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Associations between Caregiver and Child Self- Regulation

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Abstract

Parent self-regulation is thought to be related to their child's development of self-regulation; for example, by way of coregulation and parenting strategies. The ability to self-regulate prepares a child for school, allows them to form healthy relationships, and to develop socioemotional functioning. The current study assessed the relationship between parent and child self-regulation in a typically- developing sample of parent- child dyads. Data from fifty- two children ages 3- 4 years and their caregivers was utilized, from which we analyzed parent report of their own self-regulation using the Me as a Parent scale (Hamilton, Matthews & Crawford, 2014) and a task from a field assessment of child self-regulation (Preschool Self-Regulation Assessment). Surprisingly, high reports of caregiver self-regulation did not indicate greater child self-regulation as measured with the balance beam task on the PSRA, which captures cool executive function. Child age was the only variable that had a significant correlation with child self-regulation. Although we hypothesized that caregiver self-regulation would predict their child's, this sample of children had many protective factors. Thus, it appears that within a sample of children with multiple protective factors, parent self-regulation does not vary to a great degree, and that variations in parent self-regulation are not associated with the development of self-regulation within this age range.

Associations between Caregiver and Child Self- Regulation

Self-regulation is defined as control of behavior through self-monitoring, self-evaluation, and self-reinforcement (APA, n.d.). In the literature, self-regulation is also referred to as executive functioning, effortful control, and self-control, and these terms will be used interchangeably to signify mechanisms that enable a child to manage their behavior and emotions in adaptive ways. This self-regulatory ability allows for school readiness, the ability to develop and maintain healthy relationships, and development of socioemotional functioning (Morawska, Dittman, & Rusby, 2019). There are three domains to self-regulation: emotion, attention, and behavior. These require a child to manage emotions, shift or focus attention, and both inhibit and activate behaviors (Smith-Donald et al., 2007). Understanding what shapes self-regulation could conceivably mitigate the deleterious outcomes associated with poor self-regulation, such as reduced academic performance, lower social competence, and relational stress (Hetherington et. al., 2020). There are many factors thought to contribute to child development of self-regulation, such as screen time (Inoue et. al., 2016), income (Blair & Raver, 2015), or even genetics (Cho, Kogan, & Brody, 2016). As with many skills, interactions with caregiving figures can develop a child's self-regulation. Historically, researchers have found that the parent's self-regulation indicates their child's through coregulation, parenting strategies, etc. (Lobo & Lunkenheimer, 2020). Coregulation is the process by which the parent and child regulate one another through goal-oriented behavior and expressed affect. When this is positive, consistent, and flexible, coregulation encourages early childhood socioemotional self-regulatory skills. Parenting strategies, such as guidance (e.g., helping your child learn the expectations for behavior in a particular setting) can be similarly beneficial. These positive relations could potentially be maintained by child enjoyment of interaction, compliance, and conduct, which

would mean already positive contact allows for further quality exchanges. Regardless, coregulation patterns have many implications for child development.

Other ways in which parenting can influence executive functioning is through positive control (e.g., using encouraging directives) or proactive parenting (e.g., calmly, clearly communicating expectations) (Morawska, Dittman, & Rusby, 2019), such as when crossing the street. One might say, "Look at all these cars! We need to be safe, so you'll hold my hand when we cross the street." In a solemner context, maternal sensitive guidance with their child when reminiscing about negative emotions mediated the association between maltreatment and subsequent self-regulation (Speidel, Wang, Cummings, & Valentino, 2020). An example of this might be if a child who had experienced trauma expresses they're really scared and the caregiver acknowledges that feeling, while also reminding them that they are safe now, helps them set up a plan for when they feel scared, etc.

Clearly, there are many pathways by which the family can influence child self-regulatory capacities. Yet another aspect of parenting that has the potential to impact child regulation is caregiving self-efficacy, a domain of parenting self-regulation. Caregiving self-efficacy refers to a caregiver's belief in his or her capacity to execute behaviors necessary to produce specific results in the realm of parenting, and can be influenced by many factors, such as socioeconomic status, emotional state, or culture (Abuhammad, 2020). For example, given the COVID-19 pandemic and all the challenges it has produced, parenting self-efficacy may be lowered due to the myriad of stressors a parent is experiencing, perhaps negatively impacting their child's self-regulation (Morelli et. al., 2020). Those parents with higher self-efficacy still experienced an increase in psychological stress but remained confident in their parental role. The authors suggest that these self-confident parents can activate personal resources (e.g., regulating themselves,

material resources) to prevent their child from becoming dysregulated, although another explanation could be that they're more confident parents because they have resources. In any case, parenting self-efficacy could, in theory, influence the aforementioned parenting behaviors that promote self-regulation, such as positive control, proactivity, or sensitive guidance. This is exemplified in a study of maternal self-efficacy, where it was found that parenting stress and behavior problems adversely affected parenting behavior, but high levels of self-efficacy moderated this (Jackson, 2000). This effect may mean that when faced with difficult child behavior, which tends to cause parenting stress, those with high self-efficacy trust that they're able to take action to change their child's challenging conduct. In turn, this outlook could support advantageous parenting behaviors, and it has been established that such behaviors support child executive functioning.

The other areas of parenting self-regulation are personal agency, self-management, and self-sufficiency. Personal agency refers to a parents' tendency to attribute their child's behavioral outcomes to their own efforts versus chance or development (Hamilton, Matthews & Crawford, 2014). Self-management signifies goal setting, monitoring, and evaluation. Finally, self-sufficiency means independent problem solving and self-reliance through the parent's own resources or identifying applicable external resources. Each of these four areas of cognition and behavior are believed to contribute to parenting competency.

In the present study, the relationship between caregiver and child self-regulation, concurrently and longitudinally, was analyzed. We hypothesized that parent self-regulation would predict child self-regulation. Furthermore, we hypothesized that a parent's self-regulation would have a stronger relationship to their child's 6 months later, as this pattern has appeared in other studies. Conceptually, this latency stems from caregiving figures sowing metaphorical

seeds that will come to fruition later. For example, some researchers discovered that the parenting behaviors at 36 months were more strongly associated with child executive functioning at 60 months than they were at 36 months (the same time point) (Blair, Raver & Berry, 2013). This conclusion relies on additional research that indicates parenting behaviors are associated with both self-regulation and mental health (Trahan & Shafer, 2019). More specifically, in the aforementioned study, paternal self-efficacy, an aspect of self-regulation, acts as a moderator between depression and parenting behaviors. Theoretically, these parenting behaviors would then serve to shape child development of self-regulation. Because of this, we suspected our findings would confirm these trends.

Methods

This study utilized data from 60 parent- child dyads who were the comparison group for a larger study of child self-regulation and relational health in children receiving therapeutic preschool services. These pairs were recruited by word-of-mouth, flyers, and social media. Fifty-three percent (*N*=32) of children were female, and eighty- one percent (N=49) of parents were female. To be eligible for the larger study, the child needed to be 3 or 4 years old and have not started Kindergarten. They also could not have an intellectual or cognitive disability or diagnosis of Autism Spectrum Disorder, or be enrolled in mental health, behavioral, speech, or occupational therapy services. Children were defined as typically developing if they were acquiring skills in foreseeable ways, within expected age ranges, had no mental health diagnoses, and were not enrolled in therapeutic services. Participants enrolled in the study came to the University of Missouri- Kansas City Psychology Department to partake. The data for this analysis was collected using The Preschool Self-regulation Assessment (Smith-Donald et al., 2007) and a questionnaire completed by the caregiver.

The independent variable, caregiver self-regulation, was operationalized by the Me as a Parent scale (Hamilton, Matthews & Crawford, 2014), included on the parent's form. The Me As A Parent scale includes statements that assess self-efficacy ("I have all the skills necessary to be a good parent to my child"), personal agency ("I often feel helpless about my child's behavior"), self-management ("I have the skills to deal with new situations with my child as they arise"), and self-sufficiency ("I can stay focused on the things I need to do as a parent even when I've had an upsetting experience"). Respondents rated their level of agreement with the statement on a 5-point Likert Scale from 1 = strongly disagree to 5 = strongly agree. Questions from the Personal Agency subscale were reverse scored. Subscale totals can be found by summing items within that factor, and a total score can be similarly calculated with addition. This scale and its subscales have adequate internal consistency (Cronbach's alpha $\alpha = .85$), as well as internal reliability (self-efficacy $\alpha = .75$; self-management $\alpha = .72$; self-sufficiency $\alpha = .65$; personal agency $\alpha = .63$) and test-retest reliability (Hamilton, Matthews & Crawford, 2014). Developers also confirmed face, factorial, and convergent validity of this measure.

The dependent variable, child self-regulation, was measured using the balance beam task from The Preschool Self-Regulation Assessment. In the balance beam task, kids were asked to walk a line 3 times, slowing down each time. In terms of self-regulation, this measures their ability to regulate their behavior, in this case inhibiting their walking speed. The ability of the child to walk the balance beam progressively slower each time indicates their cool executive control. Cool executive control requires logic and critical analysis, involves conscious control of thoughts and action, and is not driven by emotion, whereas hot executive control is an affective psychological process (Poon, 2018). While the PSRA assesses three aspects of self-regulation, hot executive control, cool executive control, and compliance, there is evidence that a two-factor

model (executive control and compliance) is an appropriate model for self-regulation, especially if the goal is parsimony (Denham et al., 2012). In this analysis, the three- factor model and two-factor model fit equally well with the data. They suggested that one reason for this may be that differences in hot and cool executive control are lesser in younger children. Regardless, we utilized the balance beam task, a measure of cool executive control. For the balance beam task, assessor asks child to walk on a short length of tape for 3 trials, slowing down for second trial and slowing down even more for third trial. The balance beam task is measured as amount of reduction in speed on balance beam task, or how much they slowed down overall. If the child sped up, then, this number would be negative. It is calculated by subtracting first trial from mean of second and third trials (amount of reduction of speed). The PSRA had very high reliability overall, as did the individual tasks (Smith-Donald et al., 2007). The PSRA was also found to have construct validity, in addition to concurrent validity with previously existing measures (e.g., Social Competence and Behavior Evaluation). The selected task, balance beam, had the second highest reliability out of the 9 tasks (ICC = .98), making it an excellent candidate when selecting a task to analyze. Since it is a measure of executive control, the balance beam task evaluates conscious control of actions. When these analyses were initially conceptualized, the control variable was whether the child attended daycare, gauged by a question on the caregiver questionnaire, “Does child attend daycare/preschool?”. Other variables of interest were child gender, caregiver gender, and annual household income.

We first performed descriptive statistics to determine the spread of data and ensure variables met the assumptions of linear regression. Next, initial bivariate correlations were conducted to establish whether there were associations between the variables of interest. Finally,

we ran linear regression tests to further examine relationships between variables. Ultimately, we ended up analyzing more variables of interest to explore the possibility of extraneous variables.

Results

The minimum and maximum scores for caregiver self-regulation were 59 and 80, respectively, with a mean of 70.45 (SD = 6.14). While the scores were fairly normally distributed around their mean, given that the possible scores for this scale range from 20 to 80, scores clustered around the top of this range indicating that the sample reported themselves as being highly regulated. Child self-regulation, as measured by the amount of reduction in speed on the balance beam task, had a minimum speed of -1.34 (child increased in speed by 1.34 seconds) and a maximum of 33.53 (child reduced speed by 33.53 seconds). The mean reduction in speed was 6.13 seconds (SD = 7.85). Another normative sample (Denham et al., 2012) had a mean of 1.61, and these numbers are much higher, meaning these participants displayed high levels of self-regulation. 58.3% of children attended daycare, and the mean age was 51.1 months (around 4 ¼ years old). Annual household income was highly skewed to the left, with a minimum of $800 and a maximum of $1,000,000. Mean income was $117,345, and median income was $90,000.

After conducting statistical correlations (Table 1), and linear regressions (Table 3), we determined that our findings did not support our hypothesis; caregiver self-regulation did not have a significant relationship with child self-regulation concurrently or longitudinally. Furthermore, the distinct components of caregiver self-regulation (self-efficacy, personal agency, self-management, and self-sufficiency) did not have a meaningful correlation with child self-regulation, either. Neither did income, child gender, nor caregiver gender. Ultimately, we did not use child enrollment in daycare as a control variable, due to its strong correlation with child age, which was the only variable that had a significant relationship to child self-regulation.

Discussion

This study sought to examine the association between caregiver self-regulation and child cool executive control, and we did not find a significant relationship between the two. While these results were unexpected, they could be the result of several factors. First, our sample was generally well-resourced and had many advantages, such as having a higher household income, high levels of education, etc. Furthermore, the dyads were selected because they were developing and functioning "as expected" given their age, so it is plausible that their age was most predictive of their self-regulation due to prior positive experiences that placed them on a positive developmental trajectory. This was the case while developing the Preschool Self-regulation Assessment, where "older children (5 years) were significantly better regulated than younger children (3–4 years)" (Smith-Donald et al., 2007). In prior research with typically developing children and kids with an intellectual disability, similar results were found (Nader-Grosbois & Vieillevoye, 2012). Additionally, when writing about the self-regulation of kids developing in an expected manner way, they use language such as "they become" and "their [self-regulation] abilities increase", not citing any external influences (e.g., parent self-regulation) in their development of this skill. Another possible reason for these findings is social desirability bias present in the measure of caregiving self-regulation. Self-report measures are notorious for being subject to social desirability bias, despite that research on parenting relies heavily on this method of assessment (Morsbach & Prinz, 2006). Moreover, self-report on sensitive topics such as one's parenting are particularly vulnerable to this sort of bias. Finally, it is possible that caregiver self-regulation did predict child self-regulation, but not concurrently or 6 months later, at a point in time further down the line. In certain samples that have found such significance in a relationship, a greater amount of time elapsed before their second time point, 24 months as opposed to 6

months with the present study (Blair, Raver & Berry, 2013). Another study with time points 24 months apart also found significance, but in addition to the difference in length of time elapsed, the sample was also far more representative in terms of demographics such as a race and income (Sulik et. al., 2015). In any case, it is possible that there may have been a significant relationship longitudinally if a greater length of time had passed between time points.

Regarding limitations of this study, it had a relatively small sample size (N=60), which increases the margin of error and reduces the power of the study. The sample also lacked representativeness in terms of race, education level, socioeconomic status, etc. This sample was predominantly white, well-educated, upper-middle class, with two parents involved, and most of the caregiver participants were mothers. Due to this lack of diversity, we cannot generalize these findings to other populations. This is also a potential explanation for our insignificant results, if there was not enough variability in household income level, for example, to determine its correlation with a child's self-regulatory ability. As previously stated, self-report of self-regulation on behalf of the parent is also a weakness due to the possibility of bias, as is the fact that we only had two time points that were relatively close together.

Future inquiries in this line of research should recruit a larger sample with greater diversity and representativeness, in order to draw conclusions across demographics. These changes to the sample could potentially yield different findings, as well. If possible, it may also be beneficial to assess caregiver self-regulation by coding observations or interviews, to reduce possibility of social desirability bias. Having a more comprehensive measure of child self-regulation may also be of benefit to future studies, to assess aspects of self-regulation that may be more likely to develop during this developmental window.

Table 1.
Correlations

		Me As a Caregiver Total	Balance Beam Task	Daycare	Income	Child Age
Me As a Caregiver Total	Correlation Coefficient	1	-0.138	0.082	-0.045	-0.039
	Sig. (2-tailed)		0.323	0.538	0.736	0.78
	N	59	53	59	58	53
Balance Beam Task	Correlation Coefficient	-0.138	1	-.465**	0.142	.437**
	Sig. (2-tailed)	0.323		0	0.31	0.001
	N	53	54	54	53	54
Daycare	Correlation Coefficient	0.082	-.465**	1	-0.214	-.489**
	Sig. (2-tailed)	0.538	0		0.104	0
	N	59	54	60	59	54
Income	Correlation Coefficient	-0.045	0.142	-0.214	1	0.195
	Sig. (2-tailed)	0.736	0.31	0.104		0.162
	N	58	53	59	59	53
Child Age	Correlation Coefficient	-0.039	.437**	-.489**	0.195	1
	Sig. (2-tailed)	0.78	0.001	0	0.162	
	N	53	54	54	53	54

Note(s): **. Correlation is significant at the 0.01 level (2-tailed).

Table 2.
Linear Regression Coefficients

	Standardized Coefficients		
	β	t	Sig.
(Constant)		0.157	0.876
Child Age	0.274	1.956	0.056
Caregiver Gender	0.127	0.897	0.374
Income	-0.127	-0.894	0.376
Me as a Caregiver Total	-0.098	-0.682	0.499

Note(s):
a. Dependent Variable: Balance Beam Task

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