoom meeting. In addition to this, parents were also required to submit a self-evaluation form regarding the material, before and after the training.

Following the conceptual training, parents were invited to join a workshop on IIP-SS form filling. For the early phase, the workshop was done online through Zoom. On the next phase, parents were required to send the IIP-SS form they have filled to the team through WhatsApp. The team would then evaluate the form and provide feedback.

After participating in the training and workshop, parents hopefully gained knowledge and skill, and were ready to perform intervention on their autistic children, thus marking the beginning of the intervention practice phase.

Intervention Practice.

The activity, as the name implies, refers to the intervention performed by parents on their children with ASD, based on the IIP-SS they have planned or designed. The intervention aims at improving their children's social skill. Parents also have to record themselves performing the intervention on their children and submit the video to the team for feedback. In addition to this, parents are required to evaluate the result of the intervention by filling and submitting an evaluation form provided by the team.

To simplify, activities were done following a plot as illustrated below:

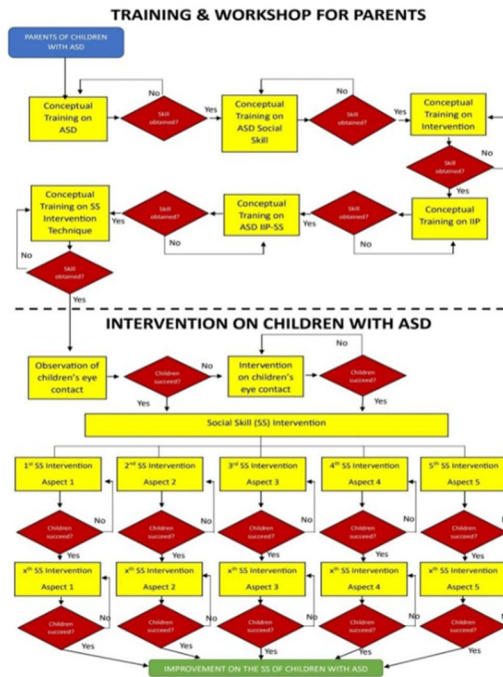


Figure 2. Plot of the Online IIP[®] Training

2.2 Participants

The study involved 11 subjects purposively selected upon two main criteria: participants are parents of a child with ASD and willing to follow the whole steps or activities in online IIP[®] training ranging age from 30- 50 years old with the level of education from secondary to higher educations. To find participants, information regarding the training, including a link to a Google Form for registration was spread across social media platforms such as WhatsApp, Instagram, and Facebook.

2.3 Research Instruments

Data covering effectivity of the training on cognitive and affective aspects, as well as parents' skill and knowledge on intervention were obtained using self-evaluation questionnaire. Parents were required to perform self-evaluation before and after joining each training session. Subjects were also asked to rate their own skill and knowledge on each aforementioned aspect by giving one to three as the lowest scores, four to six as medium scores, and seven to nine as the highest scores.

In addition to this, data showing the advantages and disadvantages of the training implementation were obtained through training evaluation questionnaire designed as open- ended questions, as well as observation notes taken by the team regarding positive aspects and challenges occurring during the training.

2.4 Data Analysis

Data on the effectivity of the training were analyzed using Wilcoxon Match Paris non- parametric statistical technique on a significance level of $\alpha=0,05$. The analysis would show whether or not a significant change could happen on cognitive and affective aspects, as well as subjects' skill following the training. H0 is rejected if the score difference on self-evaluation result before and after the training has a significance level of $p<0,05$, and is accepted when $p>0,05$.

On the other hand, data related to the advantages and disadvantages of the training were analyzed qualitatively using data triangulation process comprising three steps: omitting irrelevant information for the purpose of evaluation, grouping data by arranging matrixes according to categories such as aspects evaluated, as well as advantages and disadvantages, and making a conclusion.

3. Results

It is well known that parents of children with ASD report significantly higher levels of symptoms of parenting stress (i.e., negative parental self-views, lower satisfaction with parent-child bond, and experiences of difficult child behaviors), more depression symptoms, and engage in more maladaptive coping strategies than parents of neurotypical children (Lai et al., 2015). According to Catalano et al. (2018), unmet mental health needs of parents of children with ASD can have a negative influence on the parents' psychological, physical, and social well-being. This can also disrupt the adaptive functioning of the family and place a cap on the child's potential (Abouelseoud et al., 2022). According to Bitsika & Sharpley (2004), having access to family support networks is crucial for the psychological well-being of parents of children with autism spectrum disorder (ASD), and it is also viewed as protective against high levels of anxiety and depression in these parents. A higher level of parental participation in the treatment of children or adolescents who have ASD is likely to improve the quality of life of those individuals (Musetti et al., 2021).

3.1 Participant' Background

The study involved 11 participants from various regions in Indonesia, including greater Bandung area, West Java, Central Java, East Java, and even Sumatera and Batam. Also contributing to the study was a post-graduate Indonesian student from the University of Michigan who voluntarily became a guest speaker on a sharing session about autism intervention.

3.2 Test Result of the Training Effectiveness on Participants' Cognitive Aspect, Skill, and Affective Function

Based on the descriptive analysis on participants' self-evaluation result regarding their knowledge on concepts of ASD, social skill, intervention, and individual intervention program, as well as their IIP-planning skill and affective function related to their children's autism, average scores were obtained, further elaborated as follows:

Table 1. Result of Online IIP Training

Training Aspect	Pre-Test		Post-Test		Gain
	Average Score	Category	Average Score	Category	
ASD Concept	6.47	Moderate	7.73	Great	1.25
Social Skill Concept	4.83	Moderate	7.47	Great	2.64
Intervention Concept	4.10	Moderate	7.11	Great	3.01
IIP Concept	4.14	Moderate	7.05	Great	2.91
IIP-Planning Concept	4.00	Moderate	6.66	Moderate	2.66
Affective Function	6.94	Moderate	8.03	Great	1.09

For easier reading, the result can be illustrated in the following graphic:

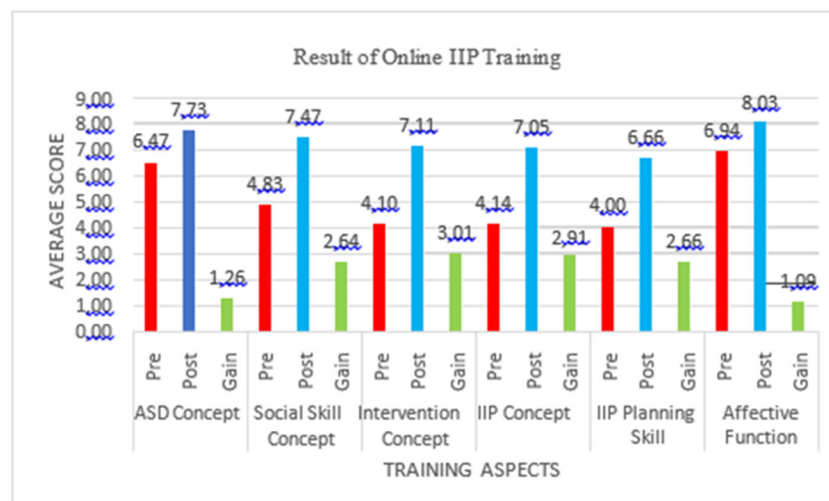


Figure 3. Result of Online IIP Training

Table 1 and Figure 3 reflect an increase in participants’ ability in regards with their cognitive aspects and skill, as well as their affective function following the online IIP © training.

Observing pre-test scores across the aspects, it is discovered that the highest score is represented by the aspect of affective function (moderate, with average score of 6.94), while the lowest score belongs to the aspect of IIP-planning skill (moderate, with average score of 4.00). After the training, affective function aspect still holds the highest score (great, with average score of 8.03), while the lowest score belongs to IIP-planning skill aspect (moderate, with average score of 6.66). In terms of skill improvement following the training, it can be seen that the most significant increase is shown by the aspect of intervention concept (3.01 point), while the least significant one belongs to the aspect of affective function (1.09 point).

Data analysis using Wilcoxon Signed Rank Test statistical technique on a significance level of $\alpha=0.05$ shows results as elaborated in Table 2.

Table 2. Result of Pre-Test Post-Test Significance Test

	Test Statistics ^b					
	Post-Material – ASD Concept Pre-Material – ASD Concept	Post-Material Social Pre-Material Social Skill	– Post- Materials – Intervention Concept Pre-Materials – Intervention Concept	Post- Materials – IIP – Pre- Materials IIP	Post-Materials – IIP-SS Planning Skill Pre-Materials IIP-SS Planning Skill	Post- Affective – Pre-Affective Skill –
Z	-2.558 ^a	-2.848 ^a	-2.762 ^a	-2.810 ^a	-2.934 ^a	-2.379 ^a
Asymp. Sig. (2-tailed)	.011	.004	.006	.005	.003	.017

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Statistically, Table 2 reflects a significant increase on scores for all aspects following the online IIP © training. Specifically, the significance reflecting an improvement in participants’ skill on tested aspects can be further elaborated as follows: the knowledge on ASD at $\alpha=0.11$ ($p<0.05$), the concept of social skill at $\alpha=0.004$ ($p<0.05$), the concept of intervention at $\alpha=0.006$ ($p,0.05$), the concept of IIP at $\alpha=0.005$ ($p,0.05$), the IIP-SS planning skill at $\alpha=0.003$ ($p,0.05$), and the affective function at $\alpha=0.017$ ($p,0.05$). Therefore, it can be said that online IIP © training has successfully improved participants’ skill on all of the training aspects.

3.3 Data Analysis Result on the Training Practice

Based on participants’ inputs and the team’s observation on the plus points and challenges present during the training process, it is discovered that the online training has a number of advantages on these aspects: 1) comprehensive training materials, 2) convenience and flexibility in accessing the training materials, and 3) the team’s quick response on participants’ questions or concerns.

On the other hand, participants noted a number of challenges or disadvantages of the training. For one, there wasn’t enough time allocated for the practice. The number of supporting materials—videos showing examples of intervention practice were also limited. Unstable internet connection also served as another challenge as it disrupted the training held through Zoom meeting or WhatsApp communication.

From the team’s perspective, one of the challenges was a long interval between the time the tasks were given to the participants and the time they submitted their videos showing the implementation of the intervention on their children. Meanwhile, instructors are required to provide them some feedback based on their videos. This resulted in a longer period required to finish one step of the training—specifically, the practice of intervention by parents on their children.

4. Discussion

According to the American Psychological Association (2014), autism is a neurodevelopmental disorder that can be recognized by its symptoms, which include impairments in speech and social interaction, as well as restricted

interests and repetitive activities. Children who have autism frequently have a delay in their development, which mostly impacts their linguistic and social-emotional growth (Bellman et al., 2013; Delehanty & Wetherby, 2021; Raza et al., 2020). This can be very challenging for families. Autism is a highly heritable illness (Rosenberg et al., 2009). As a result, determining a higher probability of having autism could be identified by analyzing a family history of psychiatric and neurodevelopmental problems. Individuals who have a first-degree family who has been diagnosed with autism, such as a biological parent or sibling, have what is referred to as an Elevated Likelihood (EL) of getting the illness themselves. According to Ozonoff et al. (2011), individuals with no history of neurodevelopmental problems in their families have what is referred to as a Typical Likelihood (TL) of developing autism. When examining possible early indicators of autism in infants, it is common practice to make use of the terms "high-risk" and "low-risk." A number of proponents have expressed their belief that the term "risk" carries unfavorable connotations (Del Rosario et al., 2023). According to Fletcher-Watson et al. (2017), the wording that is currently preferred uses the phrases "increased or elevated likelihood" and "low or typical likelihood."

As the comparison for its study result in similar research, Autism spectrum disorder, also referred to simply as ASD, has been on the rise globally, and Hong Kong is not an exception to this trend. There are now more people living with autism in Hong Kong than ever before. The most recent statistics on autism indicate that the number of people diagnosed with the condition has climbed from 3,800 in 2007 to 10,200 in 2013, which corresponds to a prevalence rate of 0.14% in 2013 (Centers for Disease Control and Prevention, 2022). This represents a significant increase from the previous number of diagnoses, which were only 3,800 in 2007. Children diagnosed with autism spectrum disorder (ASD) and their families continue to face discrimination and a lack of opportunities in Hong Kong, despite the fact that ASD diagnoses are becoming more common (Chan & Lam, 2018; Mak & Kwok, 2010).

Baesd on the study result, it shows that online IIP[®] training was effective in improving parents' cognitive aspects, skill, and affective function. The latest result supports another study showing that offline IIP[®] training is as effective in improving the aforementioned aspects (Chotidjah et al., 2019; Susilana et al., 2019). It is worth to note, however, that during the phase or step of parents' intervention on their children, the team still relied heavily on the videos submitted by participants in order to evaluate their skill. Unstable internet connection also presented another challenge to the training process.

When compared, results of studies on both online and offline IIP[®] training lead to a number of similarities and differences:

Similarities

Both online and offline IIP[®] trainings are: 1) proven effective, as observed on all measured aspects (cognitive, skill, and affective function), and 2) able to accommodate participants' need in accessing training materials and service from the team.

Difference

All differences observed between offline and online IIP[®] trainings are listed in Table 3 below:

Table 3. Comparison between Online and Offline IIP[®] Trainings

Comparison Aspect	Offline IIP [®]	Online IIP [®]
Participants	Coming from regions nearby the training venue/location	Coming from various regions in Indonesia
Training Process	<ul style="list-style-type: none"> ● Participants could access and learn the training materials only at certain times during the training ● Training did not rely on internet connection ● Parents could receive feedback immediately regarding the intervention on their children as instructors were able to monitor the practice in person 	<ul style="list-style-type: none"> ● Very reliant on the availability and stability of internet connection ● There was a long interval between the time for the intervention implementation and the time for giving feedback on the intervention as feedback was provided based on the intervention video participants submitted to the instructors. The longer the time needed by participants to submit the video was, the longer the waiting time to obtain the feedback became.

These results lead to a number of implications:

Additional time allocated for IIP-planning skill training is required.

Additional videos showing the implementation of intervention are required.

Online training through Zoom must be recorded, thus allowing participants to get the recording file as a training material. This is important not only for those who have experienced problem in internet connection but also for all participants to replay the recording in order to understand the training material better.

This study offers light on one aspect of parenting children with autism spectrum disorder (ASD) that is underexplored in the literature: the active agency of emotion regulation. Second, this research emphasizes that the emotional requirements of these families are not limited to getting comfort and separating themselves from discomfort; rather, it should be understood to include support for their fight against institutional hurdles and stigma, as well as their quest for social acceptance (Kim et al., 2020).

5. Conclusion

Based on the results explicated above, it can be concluded that the online IIP[®] training comes with both advantages and disadvantages, further elaborated below:

Advantages:

- Participants are able to access training materials with flexibility, anytime they need.
- Online training is effective in improving parents' ability or knowledge on cognitive, skill, and affective aspects in regards with the intervention practice on their autistic children.
- The training is able to reach more participants from a variety of locations, unbounded to a certain area or city.

Disadvantages:

- The training requires participants to have an internet connection with ensured signal stability.
- The time taken for providing feedback on the intervention practice highly depends on how early parents submit the video of the intervention practice to their instructors.

ASD is something that should be taken into consideration when assessing the emotional needs of these families. This suggests that there is not just a need for micro-level therapeutic intervention to relieve stress, but also a need for advocacy on a broader level to reduce injustice done to children with ASD and their families. This is something that should be taken into consideration when it comes to clinical practice.

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Authors contributions

Dr. Herlina & Prof. Dr. Rudi Susilana were responsible for study design and revising. Hernawati was responsible for data collection. Angga Hadiapurwa drafted the manuscript and Dr. Herlina & Prof. Dr. Rudi Susilana revised it. All authors read and approved the final manuscript.

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