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**Maternal Mental Health and Child Self-regulation Across Cultural
Contexts**

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Maternal Mental Health and Child Self-Regulation Across Cultural Contexts

Introduction

Self-Regulation

As outlined by Zimmerman (2000), self-regulation encompasses a complex interplay of cognitive, emotional, and behavioral processes that empower individuals to navigate and steer their goal-directed activities over time. Over the past decades, research has consistently affirmed the connection between child self-regulation and future well-being. A meta-analysis provides compelling evidence that self-regulation in childhood can predict achievements, interpersonal behaviors, mental health, and a healthy lifestyle in later life (Robson, 2020). The development of self-regulation in early childhood is influenced by various factors, making it a multifaceted and dynamic construct.

Meta-analytic evidence indicates that self-regulation positively influences their early school experiences (Robson, 2020). This means that when kids are good at managing their actions and feelings, it's linked to positive outcomes like socializing, actively participating in school, and doing well academically. On the other hand, when children struggle with self-regulation, it's associated with facing challenges like internalizing problems (keeping feelings inside), peer victimization (being mistreated by peers), and externalizing problems (acting out) during the early years of school. Indeed, a recent study found that children with poorer self-regulation tend

to show more aggression towards their peers and have a tough time building positive relationships (Ringoot, 2021).

Importantly, long-term research from infancy to early childhood indicates that the relationship between a mother's depression and an infant's self-regulation can predict how a child behaves through preschool and even into middle childhood (Harris & Santos, 2020). Specifically, Harris and colleagues found that exposure to maternal mental illness at one and three-half years old predicts significantly greater behavior problems at 7-years-old through self-regulation.

Maternal Mental Health

Mother's mental health is recognized as a prevalent health concern. Based on the meta-analysis conducted by Fawcett and colleagues (2019), one in five women in pregnancy and postpartum meet the diagnostic criteria for at least one mental health disorder. Another meta-analysis found mothers indicate estimated prevalence rates for depression at 29.2% (Nguyen et al., 2023). These figures suggest a significant prevalence of depression and distress among the population of mothers, highlighting the importance of addressing mental health concerns in this demographic. Researchers have identified maternal mental health as an influential factor in the emerging aspect of child self-regulation. A wealth of studies has demonstrated that maternal mental health problems can significantly impact child development and behavior (Sharp et al., 1995; Kurstjens & Wolke, 2003; Granat et al., 2017). The current study will specifically

concentrate on two prevalent dimensions of maternal mental health: maternal depression and general distress.

Maternal depression

Individuals with depression experience negative affective states that interfere with daily life, encompassing a range from unhappiness and discontent to an extreme feeling of sadness, and despondency (American Psychological Association, 2015). Postpartum maternal depression is relatively common following the birth of a child.

Maternal depression exhibits a negative association with infant self-regulation (Bates et al., 2020). In a population-based study conducted by Hernández-Vásquez and colleagues (2022), it was found that Peruvian children with mothers experiencing moderate or severe depression symptoms were less likely to regulate their emotions and behaviors. Additionally, Granat and colleagues (2017) found that infants of mothers experiencing depression may face challenges in regulating emotions, particularly in situations eliciting negative arousal, in part because depressed mothers do not provide optimal models of emotion regulation. Moreover, maternal depression is further positively associated with child externalization behaviors (Carlone & Milan., 2021).

Many studies collectively underscore the relationship between maternal depression and child development, with specific attention to gender differences. For instance, Sharp and colleagues (1995) revealed that boys exposed to maternal depression during their first year of life tend to

score lower on intellectual performance tests, as indicated by the McCarthy test. Intriguingly, the effect of maternal depression on intellectual performance appears to be more pronounced in boys compared to girls. Kurstjens and Wolke (2003) identified significant interaction effects related to the child's gender and the presence of severe and chronic maternal depression. In particular, boys from low socioeconomic backgrounds who grow up with mothers experiencing chronic depression are at higher risk of adverse effects on their cognitive development. Furthermore, additional research suggests that maternal mental health problems may exert a more significant impact on the emotional regulation of girls than on boys (Urizar & Muñoz; 2021).

These findings underscore the complexity of the relationship between maternal depression and child self-regulation, suggesting that gender may play a role in determining the extent of its impact, especially for boys from disadvantaged backgrounds. However, it is important to note that the comparison of effects on child self-regulation when mothers suffer from maternal mental health problems across ethnic backgrounds has received limited attention in existing research.

General distress

General distress is a negative inner state when individuals feel overwhelmed by demands, losses, or perceived threats (American Psychological Association, 2015). This mental health problem is not specifically related to pregnancy but likely does impact parenting and child

outcomes. However, limited attention has been given to general distress in the examination of the relationship between maternal mental health and child outcomes. Numerous studies predominantly concentrate on maternal depression or parental distress.

Potential Role of Cultural Context

As we explore gender-based distinctions in child self-regulation and the impact of maternal mental health on child development, a robust foundation has been laid by previous research (e.g. Kurstjens & Wolke, 2003; Sharp et al., 1995; Urizar & Muñoz, 2021). However, a notable gap and debates remain in understanding how these dynamics may vary across diverse cultural contexts.

On one side of the discussion, Supplee et al. (2009) suggest the potential existence of ethnic differences in emotion regulation strategies, particularly between European-American and African-American children. Harris and Santos (2020) emphasize ethnic variability, revealing that maternal depression, especially during prenatal stages, predicts greater aggression and negative emotions in children of US-born Latina mothers compared to those born to foreign-born Latina mothers. Conversely, the work of Bates and colleagues (2021) offers a counter perspective, indicating no significant differences in risk or protective profiles between Black or African-American individuals and their White counterparts in influencing self-regulation.

Whether ethnicity groups amplify or buffer the effects of maternal mental health on child outcomes is a question with limited evidence. Of the few studies that have considered the role of ethnic groups, fewer have simultaneously compared the majority racial groups in the United States: European American, African American, and Latino. Limitations of the current literature prompt the need for further exploration that includes all three racial groups to compare the effects of maternal mental health on self-regulation according to the race of the family. This ongoing discussion highlights the importance of considering diverse cultural contexts to fully understand the complex dynamics at the intersection of maternal mental health and child self-regulation.

The Present Study

The primary focus of the present study was to examine the impact of maternal mental health on children's self-regulation and externalizing behaviors in grade 5. We conducted our research within a diverse community of low-income women who were at high risk of experiencing various aspects of maternal mental health difficulties such as maternal depression and general distress.

The primary objective that guides our study is to explore the role of racial and ethnic background in the relationship between maternal mental health and children's self-regulation and externalizing behaviors at grade 5. Specifically, we aimed to examine whether and to what extent ethnic background moderates the relationship between maternal mental health

symptomatology and child self-regulation. In line with past works (Supplee et al., 2009; Harris & Santos., 2020), our hypotheses predicted potential cultural differences in children's self-regulation. However, due to the novel nature of this question, no specific hypotheses are made regarding how cultural background might moderate the effects of maternal mental health on self-regulation and externalization behaviors.

The significance of this study is twofold. Firstly, it highlights the potential wide-reaching consequences of maternal mental health on children's self-regulation and externalizing behaviors. By shedding light on these connections, the study emphasizes the importance of offering mothers the support and resources they need to address their mental health, ultimately contributing to more positive developmental outcomes for their children. Second, this study aims to advance our understanding of the interplay between cultural context and self-regulation development. By exploring how cultural backgrounds may influence the relationship between maternal mental health and self-regulation, we can design interventions and support systems that are better tailored to address the unique needs of children from various ethnic and racial backgrounds.

In essence, this research strives to deepen our knowledge of the multi-dimensional nature of self-regulation, incorporating maternal mental health, and cultural contexts as essential components. By doing so, we aim to promote more inclusive and effective strategies for nurturing self-

regulation in early childhood and supporting the well-being of both mothers and children.

Methods

Participants

All families in the proposed study participated in the Early Head Start Research and Evaluation Project (EHSREP) - a randomized control experimental evaluation conducted at 17 Early Head Start sites across the United States beginning in 1995. The project followed families from when the target children were infants until they were in fifth grade. To qualify for enrollment in the project, participants had to have incomes at or below the poverty line and be pregnant or have an infant under 12 months. Half (50.3%) of the applicants were randomly assigned to receive Early Head Start services; the remaining half were assigned to the comparison group. The latter group could not receive Early Head Start services but were free to access other community services. We recruited participants of different racial groups (36.1% of families were European American, 33.9% were African American, 18.4% were U.S. Mexican, and 4.4% were of other ethnic backgrounds).

Procedure

At 36 months, children underwent the Bayley Scales of Infant Development, 2nd edition, an assessment of cognitive development, which included several items to assess self-regulation. Their mothers self-reported

general distress, which is not directly related to parenting, and maternal depression symptoms. In grade 5, mothers report their children's behavior through a CBCL externalization behavior and a self-regulation subscale.

Measures

Demographics

Mothers' self-identified ethnicity was documented at the initiation of the EHSREP application process. Child gender and birthdate information were gathered during the application interview, if the child had already been born, in the case of pregnant mothers, at a subsequent data collection session. An acculturative status measure, derived from the 24-month home visit interview data, incorporating generation status and language preference, will be employed as a control variable.

Maternal mental health

Maternal mental health is assessed through three measures during the 24-month home visit interviews in the EHSREP. Mothers completed two subscales of the Parenting Stress Index (Abidin, 1995). Whiteside-Mansell et al. (2007) conducted a factor analysis, decomposing the instrument into four distinct subscales. Our study will utilize the 5-item General Distress subscale, which gauges distress not directly related to parenting. Sample items included statements like "When you go to a party, you usually expect to have a bad time." Mothers express their level of agreement with each item on a 5-point Likert scale (1 = strongly agree; 5 = strongly disagree). Support for the validity of this subscale is derived from findings indicating

expected correlations with family poverty status, family conflict, parental depression, and exposure to other negative events such as the incarceration of a friend or relative (Whiteside-Mansell et al., 2007), as well as children's self-regulation (Ayoub et al., 2011).

Maternal depression was measured during the same home visit using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Respondents indicate the presence or absence of 20 depressive symptoms experienced in the past week, with sample items including statements like "my appetite was poor." responses are on a scale of 1 (*rarely or never*) to 4 (*most of all days*). Scores are totaled, with the range from 1 to 80. The CES-D is widely employed for measuring depressive symptoms across diverse populations (e.g. Fountoulakis et al., 2001; Liang et al., 1989; Orme et al., 1986).

Because maternal distress and maternal depression were significantly correlated ($r=.38$, $p = .001$) and predicted outcomes in the same direction, they were converted to z-scores and averaged.

Child development

When children were 36 months old, researchers administered the Bayley Scales of Infant Development to assess the children's development. The Bayley Scales (Bayley, 2006) evaluate development across several areas including communication, cognition, attention, social, and motor. The researchers observed the children completing various tasks and activities

related to these development areas. Included in this was a series of observer ratings on the child's emotion regulation.

In grade 5, parents completed two forms to answer questions about their children: an externalizing subscale and a self-control subscale. The Child Behavior Checklist (CBCL) externalizing subscale is a widely used questionnaire to assess children's behaviors and emotional issues (Achenbach & Rescorla, 2001). CBCL has two components: internalizing and externalizing. In the current study, we only use the externalizing part of CBCL, which includes aggressive and problematic behaviors.

Results

Regression models were built to predict externalizing behaviors and self-control at Grade 5. Since we were interested in how mothers' mental health predicted these across different ethnic groups, we built separate models for both outcomes. We conducted hierarchical models in which we entered gender and income as controls in step one, maternal depression in step two of the models, and emotion regulation in step three of the models.

For European Americans, the final model was significant (see Table 1). Only children's emotion regulation made a significant independent contribution to the model. The better regulated European American children were, the less externalizing behavior they displayed. For African Americans, the final model was significant as well. Parental depression affected the model. The more depression the mother showed, the more externalizing behaviors children had in grade 5. For LatinX children,

parental depression was a significant predictor of externalizing behaviors, with higher levels of maternal depression associated with a slightly higher likelihood of externalizing behaviors. Child gender and emotional regulation did not significantly predict externalizing behaviors in LatinX children. Overall, we found there is a cultural difference in the relationship between maternal mental illness and children's externalizing behavior in grade 5.

Regarding self-control behaviors in grade 5, the full model was significant for only European American children, and higher emotional regulation at 36 months was associated with higher self-regulation ability at grade 5 (see Table 2). Therefore, we conclude that there is a cultural difference in the relationship between child emotion regulation and self-regulation at grade 5.

Table 1. Externalizing behaviors in grade 5

European Americans

Predictor	β
Child gender	.044
Income	-.058
General Distress	.025
Parental Depression	.174
Child Emotional regulation	-.216*

$R^2 = .099^*$; * $p < .05$; ** $p < .01$.

African Americans

Predictor	β
Child gender	-.057
Income	-.106
General Distress	.046
Parental Depression	.252*
Child Emotional regulation	-.024
$R^2 = .110^*$; * $p < .05$; ** $p < .01$.	

LatinX

Predictor	β
Child gender	-.032
Income	.044
General Distress	.043
Parental Depression	.351**
Child Emotional regulation	-.165
$R^2 = .183^{**}$; * $p < .05$; ** $p < .01$.	

Table 2. Self-regulation at grade 5

European Americans

Predictor	β
Child gender	.220

Income	.071
General Distress	-.041
Parental Depression	-.102
Child Emotional regulation	.258*

$R^2 = .160^*$; * $p < .05$; ** $p < .01$.

African Americans

Predictor	β
Child gender	.202
Income	.041
General Distress	.085
Parental Depression	-.112
Child Emotional regulation	.014

$R^2 = .055$; * $p < .05$; ** $p < .01$.

LatinX

Predictor	β
Child gender	.103
Income	-.266*
General Distress	-.025
Parental Depression	-.218

Child Emotional regulation	.158
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$R^2 = .150$; $*p < .05$; $**p < .01$.

Discussion

The present study aimed to understand how racial and ethnic background may influence the relationship between maternal mental health and a child's development of self-regulation and externalizing behaviors. We hypothesized that there would be cultural differences in the relationship between maternal mental health, children's self-regulation, self-control, and externalizing behaviors later in development (Supplee et al., 2009). Our findings are consistent with the predictions. We found that in the African American group and Latinx group, maternal mental health was associated with externalizing behaviors and self-control at grade 5, but not a similar pattern in the European American group. Instead, for European American children, their outcomes at grade 5 were predicted by emotional regulation at 36 months.

The finding that parental depression influenced externalizing behaviors in African Americans aligns with previous studies indicating that the negative effect of African American mothers' depression on child behavior problems was more pronounced compared to other racial/ethnic groups (Baker et al., 2022). However, in contrast with Baker's results, we

also found a correlation between parental depressive and externalizing behaviors in US-Mexican as well as African American children.

To explain why only African American and Latinx groups showed that parental depression affected children's externalizing behaviors more strongly, we considered maternal depression might be more problematic in these mothers. Previous research has suggested that African American and Latinx individuals may face greater barriers to accessing mental health services, which could contribute to higher rates of untreated parental depression (Alegria et al., 2008; Bauer et al., 2014). For example, according to Shim and colleagues (2012), racial and ethnic minority groups often have less access to mental health services and receive lower quality care compared to White individuals. They are also more likely to be under-diagnosed or misdiagnosed. Kozhimannil et al. (2011) found that fewer black and Latina women received postpartum mental health care compared to White women, even though they had similar clinical needs and socioeconomic status. This can explain why parental depression is an important factor in children's externalizing behaviors in grade 5 for the African American group and US Mexican group. However, other mechanisms besides emotion regulation must explain why maternal mental health problems lead to more externalizing behavior among ethnic minority children. It is possible, for example, that depressed mothers in the US Mexican and African American families had harsher and more physical

parenting than European American mothers, which led to higher levels of aggressive behavior in children by grade 5.

Another result we discovered suggests that self-regulation in early childhood can predict children's self-regulation in grade 5 for European American children, aligning with the conclusion of a study (Harris et al., 2020) that self-regulation is relatively stable for European American children once developed. Additionally, the existence of a correlation between self-regulation in childhood and later externalizing behavior is consistent with the previous studies. For example, Perry and colleagues (2018) verified that children who have self-regulatory skills are more likely to control their behaviors and less likely to be defiant or act aggressively. Thus, early self-regulation is important in promoting positive outcomes in White children.

However, it is unclear why emotion regulation at 36 months did not predict externalizing behavior or self-control in the African American and US-Mexican groups in the present study. Still, it may be that the additional challenges faced by ethnic minority youth (e.g. discrimination and fewer opportunities than afforded to White children) may undermine the stability of emotional regulation that develops in early childhood. Subsequent research should examine whether self-regulation is less stable in minoritized samples due to the unique stressors faced by children who face prejudice and fewer opportunities.

The stressors of discrimination can significantly impact a child's mental health, particularly depression. Studies have shown that African American and Latinx children may experience more discrimination compared to European children, which can have negative effects on their mental health. For example, a study by Greene and colleagues (2006) found that perceived discrimination was associated with higher levels of depressive symptoms among African American adolescents. Similarly, a study by Priest et al. (2013) found that Latinx individuals who experienced discrimination were more likely to report symptoms of depression. This suggests that there may not be a direct relationship between emotional regulation and children's self-regulation or externalizing behaviors at grade 5, as other factors, such as discrimination, may diminish this relationship.

Limitations and Future Directions

The findings of the study support the importance of examining race and ethnicity when considering the influence of maternal mental health and self-regulation on child outcomes. Although we found what looks like cultural differences, interactions need to be tested to demonstrate these differences. Nevertheless, there are limitations to the design of the current study. In the current study, we only included only child gender and family income as controls. Still, there are other potential factors in this relationship, such as the mother's education, maternal age, or maternal mental health condition at grade 5.

It would be important to examine mothers' mental health in later childhood as well. It's important to understand if the mother's mental health when the child is young affects the child when they are older and if it can have long-lasting effects. Future studies should look at the mother's mental health when the child is older to figure out the child's behavior in later childhood is caused by what, to understand the concurrent effects of mothers' mental health on children's functioning.

It is important to consider the mother's age in future research. For instance, Palnalp et al. (2023) identified disparities in the mean levels of mothers' parenting behaviors and stress among Adolescent, high-, and Low-Education mothers. These variables displayed varying degrees of significant differences associated with child regulation over time. Specifically, for adolescent mothers, higher parenting stress at 12 months was associated with lower child self-regulation at 18 months. Intriguingly, parenting stress did not affect child self-regulation for low-education mothers or high-education mothers. The authors suggest that maternal age, rather than education, might adversely influence mothers' parenting behaviors and children's self-regulation. Maternal age is a factor that often goes unnoticed but indeed can have consequences for children's self-regulation. This highlights the significance of considering more contextual factors in the relationship between self-regulation and child outcomes.

Practically, these results inform the development of culturally tailored programs that address parental mental health and support the development

of self-regulation skills in children from diverse backgrounds. Theoretically, the findings underscore the need for more nuanced, multidimensional models that account for the influence of cultural factors on the complex processes underlying child development and family functioning (Garcia Coll et al., 1996).

Overall, our findings support the idea that racial and ethnic differences exist in the links between children's self-regulation, mothers' mental health, and child outcomes. It is important to take this into account both for research and intervention. Perhaps the cultural differences are due to differences in the severity of depression faced by minoritized mothers who are also less likely to have access to mental healthcare and who are more likely to face discrimination and inequality. The current study demonstrates the importance of filling gaps in treatment services for different racial groups.

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