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Integrated Family Development Intervention on Perceived Stress and Parental Self-Efficacy of Parents of Children with Autism Spectrum Disorder

Diah Curie Kharisma^{1,*}, Agus Suwandono², Anastasia Ediati³

¹ Doctoral Program of Medicine, Diponegoro University, Semarang, Indonesia

² Faculty of Public Health, Diponegoro University, Semarang, Indonesia

³ Psychology Faculty, Diponegoro University, Semarang, Indonesia

Abstract: This research method used a quasi-experiment with a population of parents who have children with autism spectrum disorder (ASD). This study used the total population, namely all parents of children with ASD who met the inclusion criteria. The instrument used for data collection in this study was a questionnaire which included: Perceived Stress Scale (PSS) questionnaire and Self-Efficacy Parenting Task Index (SEPTI) questionnaire. Data were analyzed by the Wilcoxon rank test and the Mann Whitney test. The results of this study were an integrated family coaching intervention for parents of children with ASD that affected the perceived stress of parents with ASD children but did not have a statistically significant effect on increasing parental self-efficacy of parents with ASD children. The results of this study can be used as input for an ongoing intervention for the government in dealing with ASD based on a good partnership between parents and ASD children with school principals, teachers, and therapists.

Keywords: autism spectrum disorder, perceived stress, parental self-efficacy.

自闭症谱系障碍儿童家长感知压力与家长自我效能的综合家庭发展干预

摘要：该研究方法对患有自闭症谱系障碍儿童的父母群体进行了准实验。本研究使用了总人口，即符合纳入标准的自闭症谱系障碍儿童的所有父母。本研究中用于数据收集的工具是一份问卷，其中包括：感知压力量表问卷和自我效能育儿任务指数问卷。数据通过威尔科克森秩检验和曼惠特尼检验进行分析。这项研究的结果是对自闭症谱系障碍儿童父母的综合家庭辅导干预，它影响了自闭症谱系障碍儿童父母的感知压力，但对提高自闭症谱系障碍儿童父母的自我效能没有统计学意义。基于父母和自闭症谱系障碍儿童与学校校长、教师和治疗师之间的良好伙伴关系，本研究的结果可用作政府在处理自闭症谱系障碍方面持续干预的投入。

关键词：自闭症谱系障碍、感知压力、父母自我效能感。

1. Introduction

Parents of children with ASD do not provide comprehensive handling to overcome problems in their children because parents of children with ASD tend to experience higher stress than parents of children without developmental disorders or parents of children with other special needs. [1] A survey of 219 parents of

children with ASD showed that 30% of parents experienced moderate to severe levels of perceived stress, less than 20% experienced perceived stress [2].

Some parents report an increase in perceived stress in the parenting process for children with ASD. Studies on the increase in perceived stress in parents show that parents of children with ASD experience a higher level

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About the authors: Diah Curie Kharisma, Doctoral Program of Medicine, Diponegoro University, Semarang, Indonesia; Agus Suwandono, Faculty of Public Health, Diponegoro University, Semarang, Indonesia; Anastasia Ediati, Psychology Faculty, Diponegoro University, Semarang, Indonesia

Corresponding author Diah Curie Kharisma, poenya_koe@yahoo.com

of perceived stress. Older people also experience fatigue, increased problems with physical health, body aches, poorer overall well-being, and decreased quality of life [3].

Studies on the role of parenting perceived stress and parenting self-efficacy as mediators between children's behavior problems and parental anxiety show that parenting perceived stress mediates the relationship between children's behavior problems and decreased parenting self-efficacy. A decrease in parenting self-efficacy mediated the relationship between parenting perceived stress and an increase in perceived stress [4].

One of the efforts to overcome the perceived stress in parents of children with ASD is good management of perceived stress. Emotional Freedom Technique (EFT) therapy is oriented to the body's energy system to release individuals from emotional and physical disorders using the tapping method [5]. A study of the effects of EFT on the biochemistry of stress examining changes in cortisol levels from saliva and symptoms of psychological stress in non-clinical participants recruited via online bulletin boards ranging in age from 18 to 80 years showed that psychological stress and cortisol levels decreased on the same records following the EFT program. That is confirmed by research conducted on nursing students at Carolinas College of Health Science, North Carolina, which aims to determine the effectiveness of EFT in reducing anxiety and stress to help students in stress management. The study results showed a statistically significant reduction in stress and anxiety with a mean difference at baseline week four [6].

Stress management for parents who have children with ASD can also be done by increasing parenting self-efficacy; this follows a study conducted to test parenting self-efficacy of having children with ASD and experiencing parenting stress which states that high parenting self-efficacy is correlated with less parenting stress [7]. Dimensions of Parental Self Efficacy include affection or emotion, play, empathy or understanding, routine, control, constraints, pressure, acceptance, and learning (knowledge) [8]. A study of parents' self-efficacy beliefs with parental knowledge of child development states that parents' knowledge of child development moderates parents' self-efficacy and parenting competencies. Parental self-efficacy and parenting competence are positively related when parents' knowledge of child development is high [9].

Based on a preliminary survey by conducting in-depth interviews with school administrators and teachers of Semarang State SLB, a family development program that can build partnerships between teachers and parents has never been held. The student family coaching program is only in the form of counseling from resource persons to parents regarding the dietary patterns of children with ASD and is part of the parent class officially organized by the school, but has not realized a good teacher-parent partnership. Through an

integrated family coaching intervention program for children with ASD, it is hoped that parents can work together with teachers to participate in educating and raising children with ASD actively.

The purpose of this study was to identify perceived stress scores and parental self-efficacy scores for parents of children with ASD before and after participating in an integrated family coaching intervention program for children with ASD that was developed to address these problems in the future.

The novelty in this study is the intervention given to parents with children with autism spectrum disorder which can reduce perceived stress. The results of this study are expected to be used as input in providing health services in special schools and autism centers.

2. Methods

The research design used was a Quasi Experiment, the study population in this study were all parents of children with ASD who attend Special Schools Semarang. This study used the total population, namely all parents of children with ASD who met the inclusion criteria.

Inclusion criteria in the form of; parents of children with ASD who attend SLB Negeri Semarang, can read and write, can communicate actively, and are willing to become respondents and sign an informed consent. While the exclusion criteria were; parents who have children with ASD, with children over 17 years old, children with ASD suffer from serious mental disorders or other comorbidities. In addition, there are also Drop Out criteria, namely; The presence of respondents is less than 80% in parent class activities, respondents refuse to do the pre-test or post-test. In connection with the research carried out at the Covid 19 pandemic, the following inclusion criteria were added: respondents were in good health with a body temperature of not more than 38°C, respondents used masks. They did not remove them during the activity, and respondents brought hand sanitizers from home.

The instrument used for data collection in this study was a questionnaire which included: Perceived Stress Scale (PSS) questionnaire and Self-Efficacy Parenting Task Index (SEPTI) questionnaire. Data were taken on research subjects before the intervention and after the intervention in the treatment group. The research was conducted from September to November 2020.

Data analysis used the Wilcoxon Rank Test to determine the difference in the mean of Perceived Stress Scores and parental self-efficacy scores before and after the intervention in the treatment and control groups and the Mann Whitney U test to determine the effect of the intervention by knowing the mean difference (Δ) Perceived Stress Scores, levels cortisol, and parental self-efficacy scores between the treatment and control groups.

This research has received approval from the Health Research Ethics Commission of the Faculty of Public

Health, Diponegoro University Number: 253 / EA / the form of informed consent.
KEPK-FKM / 2020. Respondent consent was made in

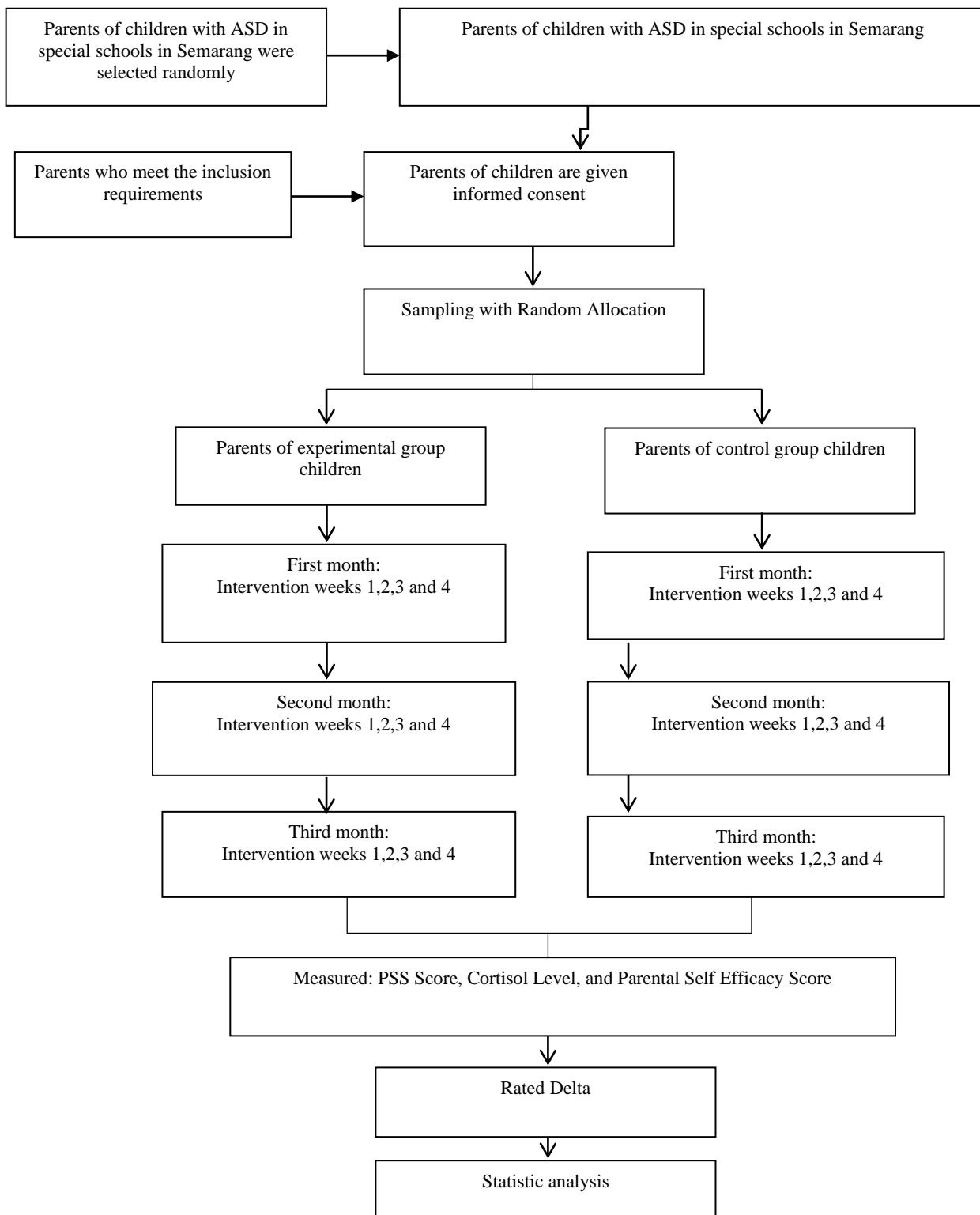


Fig. 1 Research flow

3. Results and Discussion

The PSS scores and parental self-efficacy of the parents of children with ASD before getting the

intervention to see the differences between groups are shown in Table 1.

Table 1 Description of the basic characteristics of the PSS score and parental self-efficacy

Group	N	Experiment	Control	p-value
		Median (min-maks)	Median (min-maks)	
PSS scores	30	24(12-30)	23(18-31)	0,146 ^a

Parental self-efficacy 30 81,5(70-91) 81(74-95) 0,604^a

^a Mann Whitney test

The results of the Mann Whitney test showed that there was no significant difference between the experimental group and the control group before treatment (pre-test) in terms of the PSS score and Parental Self Efficacy of the parents of children with ASD, so it can be concluded that before the intervention was given, there was no significant difference between the experimental group and the control group.

The results showed that the experimental group who received the integrated family coaching intervention experienced a decrease in PSS scores compared to the control group. In the experimental group, the PSS score difference test before and after the intervention showed

a value of $p = 0.000$. That means that there is a significant difference in the median PSS score before (24) and after (20.5) an integrated family coaching intervention (Table 2).

Table 2 Differences in PSS scores before and after the Integrated Family Development Intervention Program based on the research group

Group	N	Pre	Post	p-value
		Median (min-maks)	Median (min-maks)	
Experiment	30	24(12-30)	20,5(9-26)	0,000*
Control	30	23(18-31)	22(17-31)	0,257*

* Wilcoxon sign rank test

Table 3 Delta (Δ) PSS scores before and after the intervention based on the study group

Group	N	Group		p-value
		Experiment median (min-maks)	Control median (min-maks)	
Before	30	24(12-30)	23(18-31)	0,146*
After	30	20,5(9-26)	22(17-31)	0,032*
Δ PSS Scores	30	2((-6)-15)	0(-1-(+2))	0,000*

* Mann Whitney test

The different test between the two groups based on the median value of change for each group using the Mann-Whitney test shows a value of $p = 0.000$, which means that there is a statistically significant difference between the experimental and the control group. The difference in the median PSS score of the experimental group was 2 with the median value (15-6). In

comparison, the control group experienced a change of 0 with a median value (1-2).

Furthermore, changes in the PSS score were categorized into mild stress with a PSS score of 0-13, moderate stress levels with a score of 14-26, and severe stress levels with a PSS score of 27-40 in the group before and after the intervention.

Table 4 Stress levels in the experimental group and the control group

Stress Level	Group			
	Experiment		Control	
	Before n (%)	After n (%)	Before n (%)	After n (%)
Mild	1(3,3)	3(10,0)	0(0,0)	0(0,0)
Moderate	20(66,7)	27(90,0)	26(86,7)	27(90,0)
High	9(30,0)	0(0,0)	4(13,3)	3(10,0)

Before the intervention in the two groups, most of the stress levels were at moderate stress levels, namely 66.7% in the experimental group and 86.7% in the control group. After the intervention, there was a change in the amount at each stress level. There were no respondents who experienced severe stress in the experimental group, but 3% of respondents experienced severe stress in the control group. However, there was an increase in the number of respondents in the moderate stress group, namely 90% in the experimental group and 90% in the control group. There was an increase in the number of respondents who experienced mild stress, namely 10% in the experimental group. There were no respondents who experienced mild stress in the control group.

The integrated family coaching intervention program further increases parental self-efficacy in

parents of children with ASD than parents who do not get intervention. Changes in parental self-efficacy scores before and after the intervention are shown in Table 5.

Table 5 Differences in parental self-efficacy before and after the integrated family development intervention program based on the research group

Group	N	Pre	Post	p-value
		Median (min-maks)	Median (min-maks)	
Experiment	30	81,5(70-91)	85(70-100)	0,066**
Control	30	81(74-95)	82(74-95)	0,180**

** Wilcoxon sign rank test

The results showed that the experimental group that received the integrated family coaching intervention and the control group showed an increase in parental

self-efficacy scores, but it was not statistically significant. Based on table 5, it can be learned that the different test using the Wilcoxon Sign Rank Test shows the value of $p = 0.066$ in the experimental group and $p = 0.180$ in the control group. Furthermore, the difference test between the two groups was carried out based on the median change of each group using the Mann-Whitney test.

Table 6 Delta (Δ) parental self-efficacy before and after intervention based on the research group

Group	N	Group		p-value
		Experiment median (min-maks)	Control median (min-maks)	
Before	30	81,5(70-91)	81(74-95)	0,604*
After	30	85(70-100)	82(74-95)	0,350*
Δ SEPTI Scores	30	0,5(-10-(+24)	0,0(0-2)	0,519*

* Mann Whitney test

Table 7 Parental self-efficacy in the experimental group and the control group

Parental self-efficacy	Group Experiment		Control	
	Before n (%)	After n (%)	Before n (%)	After n (%)
Less able	0(0,0)	0(0,0)	0(0,0)	0(0,0)
Able	9(30,0)	8(26,7)	15(50,0)	14(46,7)
Very capable	21(70,0)	22(73,3)	15(50,0)	16(53,3)

Most parental self-efficacy before the intervention in the two groups was in the very capable category, namely 70% in the experimental group and 50% in the control group. After the intervention, there was a change in the number of the capable and very capable categories. There are no respondents who are in the underprivileged category in the experimental or control groups. However, there was an increase in the number of respondents in the very capable category in the experimental group to 73.3% and 53.3% in the control group. There was a decrease in the number of respondents in the capable category, namely 26.7% in the experimental group and 46.7% in the control group.

4. Discussion

The current analysis reports a significant association between perceived social support and parental stress levels for those raising children diagnosed with ASD. In particular, it seems that the most widespread source of support can come from friends, as there is an inverse relationship between perceived peer support and the three APSI factors (i.e., core autism behavior, comorbid behavior, comorbid physical problems). In contrast, perceived support from a significant other was only inversely associated with one of these three factors (co-existing physical problems), while perceived family support was not associated with any of the APSI factors [10].

The results of this study are inconsistent with the results of research by Ferguso et al. Those parents with ASD professional children (teachers, educators, caregivers, psychologists) do not affect their stress.

The different test between the two groups based on the median value of change for each group using the Mann-Whitney test shows a p -value = 0.519, which means there is no statistically significant difference between the experimental group and the control group. The difference in the value of the median parental self-efficacy in the experimental group is 0.5 with the median value (10-24). At the same time, the control group experienced a change of 0.0 with a median value (0-2).

Furthermore, changes in parental self-efficacy scores are categorized as underprivileged with a score of 0-40, capable with a score of 41-80, and very capable with a score of 80-100 in the group before and after the intervention.

Although some research shows that professionals also experience stress [11], they generally choose whether or not to work with children with disabilities. Professionals are much less emotionally involved than parents. Furthermore, the results of other studies have shown that parents of children with more severe disorders experience more stress (higher mean scores on the "threat" and "loss" subscales). Several authors reported that parental stress levels vary according to the severity of the child's symptoms [12], [13]. The parents' main concern is related to communication skills and social aspects of the child [14]. Parents experience significant stress due to the communication and emotional difficulties of their children. [15] In addition, mothers who have children with high levels of dependence experience more family and social difficulties [16], [17]. In contrast, parents who have more independent children feel more prosperous [16].

The current parental self-efficacy scale primarily targets the parents of children who are usually developing; The scale developed in this study targets parents of children with ASD. Wittkowski states that there are three types of self-efficacy: general, domain-, and task-specific. Until now, parenting self-efficacy scales have been domain-specific, such as parenting of parent; The PSE developed in this study is a specific task, such as preventing challenging behavior.

Before and after the intervention, parental self-efficacy experienced an increase in both the experimental group and the control group. The experimental group experienced an increase that was more than the increase in the control group, but it was

not statistically significant. It means that the intervention program, namely the class of parents, plays an important role in supporting parents with ASD children to avoid unwanted things. That is consistent with the theory that many parenting interventions for families of children with neurodevelopmental disabilities have been designed and evaluated globally over the past few decades [18], [19]. These interventions are designed to enhance the ability of parents to parent children successfully through training, support, or education, and its main purpose is to influence the psychosocial well-being of parents [20], [21]. Most of these programs consist of skills training, parental education, parental support, and parental guidance. As a result, these programs are said to be focused on providing knowledge (parental support) or techniques (interventions that parents mediate). [22] The main objective of this intervention is to reduce the impact of the challenges faced by families of children with disabilities through teaching parents new knowledge and skills to reduce the child's behavioral, emotional, and developmental difficulties [23].

The results of this study are following a literature review conducted by Hohlfeld et al., 2018 which states that the parental training program resulted in a statistically significant increase in the level of parental self-efficacy (standard mean difference, 0.60 [95% confidence interval (CI 0.38-0.83); I², 74%]) relative to baseline [24]. Parents of children under 5 years showed the highest increase in parental self-efficacy rates after parenting interventions. Furthermore, this review shows that psychologists and other health practitioners successfully implement training programs that increase parental self-efficacy.

Participants attributed self-efficacy during the study to their perceived ability to interact with their children and the positive emotions experienced during the study/intervention. Fathers generally get a greater sense of self-efficacy than mothers, and this is explained by differences in the motivation of the father and the mother. Mothers were motivated to follow the direction of the intervention for results-oriented reasons (e.g., promoting child progress). In contrast, paternal motivation represented greater emotional stress, reflecting a better match between motivation and indicators of perceived efficacy during the intervention [25].

Parenting training programs are effective regardless of whether they are administered by psychologists or other health care professionals. These findings may have particular relevance in need for an established professional training program for medical health professionals who aim to be trainers for parents with ASD children.

Parents who have a child with ASD can increase parental stress levels and can negatively impact their mental health because children with ASD often exhibit problematic behaviors in addition to the core symptoms

of ASD, which can be more problematic than the core symptoms themselves. Research has shown both core symptoms (e.g., language and social deficits, limited or repetitive behavior) and behavioral problems (e.g., tantrums, disobedience) [26]. The results of other studies suggest that informal social support and social media are perceived as more helpful than formal support, which parents usually perceive as neutral. Overall, the study suggests that meeting parental support needs for children with ASD remains a priority [27]. Parents' perceptions of their child's core ASD symptoms were slightly higher than comparable estimates published in the United States, indicating the need for parents to provide support [28].

The results of the assessment of Parental Self Efficacy using the Self Efficacy Parenting for Task Index instrument show that parents with ASD children in the intervention group and control group after being given treatment on average experience an increase in parental self-efficacy scores. The measure of parental self-efficacy developed in previous studies has limitations. First, the primary target of the parenting self-efficacy scale is not parents of children with ASD but parents of children without developmental disabilities [11]. Second, existing parenting self-efficacy scales are not specific to a specific task, such as prevention of challenging parental behavior but are domain-specific, such as parenting of parent [28], within three types of self-efficacy: general, domain-, and parenting. special task [11]. Through the parental self-efficacy scale to prevent challenging behavior, practitioners can achieve the following: measuring the parents' self-efficacy score to prevent challenging behavior; identify parents with low self-efficacy scores, and support such parents in increasing their self-efficacy to prevent challenging behavior. Improved parental self-efficacy enables parents to prevent challenging behavior: which can prevent challenging behavior in children, improve mental health for parents and children with ASD, and especially prevent child abuse and abuse. Subject-specific challenges for children with ASD are children having communication difficulties; children are also hypersensitive or insensitive to stimuli from the surrounding environment, leading to challenging behavior.

One study reported that parents of children with ASD suffered more from depression than children with other developmental disorders [29]. Current parenting self-efficacy scales primarily target the parents of children who are usually developing [24]; The scale developed in this study targets parents of children with ASD.

The limitations of this study were that the intervention was observed at the beginning and the end of the activity, no observations were made about the decrease in perceived stress, the increase in parental self-efficacy and quality of life in the middle of the

intervention activity so that the trend of the decline or increase that occurred could not be known.

The limitations of this study are that the intervention was observed at the beginning and the end of the activity, no observations were made about the decrease in perceived stress and the increase in parental self-efficacy in the middle of the intervention activity so that the trend of the decline or increase that occurred was not known.

5. Conclusion and Recommendation

An integrated family coaching intervention for parents of children with ASD affects reducing stress for parents with ASD children. The integrated family coaching intervention for parents of children with ASD does not significantly affect the increasing parental self-efficacy of parents with ASD children. The suggestion in this study is that further research is needed, which involves a larger number of samples because the spectrum of autism is very broad.

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