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The Relationship between the Quality of Early Childhood Education and Care and Self-Regulation in Toddlers: Comparison between Toddlers with Symptoms of a Clinical Condition and a Reference Group

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Preface

Before you lies the master's thesis that I wrote during this year, in which I followed the master Clinical Child, Family and Education studies. I really enjoyed every part of it, even though at times it was a heavy road, with obstacles and several setbacks. However, I would not have made it without my wonderful teacher, Annika de Haan, who has supported me through every high and low that occurred in the process of writing this thesis. I am beyond thankful for her flexibility, feedback, the laughs, and support that have helped me to create the product that is now lying in front of you. I also want to express my gratitude towards Lex Wijnroks, who has provided me with the data for this thesis. Without these data, writing this thesis would not have been possible.

In addition, I would like to thank my friend Julia, who has been there to support me along the way. I would also like to thank my boyfriend Dimitris, who was there in the happy moments, as well as in the downhearted moments that kept me awake at night. At last, it was a rocky road with some beautiful views along the way.

Rachel Camerik

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Abstract

Objective. The aim of this study was to identify the relationship between the process quality of Early Child Education and Care (ECEC) provisions and self-regulation in toddlers. Additionally, a group showing symptoms of a clinical condition will be compared to a reference group with either no symptoms or symptoms related to other conditions, such as lingual impairments or emotional problems. **Method.** Observations were done by using the Classroom Assessment Scoring System Toddler. In addition, toddlers have executed several tasks to measure their executive functions which are the underlying constructs of self-regulation. **Results.** A significant relationship has been found between the quality of ECEC and self-regulation in toddlers. However, no moderation effect was found with respect to the different groups. **Discussion.** This study indicates that the quality of ECEC is positively related to self-regulation in toddlers. Nonetheless, further research is recommended to obtain a better insight in this relationship with respect to toddlers who show symptoms of a clinical condition.

Keywords. *toddlers*, *self-regulation*, *early child education and care*, *clinical conditions*

The Relationship between the Quality of Early Childhood Education and Care and Self-Regulation in Toddlers: Comparison between Toddlers with Symptoms of a Clinical Condition and a Reference Group

The period from two-and-a-half to four years old is marked by rapid changes in cognitive, emotional, and social functioning (Anderson, 2002). An important skill that develops during this period is the ability to regulate behavior (i.e., self-regulation). McClelland and Cameron (2012) defined self-regulation as the ability to control attention, thoughts, emotions, and actions. Several studies suggest that successful transition to school requires strong self-regulation, because acquiring these behavioral skills ensures that children can successfully meet the demands of the school environment, and function properly in the relationships with their peers (Ackerman & Friedman-Krauss, 2017; Blair, 2002; Blair & Diamond, 2008; Calkins, 2007; Morrison et al., 2010). In addition, research has shown a positive relationship between early self-regulation and academic achievement, social competency, and general well-being later in life (Hammer et al., 2018; Moffitt et al., 2011; Shuey & Kankaraš, 2018; Slot, 2014). Executive functions are believed to be the cognitive functions related to self-regulation capacities (Garon et al., 2008; Hofmann et al., 2012; Miyake & Friedman, 2012), and may therefore be of pivotal importance in the school environment (Slot et al., 2017).

Executive functions (EF) are referred to as a combination of higher order cognitive and regulating processes which are used in goal-directed activities, problem solving, and self-regulation (Ackerman & Friedman-Krauss, 2017; Antshel et al., 2014). In situations where relevant information has to be remembered or integrated in an already existing plan (e.g., classroom rules), and when conflicts have to be resolved (e.g., between the result of an action and the goal of a task), executive control is required (Slot et al., 2017). Between the age of three and five years old, children's ability to execute EF tasks (e.g., planning, skill learning) quickly increases (Kochanska et al., 2000; Miyake et al., 2000). One of the explanations for this development is the rapid growth of the prefrontal cortex, which takes place during the period from three to six years old (Ackerman & Friedman-Krauss, 2017).

Several theories have been proposed regarding the development of EF. For instance, Veer and colleagues (2017) have suggested that the first EF component to develop is selective attention (i.e., the ability to select relevant information, and ignore irrelevant information in the environment). This ability develops during the first three years of life. Then working memory and inhibition develop around the age of three to four years old (Rothlisberger et al., 2013). Working memory includes the ability to remember information for a short period of

time and manipulate this information while performing a task (Blair et al., 2005), and inhibition refers to the ability to withhold or delay a response, and adapt behavior to a specific situation (Ikeda et al., 2014). On the other hand, Garon and colleagues (2008) have suggested that the sequence of development is different, starting with the development of working memory, then inhibition, and finally cognitive flexibility (i.e., the ability of being focused on one activity and ignoring irrelevant information). Unfortunately, the reason behind these differences remains unclear, and further investigation is recommended. However, despite these differences, these studies do suggest that EF becomes more differentiated with age (Hughes, 2011; Wiebe et al., 2011).

As previously mentioned, the constructs that are referred to in the study of Garon and colleagues (2008) and Veer and colleagues (2017) are different. Specifically, Garon et al. (2008) referred to cognitive flexibility, whereas Veer et al. (2017) describe the construct as selective attention. Again, in other studies, both constructs are mentioned (e.g., Nicoladis et al., 2018). The difference between these constructs seems to be that selective attention is the ability to focus on relevant information, and cognitive flexibility also entails an active inhibition of one's prepotent response. With respect to the current study, cognitive flexibility seems to be more relevant in self-regulation, since it involves the act of inhibiting a response as well.

Several studies have shown that some children with Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), and Oppositional Defiant Disorder (ODD) show a different development of EF (Hughes, 2011). For instance, research has suggested that children who show symptoms of ADHD score lower on EF tasks than their peers without these symptoms (Ezpeleta & Granero, 2015; Schoemaker et al., 2014). Likewise, children with ASD also seem to perform lower on tasks that measure EF (Hill, 2004; Verté et al., 2006), and score lower on EF tasks than their ADHD peers (Corbett et al., 2009). However, Duff and Sulla (2015) have shown in their review that findings with respect to the relationship between ADHD and problems in EF are inconsistent. Accordingly, Oosterlaan and colleagues (2005) and Van Goozen and colleagues (2004) did not find differences between children with ODD and a typically developing control group. Since most research has been conducted with older children and adolescents, more research is needed on children in the preschool age in order to detect how dysfunctions in EF develop in this period.

In this study, the focus is directed to the relationship between the quality of Early Childhood Education and Care (hereafter: ECEC) and self-regulation in toddlers as defined by their EF. When children attend ECEC, they have the opportunity to form new relationships

with other adults. Children who form strong relationships with their teachers, show an increased ability to explore their surroundings, try novel things, and develop more autonomy and independence (Gonzalez-Mena & Widmeyer Eyer, 2007). As toddlers are developing self-regulation skills, this might often be accompanied by conflicts between the child and the teacher, or with other children. By stating clear expectations, following children's development, positively correcting the children, and offering suitable activities and materials, teachers have the ability to positively affect children's development and well-being (Copple & Bredekamp, 2008; Feldman & Klein, 2003). Nonetheless, few studies have investigated the relationship between the quality of ECEC and self-regulation (Broekhuizen et al., 2016; Sylva et al., 2020). Specifically, no prior research has focused on the relationship between the quality of ECEC and self-regulation in toddlers with symptoms of a clinical condition. Research regarding the relationship between quality and child outcomes, such as academic achievement, has often been carried out in samples consisting of disadvantaged toddlers (e.g., Landry et al., 2014), in terms of SES disadvantages, and not with respect to clinical conditions.

Often a distinction is made between structural and process quality. Structural quality is referred to as the controllable aspects of ECEC, such as group size, teacher-to-child ratio, and teachers' educational attainment (Howes et al., 2008; Thomason & La Paro, 2009). Process quality, on the other hand, refers to the social, emotional, and instructional activities, and interactions with peers, childcare workers, and materials (Howes et al., 2008; Pianta et al., 2005; Thomason & La Paro, 2009), and has been shown to have a significant impact on children's learning (Slot, 2018; Sylva et al., 2011; Sylva et al., 2020). Generally, structural quality is assumed to be related to higher process quality, and through process quality, to improved child outcomes (NICHD ECCRN, 2002). In addition, several researchers have found a positive relationship between high quality ECEC and social skills, and a negative relationship between quality and behavioral problems (Broekhuizen et al., 2016; Burchinal et al., 2012).

The current study will focus on two questions. The first question will address whether or not there is a relationship between the quality of ECEC and self-regulation in toddlers. The second question will address whether or not toddlers with symptoms of different clinical conditions (i.e., ASD, ADHD, and ODD/CD) differ from a reference group. The reference group consisted of toddlers without such symptoms or symptoms related to other conditions, such as lingual impairments or emotional problems. To answer these questions, several hypotheses have been drawn. First, it is expected that the quality of ECEC is positively

related to the level of self-regulation of toddlers. Second, it is expected that high ECEC quality is particularly important for the self-regulation of toddlers who show symptoms of a clinical condition, in comparison to the reference group.

Method

Participants

PeuterPlus! (hereafter: PP!; Wijnroks, 2013) is a support program for which children were enrolled by their teacher or care consultant. Criteria for inclusion in the program were persistent language and/or behavioral problems, the toddler's age, and participation in the preschool for at least six months. Moreover, the preschool must have exhausted their own resources in supporting the child, before enrolling a child for the PP! program. The preschool informed the parents when they enroll their child for PP!. First, PP! verified whether the problems are sufficiently persistent and severe. When the child's admission is accepted, a meeting is organized with the parents, in which PP! is explained, if necessary with the aid of a translator. Subsequently, when parents have given their consent for taking part in the program, there is an intake with the parents. During this meeting, the background information of the parents and the development of the child is obtained. It is possible that parents do not want to give consent for this part but do give consent for the support and collecting of the information of the child for scientific research. The study has a cross-sectional design, in which children were tested and observed during a short period of time.

The participants in this study consisted of 370 toddlers. Of several children various data were missing, therefore the final sample consisted of 238 toddlers (66% boys) in the age between 27 and 46 months old ($M = 41.06$, $SD = 3.09$), who were living in Utrecht. It was a select sample of toddlers who were enrolled in the PP! project. Within the sample four groups could be distinguished, these were 81 toddlers with symptoms of ADHD (34%), 41 toddlers with symptoms of ASD (17.23%), 11 toddlers with ODD/CD symptoms (4.62%), and a reference group of 105 toddlers who either did not show any symptoms of a clinical condition or symptoms of a condition other than ADHD, ASD or ODD/CD. The majority of the toddlers in this sample was multilingual (52.5%). The other children were either speaking Dutch (26.6%) or Dutch in combination with another language (20.9%). The parents of the toddlers have given consent for their child's participation in the PP! project by means of a consent form.

Procedure

On two different days, interactions between the childcare workers and the toddlers were observed by well-trained students using the Classroom Assessment Scoring System

Toddler, and the duration of each session was two and a half hours. In addition, different EF tasks were conducted by well-trained test leaders who were recruited for previous cohort studies, among students of pedagogy and psychology. They were given intensive instruction, and subsequently they had an extended period of time for practicing with the tasks. The intensive guiding trajectory has been an ongoing procedure during the collecting of the data. The different tasks were conducted in a fixed order, and the duration of the full procedure was approximately half an hour. The duration of each task individually was dependent on the toddler's performance.

Measuring instruments

Classroom Assessment Scoring System (CLASS) Toddler. To measure the process quality of ECEC, observations were conducted with the CLASS Toddler (La Paro et al., 2011; Pianta et al., 2008). This is a standardized instrument which aims to measure the interactions between childcare workers and children. The aim of the CLASS Toddler is children in the age between 12 and 36 months old. For the current study, the original CLASS is adjusted to fit the Dutch daycare facilities and kindergartens.

The interactions can be classified in three dimensions: Emotional support, Group organization, and Educational support. The two dimensions of the CLASS that are taken into account in the current study are Emotional Support (i.e., the [positive] ambiance in the group, the level of positive relationships between childcare workers and children, the level of sensitivity in responses toward the needs of the child, and the level of consideration of the perspective of the child [Cronbach's $\alpha = .84$]), and Educational Support (i.e., the stimulation of development, and more specific the language development [Cronbach's $\alpha = .90$]). The interactions on each aspect are scored on a 7-point scale, with 1 and 2 representing a low score, 3–5 representing a medium score, and 6 and 7 representing a high score (Broekhuizen et al., 2016).

EF Tasks. Tasks from the pre-COOL battery to measure EF have been taken into account to measure toddlers' self-regulation. As previously mentioned, EF are considered to be the cognitive skills related to self-regulation (Hofmann et al., 2012; Miyake & Friedman, 2012). The validity and reliability of the EF tasks seems to be good (Wijnroks, 2018). Finally, the construct EF will be made into one variable, by adding up the scores of the various EF tasks conducted in this study.

Cognitive flexibility. The ability to select relevant information, and ignore irrelevant information in the environment (i.e., cognitive flexibility) was measured with a modified version of the Reverse Categorization task of Carlson (2005). In this task, children were given

the assignment to sort blocks. First, there was a practice moment in which children had to put all the big blocks in the big container. For the first test item, the rule changed to sorting the big blocks into the small container and vice versa. For the second test item, the child had to put the big blocks in the small container, and the small blocks in the big container. However, during this test item, the blocks changed color and shape. For the first item, children could get a maximum score of 12, and for the second item a maximum score of six. The total score was calculated by adding these two scores (range 0-18). A higher score indicated a higher level of cognitive flexibility. In previous studies this task showed good reliability and validity (Carlson, 2005; Carlson et al., 2004).

Working memory. The ability to store and rewrite information in the short-term memory (i.e., working memory) was measured with a visual-spatial working memory task (Wijnroks, 2018). In this task, six animal toys were hidden in six containers. During the task, children were asked to retrieve the toy, and they had to remember which containers were already empty. In between every search attempt, children were distracted for 6 seconds. After the task, the number of toys obtained correctly was scored (range 0-6). A higher score indicated a better developed working memory.

Inhibition. To measure inhibition, different Delay of Gratification tasks were conducted. These were the Raisin Waiting Task and the Present Waiting task (Kochanska et al., 2000). During these tasks, children were asked to not touch the box of raisins or the present, respectively, and their behaviors were observed for 60 seconds. In the Raisin Waiting Task, the behaviors that were scored were 1) touching the box of raisins, 2) picking up the box of raisins, and 3) eating the raisins, and these behaviors were scored as 1 = present or 0 = not present. In the Present Waiting Task, the behaviors that were scored were 1) touching the gift or bow, and 2) tearing the wrapping paper, and these behaviors were scored as 1 = present or 0 = not present. Subsequently, the scores were reversed. Therefore, a higher score indicated a better developed inhibition.

Data analysis plan

The statistical analyses to answer the research questions were carried out with SPSS 27. With regard to the variables used, 'Quality' and 'Self-Regulation' are interval variables. The moderator variable 'Condition' is a categorical variable. Two covariates will be taken into account, these are the toddlers' Age in Months and Parental SES. The construct Parental SES is measured with the highest level of education of both parents (0 = no education, 1 = primary school, 2 = high school/secondary vocational education, 3 = higher vocational education, 4 = university).

The variable 'Quality' consisted of combined scores on the scales Emotional Quality and Educational Quality of the CLASS Toddler (La Paro et al., 2011; Pianta et al., 2008). To create the variable 'Self-Regulation', the scores on the different EF tasks that have been conducted (i.e., Reverse Categorization task, visual-spatial working memory task, and two Waiting Tasks) were added up to compute a new variable. Conducting the reliability analysis showed that leaving the variable responding to the combined total score of the two Waiting Tasks out would improve the Cronbach's α, and has therefore been taken out. Subsequently, z-scores have been formed of the variables Quality, Self-Regulation, and SES. To answer the research questions, a moderator analysis is carried out using Hayes (2017) PROCESS tool. The dependent variable is the variable Self-Regulation, the variable Quality is the independent variable, and the multi-categorical variable 'Condition' is the moderator.

Finally, there was a high number of missing values in the dataset. To find out if the missing data were random or not, a Little's Missing Completely At Random (MCAR) test is carried out. For this analysis, a non-significant value with $p > .05$ means that the missing data are missing at random. For the current study, the Little's MCAR test was significant with $p = .009$. Since the significance was smaller than $p = .05$, this meant that the missing values were not missing at random, and therefore could not be imputed.

Results

In this study, several groups were compared, specifically a group of toddlers with symptoms of ADHD, a group with symptoms of ASD, a group with ODD/CD symptoms, and a reference group. The reference group consisted of toddlers who either did not show symptoms of a clinical condition or showed symptoms in other areas, such as language impairments or emotional problems. To test the first hypothesis that the quality of ECEC is positively related to the level of self-regulation of toddlers, a moderator analysis was conducted using Hayes (2017) PROCESS tool. Table 1 shows that the model is significant, $F(9, 336) = 2.613$, $p = .031$, $R^2 = .090$. However, the model only explains a very small part of the variance, with only 9% that is accounted for. Nevertheless, Table 2 shows that quality significantly predicts self-regulation in toddlers $t(2.140)$, $p = .034$.

Further, to test the hypothesis that the quality of ECEC and self-regulation is especially important with respect to the self-regulation of the three groups with symptoms of a clinical condition, the regression analysis was carried out including a moderator variable for the different groups. Table 2 shows that none of the interaction effects was significant. Therefore, no moderation effect has been found with respect to the different groups.

Table 1. Multiple regression of Quality and Self-Regulation in Toddlers.

R	R^2	MSE	F	df1	df2	p
.300	.090	.919	2.103	9	192	.031*

Note. Independent variable = Quality; Dependent variable = Self-Regulation; Covariates = Parental SES and Toddlers' Age in Months.

* $p < .05$

Table 2. Moderation analysis for ADHD, ASD, and ODD/CD compared to a reference group.

	B	SE	t	p	LLCI	ULCI
Constant	-1.898	.980	-1.938	.054	-3.830	.034
Quality	.221	.104	2.140	.034*	.017	.426
ADHD	-.094	.155	.607	.545	-.399	.211
ASD	-.066	.200	-.328	.743	-.460	.329
ODD/CD	-.110	.338	-.325	.745	-.776	.557
Quality x ADHD	-.187	.153	-1.223	.223	-.490	.115
Quality x ASD	-.277	.204	-1.358	.176	-.680	.126
Quality x ODD/CD	-.224	.358	-.625	.532	-.931	.483
Age	.040	.023	1.717	.088	-.006	.085
Parental SES	.102	.033	3.076	.002**	.037	.168

Note. SES = Parental SES; Age = Toddlers' age in months

* $p < .05$; ** $p < .01$

      Graph 1 shows the interaction effects of the quality of ECEC and self-regulation for the four groups that have been compared. For the reference group, there seems to be a strong positive effect of quality on self-regulation. For the other conditions, the effect seems to be much weaker. For the ASD group, there seems to be a negative effect of quality on self-regulation. Nevertheless, no moderation effect was found for any of these groups. In addition, Figure 1 shows the path model with respect to the different interactions of quality of ECEC and condition. For every predictor the coefficient has been reported.
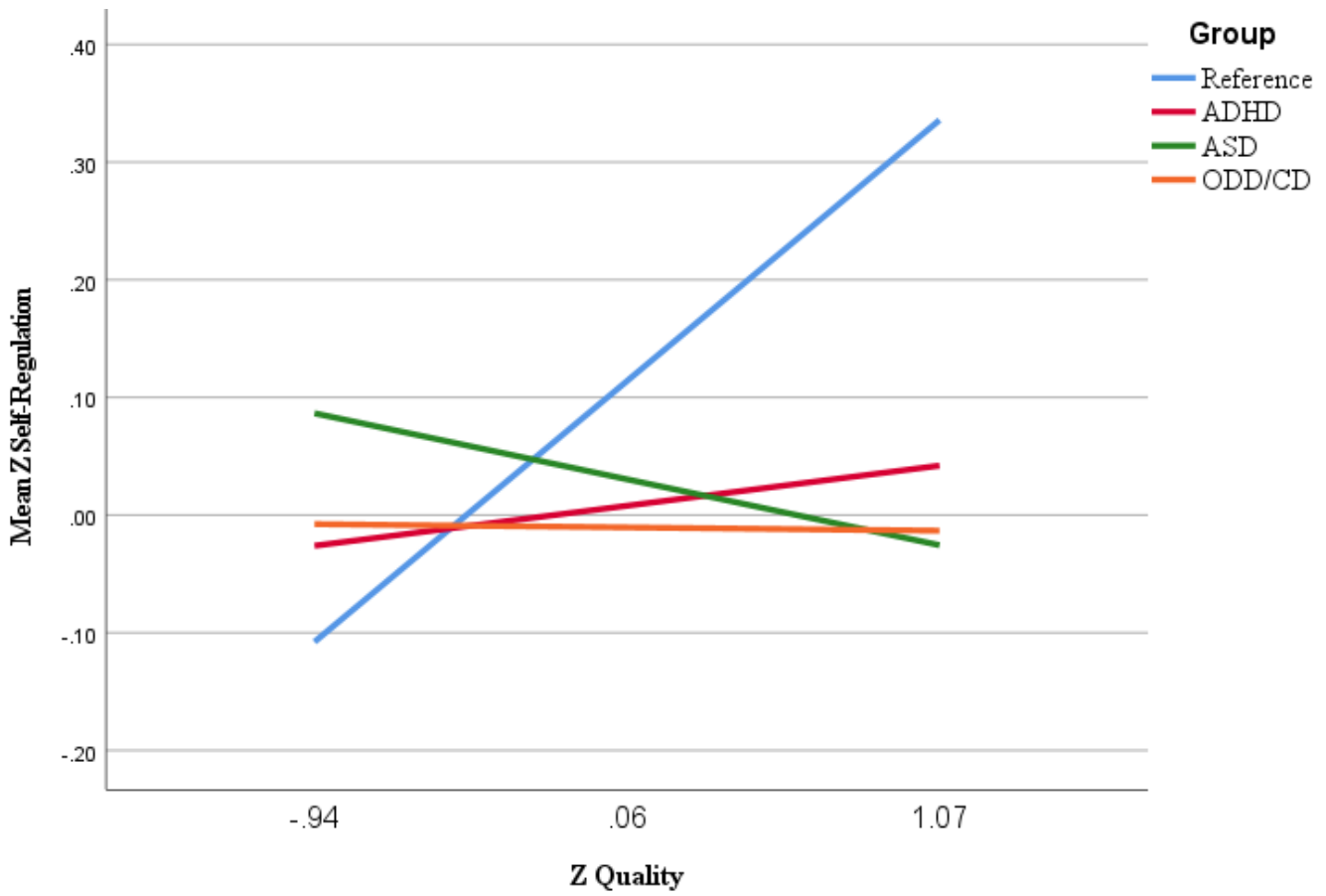
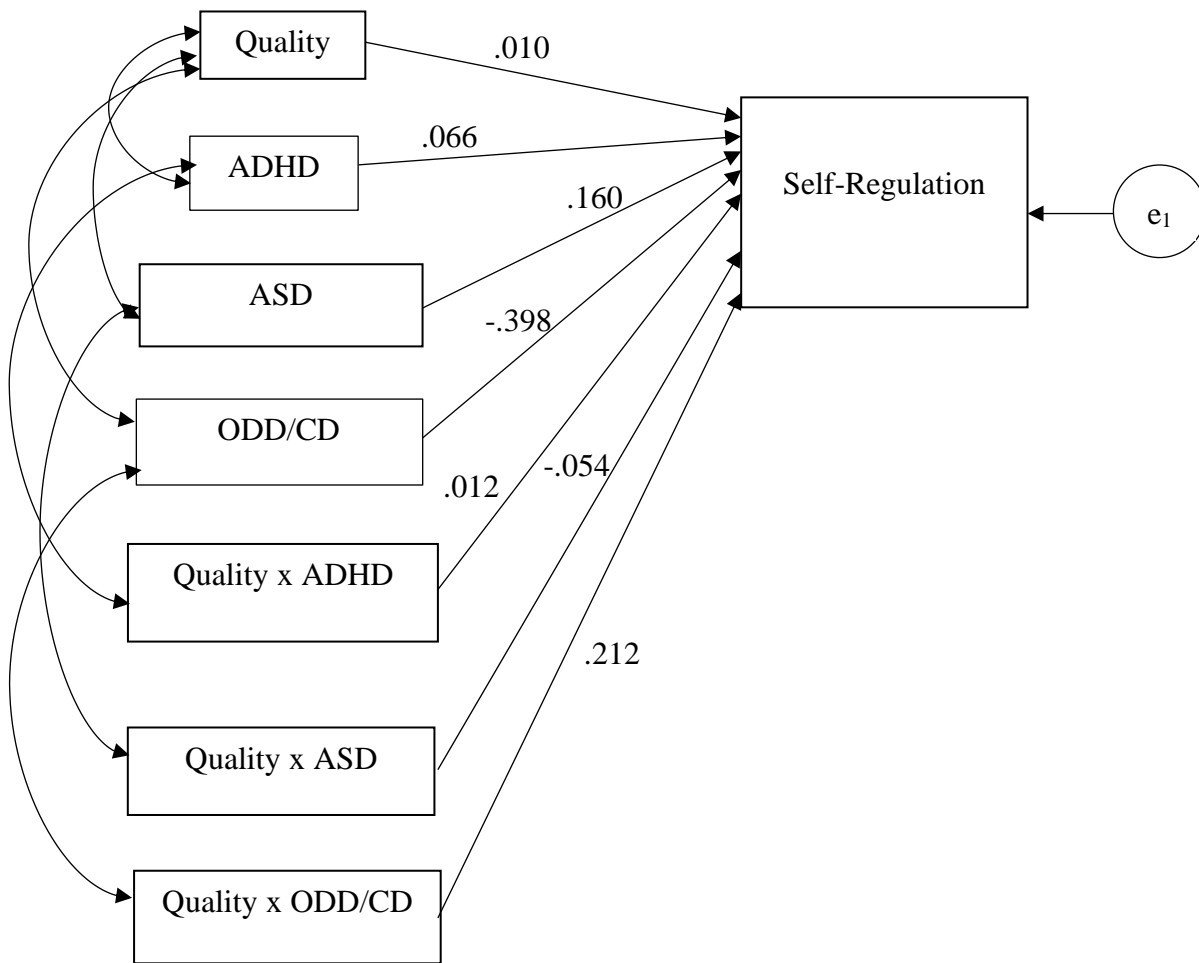Graph 1. Interaction effect of Quality x Condition

Figure 1. Path analysis moderation model.

In addition, many toddlers did not have a score on the dependent variable Self-Regulation. To analyze how the groups with and without a score differed from each other, an independent t-test is carried out. Table 3 shows the differences between each group with respect to the group size and with respect to sex and age of the toddlers, the grouping variable Condition, the score on the quality of ECEC, and their parents' SES. As shown in Table 4, there was a significant difference between the two groups with respect to age. However, this was a one-tailed test, $t(351) = 1.489$, $p = .010$. The two-tailed proportion value was not significant $t(351) = 1.489$, $p = .137$. For the variable Condition, on the other hand, a significant difference was found, $t(345) = -4.869$, $p < .001$. To estimate the effect size of this difference, Cohen's d has been calculated. For the difference for Condition, Cohen's $d = 0.56$, which refers to a medium effect.

Table 3. Differences within the sample with and without a score on self-regulation.

	Self-Regulation	*n*	M	*SD*	SE
Sex	missing	115	1.42	.495	.046
	score	238	1.34	.473	.031
Age	missing	115	41.53	2.624	.245
	score	238	41.06	3.085	.200
Condition[a]	missing	109	.349	.762	.073
	score	238	.824	.878	.057
Quality	missing	106	-.142	1.004	.098
	score	224	.067	.994	.066
Parental SES	missing	91	-.003	.991	.104
	score	216	.001	1.006	.069

Note. a. Groups ADHD, ASD, ODD/CD and reference group.

Table 4. Statistics for the independent t-test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | 95% Confidence Interval of the Difference | |
		F	*p*	t	df	*p* (2-tailed)	*M* difference	*SD* difference	Lower	Upper
Sex	Equal variances assumed	6.751	.010*	1.489	351	.137	.081	.055	-.026	.189
	Equal variances not assumed			1.465	216.555	.144	.081	.055	-.028	.191
Age	Equal variances assumed	1.399	.238	1.411	351	.159	.472	.334	-.186	1.129
	Equal variances not assumed			1.493	261.128	.137	.472	.316	-.151	1.094
Condition[a]	Equal variances assumed	8.689	.003***	-4.869	345	.000***	-.475	.098	-.667	-.283
	Equal variances not assumed			-5.131	238.855	.000***	-.475	.093	-.657	-.293
Quality	Equal variances assumed	.017	,897	-1.786	328	,075	-.210	.118	-.441	.021
	Equal variances not assumed			-1.779	204.295	.077	-.210	.118	-.442	.023
Parental SES	Equal variances assumed	.009	.926	-.033	305	.974	-.004	.125	-.250	.242
	Equal variances not assumed			-.033	171.516	.974	-.004	.124	-.250	.242

Note. a. Groups ADHD, ASD, ODD/CD and reference group.

* *p* < .05; *** *p* < .001

Discussion

The current study focused on the relationship between the quality of ECEC and self-regulation in toddlers. Several hypotheses were tested by using a dataset of the PP! research program (Wijnroks, 2013). It was expected that quality was positively related to self-regulation, and that ECEC quality is particularly important for the self-regulation of toddlers who show symptoms of a clinical condition. To test these hypotheses, various groups were compared to each other. These were a group toddlers with ADHD symptoms, a group toddlers with ASD symptoms, and a group of toddlers with ODD/CD symptoms, and these groups were compared to a reference group of toddlers with either no symptoms of a condition or symptoms in other areas, such as lingual impairments or emotional problems.

The results of this study indicate that there is a significant relationship between the quality of ECEC and self-regulation. Therefore, the first hypothesis that quality is positively related to self-regulation is accepted. This is in line with, among others, the study of Sylva and colleagues (2020), who found significant results regarding the impact of the quality of ECEC on children's self-regulation and prosocial behaviors at age five. Secondly, the three interaction effects for the groups ADHD, ASD and ODD/CD were nonsignificant. This is contrary to the hypothesis that the quality of ECEC would be particularly important for toddlers who showed symptoms of a clinical condition. Thus, the second hypothesis is rejected. In addition, even though the interaction effect was nonsignificant, for the ASD group the findings indicated that a higher ECEC quality was related to lower self-regulation. Research indicates that children with (symptoms of) ASD benefit from structure and clear communication (e.g., Bartoli et al., 2014). Therefore, it would be expected that higher levels of ECEC would be related to higher levels of self-regulation. Hence, to get a better insight in the importance of the quality of ECEC for toddlers with symptoms of different clinical conditions, further research is recommended.

Finally, the empirical results reported here should be considered in the light of several limitations. First of all, the sample used was a select sample in a specific research program, and the sample was fairly small. A select sample is often not a representative sample of the general population, and thus has implications for the generalizability of the findings. In addition, the group of toddlers with ODD/CD consisted of only $n = 11$ toddlers, this is a very small sample and not in proportion to the other groups. For further research it is recommended to use a sample that is a-select, and in which the groups are more evenly divided. Another limitation of the current study is that a cross-sectional design has been used. Therefore, a causal relationship cannot be implied by the research findings. This also has

implications on the generalizability of the findings. It is recommended to carry out longitudinal research with multiple measuring moments, to obtain a better insight in the relationship between the quality of ECEC and self-regulation, with respect to the differences between different groups of toddlers who show symptoms of a clinical condition.

In addition, to measure self-regulation in this study, several executive function tasks were carried out. Since this is only one measuring instrument, having more informants, such as parents, reporting on this ability is recommended to create a better understanding of self-regulation abilities in toddlers. For instance, parents and childcare workers can fill in questionnaires with respect to the child's self-regulation. This, in combination with the tasks carried out by the toddlers, supposedly gives a more reliable visualization of the actual performance on self-regulation. Additionally, research with respect to the effects of the quality of ECEC on self-regulation of toddler's with a clinical condition is highly recommended, since there has been no prior research with a clinical condition sample. Most research regarding the relationship between the quality of ECEC and child outcomes is related to school achievement in general, instead of specifically to self-regulation. Additionally, in research with disadvantaged toddlers, the disadvantage is often related to SES disadvantages (e.g., Landry et al., 2014), and not with respect to clinical conditions.

In conclusion, the findings of this study support the notion that quality is positively related to self-regulation in toddlers. This is the first study that focused on self-regulation in toddlers with symptoms of a clinical condition. To further explore the relationship between the quality of ECEC and self-regulation of toddlers with symptoms of a clinical condition, further research with a larger sample and a longitudinal design is recommended.

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