



An Evaluation of Milk and Cookies (MAC): A School-based Program for Children with Incarcerated Parents

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Abstract

Despite high rates of incarceration among parents of school-aged children, few programs designed for these children have been implemented or evaluated within a school-based setting. The current study examined the impact of program participation on school-aged children's self-perceived competency. Participants for this study ($N = 75$) included elementary school-aged children (50.7% female, 99% African American), $M = 8.38$ years ($SD = 1.56$) who were participating in a year-long educational program and support group for children with incarcerated parents at one of three public elementary schools. Children completed either the Harter's Self Perception Profile for Children (grades 3–5) or the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (grades 1–2) at the start (T1) and end (T2) of programming. Paired sample t-tests showed an increase in scores for self-perceived ability at T2 for third through fifth graders, with both higher social competence and academic competence scores. This research provides insight into the benefit of school programming for children with a parent incarcerated and highlights the need for further research on components of self-concept development among this population of children.

Keywords Parental incarceration · self-perception · self-concept · self-perceived ability · school programming

Highlights

- Despite high incarceration rates of parents of school-aged children, few school programs have been implemented or evaluated.
- Higher social and academic competence scores were reported after program completion.
- While not significant, younger students had higher scores after program completion.
- School programs may be a viable intervention avenue for children with incarcerated parents.

In the last 40 years, the United States has seen a 500% increase in the number of individuals incarcerated, becoming the country with the highest incarceration rates (The Sentencing Project, 2020). At the national level, it is estimated that one in every two adults (45%) has had an immediate family member incarcerated (Enns et al., 2019) and that more than 5.7 million children have experienced

parental incarceration (Gotsch, 2018). Additional data collected from the 2016 Survey of Prison Inmates revealed that of children with a parent incarcerated in state prison, 48% were age ten or older, indicating a large number of school-aged children with an incarcerated parent (Maruschak et al., 2021). Research has shown that children with a parent incarcerated are at high risk for worse psychological, behavioral, and school-related outcomes when compared to their peers (Aaron & Dallaire, 2009; Bocknek et al., 2009; Miller, 2006; Murray & Farrington, 2005; Murray & Farrington, 2008; Ruhland et al., 2019; Trice & Brewster, 2004).

Due to the substantial amount of time children spend in schools and the increasingly high rates of school-aged children with incarcerated parents, school-based programming may be a valuable avenue for intervention and

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programming for children with an incarcerated parent. An important area to target may be children's social and emotional skills and their developing sense of self. Children's developing self-concept can be negatively impacted by low socioeconomic status (SES) (Trusty & Peck, 1994; Crampton & Hall, 2017), negative attachment relationships (Diener et al., 2007), and peer rejection (Buhs, 2005), all of which are risks associated with having a parent incarcerated. Despite the risks children with a parent incarcerated are exposed to and the promising impacts of school-based programming among other high-risk populations (Bierman et al., 2004; MacArthur et al., 2012; Twum-Antwi et al., 2019), there is a minimal body of literature examining school-based interventions for children with a parent incarcerated (Lopez & Bhat, 2007; Springer et al., 2000). The current study attempts to address this gap by examining the self-perceptions of children participating in a school-based social and emotional program for youth with an incarcerated parent.

Self-Concept Among Children with A Parent Incarcerated

Self-concept refers to one's evaluation of themselves and their abilities, formed through one's experiences with their environments (Brummelman & Thomaes (2017); Shavelson et al., 1976). There are several components that make up a child's self-concept, such as self-esteem and self-perceived ability (Brummelman & Thomaes (2017)). When constructing their self-concept, children often compare themselves to their peers and incorporate feedback from situations into their perceived set of abilities (Shavelson et al., 1976). This feedback contributes to the development of a child's self-perceived ability, which is an understanding of their competencies that allows for an acknowledgment of what they may be able to achieve with the abilities they possess (Brummelman and Thomaes (2017)).

In this study, we measured the self-perceived ability of children with a parent incarcerated. There are many factors that can contribute to children with an incarcerated parent developing a negative sense of themselves and their perceived abilities, such as economic instability and adversity (Crampton & Hall, 2017; Trusty & Peck, 1994), insecure attachment relationships (Diener et al., 2007), and an increased level of peer rejection (Buhs, 2005). Despite a heightened risk of exposure to these factors associated with the development of negative self-perception (Miller, 2006; Phillips et al., 2006; Poehlmann, 2005; Seymour, 1998), very few studies look at the development of self-perceived ability in this population.

There is a need for more research on the development of self-concept among children with a parent incarcerated, as it may explain variances in resilience among this population.

For example, positive academic self-concept has been identified as a strong predictor of future academic aspirations and success, even above demographic characteristics (Prince & Nurius, 2014). In addition to promoting academic success, self-concept can also act as a mediating influence on the co-occurring development of internalizing and externalizing behaviors (Lee & Stone, 2011). Due to the fact that children with a parent incarcerated are at high risk for poorer academic and behavioral outcomes (Aaron & Dallaire, 2009; Dannerbeck, 2005; Miler, 2006; Murray & Farrington, 2005; Murray & Farrington, 2008; Nichols & Loper, 2012; Ruhland et al. (2019)), improvement in self-perception may be a viable avenue for intervention among this population of children.

The Impact of School Programing on Self-Concept

School programming has been shown to increase children's self-concept, which is important given the effects of a child's self-concept on their future academic success (Prince & Nurius, 2014) and the development of behavioral problems (Lee & Stone, 2011). In a meta-analysis on after-school programming, Durlak et al. (2010) found that among many other factors, after-school programming led to an increase in positive youth self-perceptions. These findings have also been supported by Ginsburg-Block et al. (2006), who found that peer-assisted learning has a positive effect on social, behavioral, and self-concept outcomes and that these positive outcomes were higher for urban, low-income, and minority students who participated. Finally, school may be an equalizing experience for children regarding their self-concept development (Strein et al., 1999), which places even greater importance on effective school-based interventions that aim to increase positive views towards oneself and abilities.

School-Based Programs for Children with Incarcerated Parents

There have been several empirical evaluations of school programs for other at-risk youth (i.e., youth engaging in early conduct disorder, antisocial behavior, health risk behaviors, etc.), with participants showing increases in a wide range of developmental and socioemotional outcomes such as increases in academic achievement and social competence, decreases in conduct problems and risky health behaviors, and improvement in peer relationships (Bierman et al., 2004; MacArthur et al., 2012; Twum-Antwi et al., 2019). Despite the unique circumstances and increased risk exposure children with a parent incarcerated often face and the amount of time children spend in school, very few

studies examine the impact of school-based interventions among this population of children. The limited amounts of reliable data on this population make it difficult to fully understand the effects of school-based programming for children with an incarcerated parent, in turn making it difficult to develop and fine-tune appropriate interventions (Miller, 2006). In fact, in a review of the literature, only two articles were found that examined interventions in a school setting for children with a parent incarcerated. In their pilot study of an in-school support group for children with an incarcerated parent, Lopez and Bhat (2007) reported student feedback on increased connectivity and social support at program completion. However, despite the promising feedback, the authors highlight the need for a formal evaluation of student outcomes to better understand program impacts (Lopez & Bhat, 2007). Other work by Springer and colleagues (2000) examined the impact of an in-school solution-focused intervention for Hispanic youth, finding significant differences in self-esteem only among the experimental group. However, due to the small sample ($N = 10$), the authors caution against generalizing their findings to a larger population (Springer et al., 2000). The scant literature on this important topic, coupled with the limitations of previous work, highlights the need for studies that empirically examine the impacts of in-school programming for children with a parent incarcerated.

The Present Study

The goal of the present study was to examine the impact of participation in a school-based, yearlong program that addresses children's social and emotional competencies among youth with a parent incarcerated. First, we explored whether children's age or gender impacts self-perceived ability scores among this population of children. Previous research has indicated that self-concept changes as children age, with younger children having more positive assessments of themselves and their abilities (Jacobs et al., 2002; Marsh, 1989). Although there have been several studies conducted on gender differences in self-perception, the results are conflicting. Some researchers have found that gender differences tend to be domain-specific, following stereotypes associated with each gender, such as boys having higher self-concepts for math and physical abilities while girls have higher self-concepts for verbal and reading abilities (Jacobs et al., 2002; Marsh, 1989). Based on this literature, we predicted that younger children would show higher scores (indicating a more positive view towards their perceived abilities) than older children (H1). We had no specific hypothesis for the effect of gender on self-perceived ability among our sample since we did not test for academic competence in specific domains. To understand the impact

of Milk and Cookies (MAC) participation, we examined the differences in self-perceived ability scores after children completed MAC programming, and we predicted that scores would be higher at Time 2 (H2).

Method

Participants

Participants were recruited through a school-based program called Milk & Cookies (MAC). MAC, a program run by a non-profit organization, Assisting Families of Inmates, Inc. (AFOI), works with families that have had a family member incarcerated. Through the MAC program, AFOI strives to meet the needs of elementary-aged children with one, or both, parents incarcerated. At the start of the school year teachers send home an interest form for caregivers and parents to complete to enroll their child. Participants included 75 elementary-aged children from a mid-sized urban city on the East Coast of the United States. According to regional data, our participants were recruited from schools in areas with the highest incarceration rates in the city (Widra & Gilliam, 2022). Data was collected over two years, with 39 children participating in year 1 of the study and 36 children participating in year 2 of the study. Our retention rate was high, with 80% of our participants completing assessments at T1 and T2. Of our 75 participants, 50.7% were female ($n = 38$), and 99% were African American. The average age of the participants was 8.38 years (105.96 months, $SD = 1.56$). Our final sample included 14 first graders, 19 second graders, 14 third graders, 14 fourth graders, and 14 fifth graders. Additionally, our recruitment took place out of three elementary schools, resulting in 29 children from school 1, 34 children from school 2, and 12 children from school 3. A detailed breakdown of the number of children from each grade by the three schools can be found in Table 1. Our participants attended elementary schools that had a high percentage of black students (86–95%), had a high level of students who utilized free meals (86–88%) and who were chronically absent (11–25%),

Table 1 Number of Participants by Grade and School ($N = 75$)

Grade	School			
	School 1	School 2	School 3	Total
First	5	7	2	14
Second	6	9	4	19
Third	6	6	2	14
Fourth	5	7	2	14
Fifth	7	5	2	14
Total	29	34	12	75

and whose math, and reading proficiency levels were low (34–59%) (Virginia Department of Education, [n.d.](#)).

MAC Programming

Graduate students enrolled in the Masters of Social Work (MSW) program at another local university attended a 2-day training workshop at AFOI to learn the curriculum. In addition, they had weekly supervision with an MSW-level supervisor from AFOI. The core objectives of MAC are to help children form relationships and connect with other children who may be facing similar circumstances and, through trauma-informed programming, to build their social and emotional skills. One of the main components of MAC programming is the weekly in-school peer and facilitator/mentor support model, which provides children a space where they can attempt to understand and cope with their parent's incarceration and separation. MAC sessions are broken down by grade level, and two MSW student facilitators meet weekly with small groups of children enrolled in the program for seventeen weeks. Groups ranged in size from 3 – 10 students. The curriculum works with the children to promote success in emotional, social, and physical health, academics, and the community using a copy-righted curriculum (available upon request to AFOI). Specifically, the curriculum includes introductory materials, interactive discussion and lessons on grief and loss, emotions and emotional regulation, self-esteem, lessons centered around holidays, and a year-end ceremony. As an emerging trauma-informed practice, MAC aims to enhance children's coping skills and bolster their resiliency. After students enroll in the program, MSW students contact children's caregivers to help connect the family to additional services they may need or be interested in. In addition, MSW students collect background information about each child's family and ascertain the reason and nature (e.g., length, location) of the parent's incarceration. AFOI provides wrap-around services like school supplies, holiday assistance, and emergent client assistance (food, utilities, etc.) to participating families. Finally, the program provides resources and referrals for parents/caregivers to relieve household stressors (financial, housing, transportation, childcare, and employment concerns). MAC supports family reunification and reintegration when the incarcerated parent is released. Through MAC, AFOI aims to interrupt intergenerational trauma, cyclic childhood poverty, and the school-to-prison pipeline.

Measures

The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children

Self-perceived ability for first and second-grade participants was measured with the Pictorial Scale of Perceived

Competence and Social Acceptance for Young Children (Harter & Pike, 1984). This scale consists of four subscales: physical competence (e.g., This boy/girl isn't very good at swinging by himself, this boy/girl is pretty good at swinging by himself), cognitive competence (e.g., This boy/girl is pretty good at puzzles, this boy/girl isn't very good at puzzles), peer acceptance (e.g., This boy/girl has a lot of friends to play with, this boy/girl doesn't have very many friends to play with) and maternal acceptance (e.g., This boy/girl's mom doesn't smile at her very much, this boy/girl's mom smiles at her a lot). This measure consists of two parts, the first asking the child to identify which of the two children (one with a negative attribute and one with a positive attribute) they feel they are most like and then asking the child if they are "a lot like" or "a little like" the child they chose. In this study, we collected data only on the academic competence and peer acceptance scales. Cronbach's alpha for cognitive competence was 0.88 and 0.86 for peer acceptance. Our participant's scores for both subscales were calculated by averaging their answers to every question associated with each subscale, and those averages were used in data analysis.

The Self-Perception Profile for Children

Self-perceived ability for third through fifth graders was measured with the Self Perception Profile for Children (SPCC). The SPCC is a self-report measure that assesses a child's feelings of general self-worth and domain-specific areas related to school success (Harter 1982, 1985). Given that this scale is only developmentally appropriate for children grades third through eighth, this scale was only administered to our third, fourth, and fifth-grade participants. This scale has one subscale for global self-worth (e.g., some kids are often unhappy with themselves but other kids are pretty pleased with themselves) and subscales for the following domains: academic competence (e.g., Some kids feel that they are very good at their school work, but other kids worry about whether they can do the schoolwork assigned to them), social competence (e.g., Some kids find it hard to make friends, but other kids find it's pretty easy to make friends), athletic competence (e.g., Some kids do very well at all kinds of sports, but other kids don't feel that they are very good when it comes to sports), physical appearance (e.g., Some kids are happy with the way they look, but other kids are not happy with the way they look), and behavioral conduct (e.g., Some kids often do not like the way they behave, but other kids usually like the way they behave). Like the Pictorial Scale, this questionnaire is answered in a two-step process, with the child first indicating which of the two children (one with a negative attribute and one with a positive attribute) they feel they are most alike. Participants are then instructed to determine if their similarity to the descriptive child they

Table 2 Descriptive statistics, third through fifth grade participants ($n = 42$)

Variables	1.	2.	3.	4.	5.	6.	<i>M</i>	<i>SD</i>
1. Scholastic Competence T1	–	0.69**	0.52**	0.26	0.17	0.15	2.78	0.54
2. Scholastic Competence T2		–	0.54**	0.43**	0.21	0.18	2.93	0.60
3. Social Competence T1			–	0.66**	0.37*	0.14	2.75	0.63
4. Social Competence T2				–	–0.003	0.06	3.01	0.67
5. Behavioral Conduct T1					–	0.16	2.73	0.64
6. Behavioral Conduct T2						–	2.91	0.66

* $p < 0.05$, ** $p < 0.01$

chose is “really true for me” or “sometimes true for me.” In this study, we collected data on the academic competence, social competence, and behavioral conduct scales. In the current study, Cronbach’s alpha for academic competence was 0.71, for social competence 0.83, and behavioral competence 0.71. Our participant’s scores for the three subscales were calculated by averaging their answers to every question associated with each subscale, and those averages were used in data analysis.

Procedure

Measures were administered to MAC participants by independent evaluators comprised of trained undergraduate and graduate students who were members of the principal investigator’s university who were not involved in program or curriculum administration. This study was approved by the authors’ university Protection of Human Subjects Committee (PHSC-2019-01-11-13339-dhdall). Each caregiver gave consent for their child to participate, and child participants also gave their verbal assent before completing the survey. The survey included questions regarding demographic information, emotional regulation, and the developmentally appropriate version of Harter’s self-perception profile. It typically took children between 10–20 minutes to complete the survey, and participants were given a sticker between each section and picked out a pencil after the survey. Children were individually interviewed in a private setting to ensure they could answer without another child in the program hearing their response. For the first year of data collection, data was collected at Time 1 in January/early February of 2019, and Time 2 was collected in late April/early May of 2019. For the second year of data collection, Time 1 data was collected in September/October of 2019, and Time 2 data was collected in January 2020. Time 3 data collection was scheduled for April/May 2020. However, due to the outbreak of the COVID-19 pandemic, data was not collected at Time 3.

Data Analysis

A total of 108 students participated in MAC Programming over two years. Due to low internal consistency among

Table 3 Descriptive statistics, first and second grade participants ($n = 33$)

Variables	1.	2.	3.	4.	<i>M</i>	<i>SD</i>
1. Cognitive Competence T1	–	0.79**	0.42*	0.60**	3.26	0.76
2. Cognitive Competence T2		–	0.42*	0.71**	3.32	0.65
3. Peer Acceptance T1			–	0.60**	3.21	0.74
4. Peer Acceptance T2				–	3.27	0.70

* $p < 0.05$, ** $p < 0.01$

Harter subscale items, Kindergarten participants were excluded from the study ($n = 14$), leaving us with 94 potential participants. Additionally, any student in grades 1–5 who did not have data for both T1 and T2 was not included in data analysis ($n = 19$), as we had several students who dropped out of the study ($n = 8$) and several students who did not have data collected at T1 due to late acceptance into the study ($n = 11$). This left us with an analytic sample of 75 participants, which was made up of a combination of participants who completed both T1 and T2 either during year one or year two of the study. Of our 75 students, 14 participated in both years of the program, so we excluded their values from the second year. For our analyses, we first used independent sample t-tests to determine any significant differences between our analytic sample and children removed from our sample due to incomplete data at T1 or T2. We then calculated descriptive statistics to determine the average score for each subscale for our study’s analytic sample of children. Tables 2 and 3 display bivariate correlations, as well as subscale score means and standard deviations. Next, to determine if there was a relation between age and gender to self-perceived ability, standardized variables (z-scores) for both age and gender were calculated. Then, we calculated an interaction term by multiplying the age z-score by the gender z-score. We then used regression analysis to examine significant relations between self-perceived ability and age, gender, and gender by age. Finally, we used a paired sample t-test to examine differences in self-perceived ability scores between T1 and T2 of data collection to highlight how MAC programming may have impacted each child’s perceived ability level for each subscale.

Results

Differences Between the Analytic Sample and Excluded Cases

We used independent sample *t*-tests to determine any significant differences between our final analytic sample ($N = 75$) and those excluded from our sample due to a lack of data at both T1 and T2 ($N = 19$). Analyses revealed that behavioral conduct scores at T2 for students in Grades 3–5 were higher among our analytic sample ($M = 2.91$, $SD = 0.66$) than in our excluded cases ($M = 2.58$, $SD = 0.10$), $t(36) = -2.89$, $p = 0.006$. There were no significant differences for behavioral conduct scores at T1 or for scholastic competence or social competence at either time point for our students in Grades 3–5. For our students in Grades 1 and 2, cognitive competence scores for our analytic sample at T1 ($M = 3.26$, $SD = 0.76$) were significantly higher than the scores of individuals excluded from the sample ($M = 2.58$, $SD = 0.29$), $t(10) = -3.47$, $p = 0.006$. We also saw a significant difference in cognitive competence scores at T2, with our analytic sample reporting higher scores ($M = 3.32$, $SD = 0.65$) than our excluded cases ($M = 2.30$, $SD = 0.22$), $t(18) = -6.83$, $p < 0.001$. We also found that at T1, our analytic sample ($M = 3.21$, $SD = 0.74$) demonstrated higher social competence scores than our excluded cases ($M = 2.46$, $SD = 0.21$), $t(16) = -4.54$, $p < 0.001$. Finally, we found similar results with T2, with our analytic sample ($M = 3.27$, $SD = 0.70$) showing higher social competence scores than those individuals removed from the final sample ($M = 2.57$, $SD = 0.30$), $t(12) = -3.89$, $p = 0.002$.

Differences by Child Age and Gender

Our first hypothesis aimed to determine any significant differences among self-perceived ability scores by age and gender. To test this association, we used regression analysis. Our results indicated no significant relations between age, gender, or gender-by-age interactions and self-perceived ability scores.

Differences in MAC Participants at T1 and T2 of Data Collection

Table 2 shows descriptive information and bivariate correlations for all measures for children in grades 3–5; Table 3 shows descriptive information and bivariate correlations for children in grades 1–2. Paired sample *t*-tests examined the average of each subscale for all participants for T1 and T2 to assess the impact of MAC programming on children's scores for self-perceived ability. There was a significant increase in social competence for children in Grades 3–5

Table 4 Third through fifth grader means at T1 and T2 ($n = 42$)

Subscales	T1 <i>M</i>	T1 <i>SD</i>	T2 <i>M</i>	T2 <i>SD</i>	<i>p</i>	Cohen's <i>D</i>
Social Competence	2.75	0.63	3.01	0.67	0.004**	0.48
Scholastic Competence	2.78	0.54	2.93	0.60	0.037*	0.33
Behavioral Conduct	2.73	0.64	2.91	0.66	0.174	0.21

* $p < 0.05$. ** $p < 0.01$

Table 5 First and second grader means at T1 and T2 ($n = 33$)

Subscales	T1 <i>M</i>	T1 <i>SD</i>	T2 <i>M</i>	T2 <i>SD</i>	<i>p</i>	Cohen's <i>D</i>
Cognitive Competence	3.26	0.76	3.32	0.65	0.499	0.12
Peer Acceptance	3.21	0.74	3.27	0.70	0.592	0.09

* $p < 0.05$. ** $p < 0.01$

between T1 ($M = 2.75$, $SD = 0.63$) and T2 ($M = 3.01$, $SD = 0.67$), $t(41) = -3.09$, $p = 0.004$ (See Table 4). The effect size was medium, with a Cohen's *d* of 0.48 (Cohen, 1969). There was a significant increase in scholastic competence for children in Grades 3–5 between T1 ($M = 2.78$, $SD = 0.54$) and T2 ($M = 2.93$, $SD = 0.60$), $t(41) = -2.15$, $p = 0.037$ (See Table 4). The effect size was small, with a Cohen's *d* of 0.33 (Cohen, 1969). There were no significant differences in behavioral competence for children in Grades 3–5. There were also no significant differences in cognitive competence and peer acceptance for children in Grade 1 and Grade 2 (See Table 5).

Discussion

We aimed to identify any advantages of MAC on the development of self-perceived ability among children with a parent incarcerated. Our findings suggest that MAC may help improve self-perceived ability among children in grades 3–5 who have a parent incarcerated. After completing MAC programming, our third through fifth-grade participants showed increased social competence at T2, indicating more positive feelings towards social ability. Additionally, we saw increased scholastic competence among our third through fifth-grade participants at T2, indicating that MAC programming may have influenced perceived academic ability.

Our findings are consistent with the literature that suggests that school programming can positively impact the development of social relationships and abilities (Bruster & Foreman, 2012; Laakso & Nygaard, 2012; Lopez & Bhat, 2007). One possible explanation for the increase in social competence scores can be attributed to MAC programming's

social support group component. One of MAC's main goals is to provide children with a space where they can be surrounded by peers who share a similar experience, allowing children to cope with and process their parent's incarceration. It has been theorized that children with a parent incarcerated are at a greater risk of experiencing social rejection from their peers and family members (Miller, 2006). It is possible that this ability to connect with peers who understand their situation underlies feelings of greater social competence and reduces the likelihood of feelings of social rejection.

In addition to identifying the impact of MAC programming on social competence perception, our study also highlighted the impact MAC programming has on perceived scholastic competence. Previous research has shown that peer rejection, especially high levels of victimization and exclusion, can result in lower scholastic competence scores (Buhs, 2005). This outcome is due to the possibility that children may be experiencing peer rejection in academic settings (i.e., rejection when selecting partners for group assignments) and are interpreting this rejection as a representation of their intellectual abilities (Buhs, 2005). We found that our participants showed significant increases in their social and scholastic competence after completing MAC programming. These results indicate that there may be an association between social and scholastic competence, and future research should be conducted to understand how these two domains influence one another over time.

It is important to note that while our effect sizes fell into the small (scholastic competence) to moderate (social competence) range, there is a growing body of research indicating that effects considered to be "small" under Cohen's guidelines (Cohen, 1969) are actually significant when applied to interventions in a school environment (Kraft, 2020; Lipsey et al., 2012). For instance, Lipsey and colleagues (2012) proposed that effect sizes falling at 0.25 should be considered large in educational research. Similar reduced ranges have been suggested by Kraft (2020), who recommend that effects of 0.20 or greater should be considered large, especially regarding achievement among school-aged students. By those proposed standards, the effect sizes for social competence (0.48) and scholastic competence (0.33) would be considered well within the large range. Another important consideration, particularly for policymakers and school administrators when considering program implementation and funding, is an assessment of time and cost relative to the effect size (Kraft, 2020). MAC participants only participated in MAC programming once per week for seventeen weeks, which is a relatively minimal amount of exposure compared to some intervention models. Additionally, these services took place during the school day, and programming was carried out by MSW students as part of their field placement training

requirements, limiting any additional burden on the child's guardians or teachers. Therefore, while considered small by traditional guidelines, in the specific context of educational interventions, and when considering the resources required for MAC program implementation and maintenance, we argue that these findings are meaningful.

We did not see any significant differences in perceived behavioral conduct for our third through fifth-grade participants. Previous research has shown that self-concept plays a mediating role in the co-occurring development of internalizing and externalizing behaviors (Lee & Stone, 2011). Negative self-concept can act as a pathway to behavioral issues by leading to more violent and aggressive behavior as a response to a child's negative view of themselves (Lee & Stone, 2011). While our findings did not demonstrate significant changes in behavioral competence, our results indicated that children who had completed MAC programming began to show higher levels of self-perceived ability in other domains (i.e., scholastic and social competence). If this theory is correct, our participants may begin to show a significant increase in perceived behavioral conduct with the continuation of MAC programming due to the development of a more positive view of themselves. Additionally, it is possible that our sample was underpowered, and a larger sample may have been able to detect these changes. Future research should be conducted in a larger sample that follows this development outcome over time and highlights the ability of school programming to produce long-term positive effects in the development of self-concept among this population of children.

We did not find support for our hypothesis that first and second-grade students would show increases in perception of their cognitive competence or peer acceptance. Research has shown that younger children view themselves more positively than older children (Jacobs et al., 2002; Marsh, 1989). Our first and second-grade participants started with higher ratings of their cognitive competence and peer acceptance than our third through fifth-grade students. This tendency may explain why we did not see significant increases in their self-perceived ability after MAC participation. Additionally, our sample of first and second graders was relatively small ($n = 33$), and it is possible that we were not powered enough to detect this effect among our sample. Given that our first and second-grade participants' scores increased at a level that was not significant, a larger sample size may have found this effect.

We did not find support for our hypothesis regarding differences among ages within this population of children. Despite research showing that younger children have higher assessments of themselves and their abilities (Jacobs et al., 2002; Marsh, 1989), our results did not indicate significant differences in scores between ages. We also explored the relation between self-perceived ability scores and gender.

Previous research has shown that gender differences are often domain-specific and reflect gender stereotypes, such as boys having higher self-concepts for math and physical abilities or girls having higher self-concepts for verbal and reading abilities (Jacobs et al., 2002; Marsh, 1989). In our study, we looked at academic competence, social competence, and behavioral conduct for our third through fifth-grade participants and cognitive competence and peer acceptance for our first and second-grade participants. Our study did not separate out any domain-specific abilities for academic or cognitive competence (i.e., verbal, reading, or math abilities), which may explain why we did not find any significant differences by gender.

There were several methodological strengths of our study. First, our data was collected over two academic years, both at the beginning of MAC programming and after completing the program. This study design allowed us to assess the impact of MAC programming over time. Additionally, we had a high retention rate of participants throughout data collection, which is extremely rare in high-risk samples. This retention rate is especially impressive when considering that each of the three schools involved in MAC reported at least 10% or higher of all students as chronically absent (Virginia Department of Education, n.d.). Our study also had a high amount of ecological validity since data collection occurred in schools, allowing us to collect data on self-perceived abilities in the same context we were hoping to understand. Finally, the program evaluators were independent of the organizations in charge of MAC program administration, allowing for increased confidence in the creditability of the results.

Although these findings allow us to better understand the impact of MAC programming on self-perceived ability in children with a parent incarcerated, this study does have some limitations. First, due to our status as independent evaluators and our data-sharing agreements, we were unable to obtain additional information about students' program attendance or insight into the specific nature of their parent's incarceration. Additionally, while collecting data in school provides higher ecological validity levels, and we saw a high retention rate, there are some limitations to collecting data in a school environment. We were given a specific set of dates to collect data at each school, so we were unable to collect responses if a child was absent. Also, to avoid school disruption, we were limited by a very small time window to collect data during the school day, such as a child's free period or gym. This time constraint sometimes impacted our ability to collect data on all children in a particular grade or give each child enough time to finish their packet. Given our time constraints, we had to shorten Harter's measures and select which scales we thought were most important to our study. Finally, the research team noted that children sometimes struggled with the vocabulary

within the measure or did not find the scenarios relevant. It is important to note that Harter's test samples draw from neighborhoods that are primarily lower-middle to upper-middle class, and most participants were Caucasian (Harter, 1985). Given Harter's sample characteristics, some researchers have raised questions about the validity of Harter's scales for use among minority populations (Stewart et al., 2009). It is possible that this scale needs to be modified for high-risk or minority populations, or an alternative scale may need to be used in future research.

It is important to note that our findings should be interpreted within the context of the entire sample of children who participated in MAC programming. We excluded 19 children from our analytic sample due to incomplete data at either T1 or T2. Our analyses revealed that children excluded from our study had lower levels of self-perceived competency in several domains. Research has shown that having a parent incarcerated is associated with an increased risk for truancy (Nichols et al., 2016) and higher rates of dropping out of school (Hagan and Foster (2012)). Decreased attendance rates may explain why these students demonstrate lower levels of self-perception, as research has demonstrated that participation in school alone can lead to increases in self-perception (Strein et al., 1999). It is also possible that these children missed MAC programming by missing school and received a different dosage than the students in our analytic sample. However, being absent at the time of data collection is not an indicator of MAC program participation or school absence rates, so we cannot make any definite conclusions about why this population of students may have had lower self-perception scores. Future studies exploring the impact of school programming should consider collecting data on school absence rates and program session attendance.

One unexpected obstacle that we faced was the outbreak of the COVID-19 pandemic, which also created several limitations. We originally planned to collect data on a comparison group of children who did not have a parent incarcerated or receive school programming. We planned to do this by collecting data on participants who matched MAC participants' demographic by attending schools with a high minority enrollment percentage, high free lunch eligibility percentage, low math proficiency percentage, and low reading proficiency percentage. However, we canceled the second phase of this study due to school closures beginning in March of 2020 due to the COVID-19 pandemic. Given the absence of a comparison group, we cannot rule out the possibility that scores for self-perceived ability did not simply go up over time as the school year progressed. In fact, in a study looking at self-perception scores among African American and white kindergarten students, Strein et al. (1999) found that African American students started in the fall with lower self-perception scores than

their white peers, yet they ended up at the same level in the spring (Strein et al., 1999). It is possible that the increases we saw at T2 were a result of school being an equalizing experience for children (Strein et al., 1999), and therefore, future research that utilizes a comparison group is needed to understand the underlying cause for these results.

In addition to being unable to collect data on a comparison group, the outbreak of the COVID-19 pandemic influenced our data collection timeline. In the first year of our evaluation of MAC, we collected data in January/February of 2018/2019 and April/May of 2019. In our second year, we collected data in September/October of 2019 and January/February of 2020, with the scheduled goal of collecting data for a third time in April/May of 2020. However, given the school closures in March 2020 due to the COVID-19 outbreak, T3 of data collection was canceled. It is possible that we may have seen a stronger relationship when analyzing the impact of MAC programming had we been able to collect data in the Spring of 2020.

Implications

This study has several implications for future research in developmental outcomes among children with a parent incarcerated. Previous research has shown that there are many additional factors related to a child's home environment and family dynamics that can have adverse effects on a child with a parent incarcerated (Burgess-Proctor et al., 2016; Cho, 2011; Dallaire, 2007; Dubowitz & Sawyer, 1994; Roettger et al., 2010). These include factors such as: which of the child's parents is incarcerated (Cho, 2011; Dallaire, 2007; Roettger et al., 2010), if the gender of the parent incarcerated matches the gender of the child (Burgess-Proctor et al., 2016), if the child is placed under the care of kin or in foster care (Dubowitz & Sawyer, 1994), and if the child remains under alternative care after the release of their incarcerated parent (Cho, 2011). While we did not have access to data on these indicators of the family home environment, future research should be conducted that looks at the relation between home life and developmental outcomes, such as components of self-concept. This information would allow researchers to understand the degree to which parental incarceration itself predicts the development of negative self-concept or if the relation is due to home life factors that a child is more likely to be exposed to due to parental incarceration. Additionally, as we did not have access to information about the frequency or type of incarceration for the children in our study due to our role as independent evaluators, it would be beneficial for future research to examine how these factors may influence school programming impacts.

The present results have implications for interventions developed for children with a parent incarcerated. Prior research has indicated that parental incarceration negatively

affects youth in numerous domains (Aaron & Dallaire, 2009; Bocknek et al. (2009); Miller, 2006; Murray & Farrington, 2005; Murray & Farrington, 2008; Ruhland et al. (2019); Trice & Brewster, 2004), yet research on factors that promote resilience has fallen behind. Recent empirical evidence has demonstrated that targeting resilience through school-based efforts may be especially effective for children with a parent incarcerated. In a study conducted by Coop et al. (2022), it was found that sources of resilience related to school may be especially important to improving functioning in children with a parent incarcerated, more so than their peers without a parent incarcerated. Ultimately, we aimed to determine any impact MAC programming had on improving scores for self-perceived ability in children with a parent incarcerated. Upon completion of MAC programming, our third through fifth-grade participants showed increased social and academic competence at T2, indicating more positive feelings towards social and academic ability. Prior research has shown that higher levels of both social and academic competence are linked with future academic aspirations and success and the development of adverse behaviors (Lee & Stone, 2011; Prince & Nurius, 2014). These results are promising, as they identify potential advantages of school programs, like MAC, in promoting a more positive view of the self in children with a parent incarcerated. Given the substantial amount of time children spend in school, providing support in this environment may be highly beneficial to high-risk populations. Future research should continue to explore developmental outcomes among this population of children and ways to improve school programming to meet the needs of these children. Finally, these results have several implications for policymakers. There is a large body of evidence linking systematic inequalities and government policies to incarceration rates in the United States, resulting in the mass incarceration of a disproportionate number of individuals of color (Mihalec-Adkins & Shlafer, 2022). Therefore, while also continuing to support research on interventions to ameliorate the impacts of parental incarceration, policymakers should also invest in social programs that address racial and economic disparities linked with incarceration and aim to lower the national incarceration rates, especially among individuals with children.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

Ethical approval This article does not contain any studies involving animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants involved in the study.

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