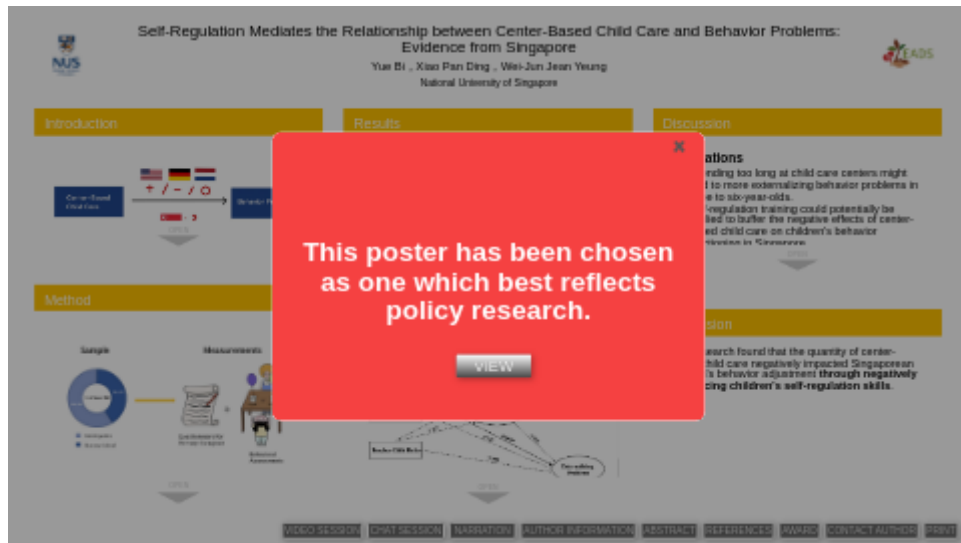


# Self-Regulation Mediates the Relationship between Center-Based Child Care and Behavior Problems: Evidence from Singapore



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# INTRODUCTION



## Background

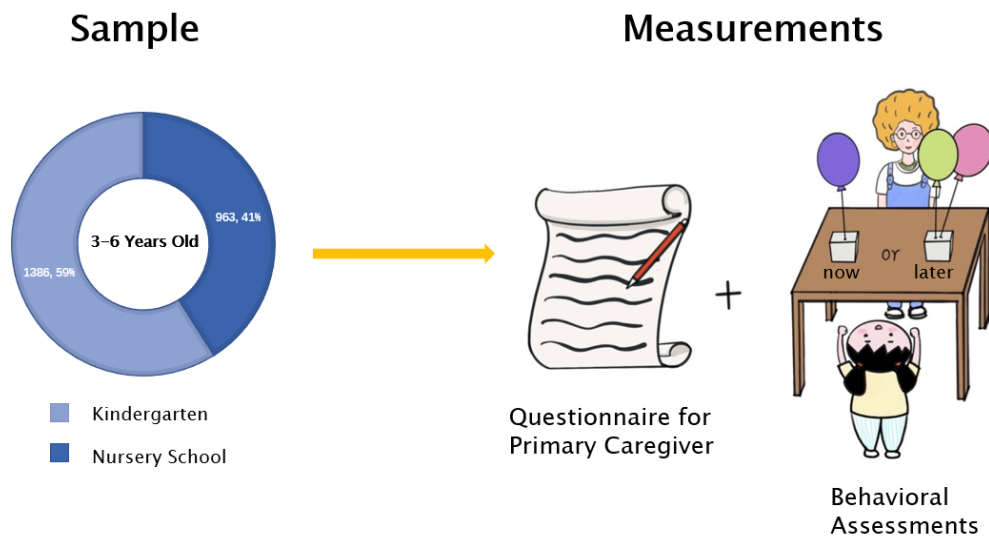
Mixed effects of center-based child care on children's behavior problems were found in different countries:

- United States: More care at the child care centers is related to more behavior problems (NICHD Early Child Care Research Network, 2001).
- Germany: More center-based care is related to fewer behavior problems (Linberg et al., 2019).
- Netherlands: Center-based child care is not related to behavior problems (Beijers et al., 2013).

## Research question

What is the relationship between center-based care and children's behavior problems in Singapore?

# METHOD



## Sample

Data were drawn from the Singapore Longitudinal Early Development Study (SG LEADS; for more information about this project: <https://fass.nus.edu.sg/cfpr/sgleads/> (<https://fass.nus.edu.sg/cfpr/sgleads/>)).

## Questionnaire Measures

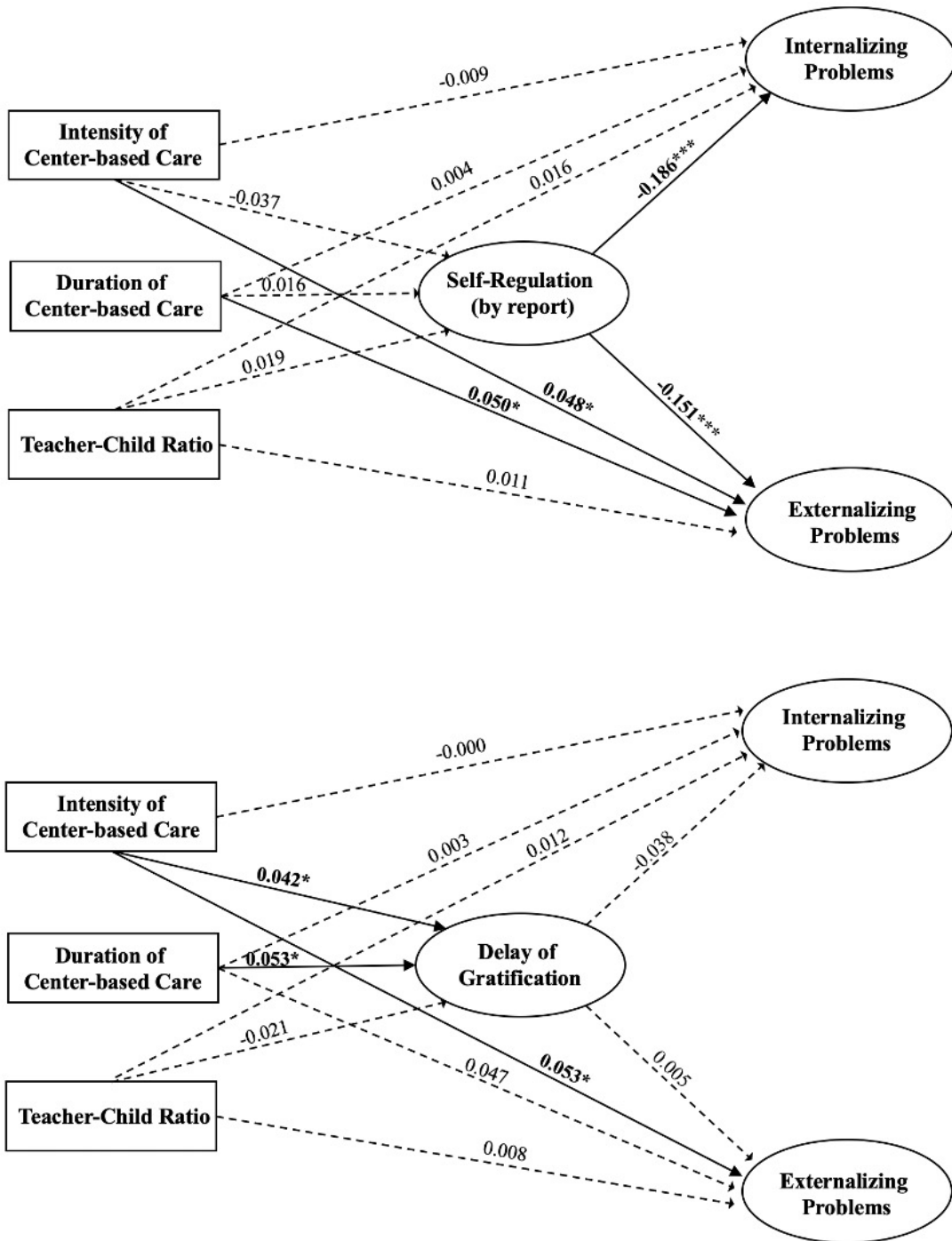
- Quantity (duration: total months of care; intensity: total hours of care per week) and **quality** (teacher-child ratio) of child care
- **Child behavior problems** (Peterson & Zill, 1986) and **self-regulation** (Quint et al, 1997)
- **Demographics** (child's age, level of maternal education, distress of primary caregiver, and household income)

## Behavioral Assessments

- Delay of Gratification task (Prencipe & Zelazo, 2005)

# RESULTS

## Main SEM Analysis



Note. Child's age, maternal education, household income, and psychological distress of primary caregiver were included as covariates but not depicted in the figure.

## Multi-Group SEM Analysis

Singaporean children receive an exceptionally heavy amount of center-based child care (Table 1). Multi-group SEM analysis was conducted to examine if the associations among child care variables and children's behaviors are different across different levels of child care intensity.

**Table 1*****Intensity of Center-Based Child Care in Singapore***

<b>Hours of Care per Week</b>	<b>n</b>	<b>Weighted %</b>
<b>&lt;=40</b>	966	41%
<b>&gt; 40 &amp; &lt;= 60</b>	1383	58%
<b>&gt; 60</b>	14	1%
<b>NA</b>	6	0%

It was found that self-regulation measured by the primary caregiver's report significantly mediates the relationship between the use of center-based child care and children's behavior problems for children cared at centers for more than 40 hours per week.

# DISCUSSION

## Implications

- Spending too long at child care centers might lead to more externalizing behavior problems in three to six-year-olds.
- Self-regulation training could potentially be applied to buffer the negative effects of center-based child care on children's behavior functioning in Singapore.

## Confounds and Limitations

- **Child's age of entry to child care centers**
  - The relationship between the duration of center-based child care and children's behavior problems could be confounded by the child's age of entry to child care centers because the more months children being cared for at child care centers, the earlier they might have entered child care centers.
- **Child care quality at centers**
  - This research includes only one measure of child care quality (i.e., the teacher-child ratio). Other indicators of child care quality such as class size and teacher's qualifications could potentially moderate the relationship between the quantity of care and children's behavior problems.
- **Child's cognitive ability**
  - The Delay of Gratification (DoG) task used in this study measures if children can choose a delayed reward of higher value than an immediate reward of a lower value (Prencipe & Zelazo, 2005). This type of DoG task could possibly tap children's intelligence (e.g., choosing a more valuable option).

## Next Steps

- We are hoping to examine how center-based child care influences children's cognitive development in Singapore.

## CONCLUSION

This research found that the quantity of center-based child care negatively impacted Singaporean children's behavior adjustment through negatively influencing children's self-regulation skills.

# AUTHOR INFORMATION

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# ABSTRACT

Previous research has found that center-based child care is related to heightened behavior problems for preschoolers in the US and Australia (Coley et al., 2015; NICHD Early Child Care Research Network, 2001). However, this association has not been observed in some European countries (Beijers et al., 2013). It is possible that unique characteristics of center-based child care in different countries influence the relationship between center-based child care and children's behavior problems. The current research had two central aims: (1) to further the literature by exploring the relationships between the quantity and quality of center-based child care and behavior problems in Singaporean preschoolers, and (2) to examine if the relationships are mediated by children's self-regulation.

Data were drawn from the Singapore Longitudinal Early Development Study (SG LEADS) conducted in 2018 and 2019. Three- to six-year-old preschoolers ( $n = 2,369$ ) took part in the study. The duration (the total number of months that the children had attended child care centers), the intensity (the number of hours per week cared for in child care centers), and the teacher-child ratio of the child's class were reported by children's primary caregivers. Children's behavior problems and overall self-regulation skills were assessed using items selected from the Behavior Problem Index (Peterson & Zill, 1986) and the Positive Behavior Scales (Quint et al., 1997). Children's self-regulation was also assessed using a delay of gratification task where children were asked to choose if they wanted one gift immediately or multiple gifts later (Prencipe & Zelazo, 2005). I adopted Structural Equation Modeling (SEM) to address the research questions.

The results from the SEM analysis using the whole sample suggested that longer duration and higher intensity of center-based child care were related to heightened externalizing problems. But the results from the multigroup SEM for groups of different quantity and quality of center-based child care showed that this relationship held only for the low-intensity group (i.e., receiving no more than 40 hours of center-based child care per week). For children who received more than 40 hours of center-based child care per week, higher child care intensity was related to fewer problem behaviors. The effect of months of center-based child care was only observed among children who had been attending child care for more than one year, and a greater total duration of care was associated with more behavior problems. The effect of the teacher-child ratio was only observed for children in centers with a teacher-child ratio smaller than 1:6, and the teacher-child ratio was negatively related to problem behaviors. Results also showed a significant mediating effect of children's self-regulation on the relationship between the quantity of center-based child care and children's problem behaviors for children receiving high amount of center-based child care.

In conclusion, the current research revealed a different pattern of associations between center-based child care and children's behavior problems from what had been found in Western cultures and suggested self-regulation as the mechanism underlying the relationship between center-based child care and children's behavior problems.

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