



the youth relationships study

Randomized Controlled Trial of the Effects of the Big Brothers Big Sisters Community-Based Mentoring Program on Crime and Delinquency: [Interim Report of Findings](#)

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Statement of Research Integrity and Independence



David DuBois chairs the Research Advisory Committee of Big Brothers Big Sisters of America (BBBSA), and Carla Herrera is a member of this committee.

Drs. DuBois and Herrera also have served as paid consultants to BBBSA in various capacities.

The content of this report, however, is solely the responsibility of the authors and does not necessarily represent the views or positions of BBBSA.

BBBSA, furthermore, did not exercise any control over the report's contents or conclusions.

Executive Summary

This report provides findings from an interim, 18-month assessment of youth outcomes for an ongoing randomized controlled trial of the Big Brothers Big Sisters of America (BBBSA) Community-Based Mentoring (CBM) program in which study participants are being followed for 4 years. The trial examines effects of the CBM program on delinquent/criminal behavior as well as on both risk and protective factors for such behavior. From February 2018 to February 2020, 1,358 youth ages 10 and older were enrolled in the study at 17 BBBSA agencies. The analytic sample for the present report consists of 1,353 youth: 1,011 (75%) assigned to the treatment group (i.e., immediate eligibility for mentoring through the program); and 342 (25%) assigned to the control group (i.e., eligibility for mentoring through the program after the 4-year study period). Each participating youth and their parent completed surveys at study enrollment and at an 18-month follow-up (response rate of 80% for completion of both youth and parent surveys). Treatment group youth generally reported feeling close to their program mentors (average rating of 7.4 on a 1 to 10 scale). Slightly over one-third of youth in the treatment group, however, had not been paired with a program mentor by the time of their 18-month follow-up. Intent-to-treat analyses (i.e., including the entire sample, regardless of mentored status of those in the treatment group) indicated statistically significant differences favoring the treatment group on two of four primary hypothesized outcomes: report of

arrest (4.9% and 10.7% for treatment and control group, respectively) and report of any substance use (10.1% vs. 17.2%) during the 18-month follow-up period. We did not find statistically significant effects on the other two primary hypothesized outcomes, property- and violence-related delinquent behavior. As hypothesized, statistically significant differences favoring the treatment group also were found on measures of risk and protective factors for delinquent/criminal behavior, specifically aggressive behavior, self-control, social skills, grit, self-advocacy, hopeful future expectations, parental use of inconsistent discipline, family functioning, school engagement, and college exploration. Differences favoring the treatment group also approached statistical significance ($p < .10$) for measures of skipping school and coping efficacy. The current findings provide support for the hypothesized effectiveness of the BBBS CBM program for delinquency and crime prevention. They also align with the program's aim of promoting positive youth development and resilience more generally. Results should be regarded as preliminary, however, pending confirmation of the 18-month finding on arrests with official records (for which data collection is underway) and assessment of outcomes at the end of the 4-year study period.

A photograph of a man and a young boy working together on a project. The man, on the left, is wearing a white shirt with small dark polka dots and is looking down at the boy's work. The boy, on the right, has curly brown hair and is wearing a grey t-shirt with a black and white checkered pattern and a red '95' logo. He is focused on a blue and black electronic device. A green horizontal line is positioned above the word 'Background'.

Background

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Little Malachi & Big Maurice

Background

The societal costs of both juvenile and adult crime in the U.S. are staggeringly high (Welsh et al., 2008; Wickramasekera et al., 2015). Equally concerning is the reality that negative encounters with the justice system are not equally distributed in the U.S.—African Americans and those with the fewest resources (e.g., those experiencing poverty) are more likely to be incarcerated than their more advantaged counterparts (Western & Pettit, 2010). Solving such an entrenched and multi-faceted problem requires more than one approach—but, it is clear that stepping in early to counter less serious issues in childhood and prevent others from ever developing should be part of whatever approaches are taken.

Program-based (“formal”) mentoring for youth has received strong support from both private and public funders as a crime prevention strategy. Priority populations for mentoring programs frequently overlap with those most likely to become involved in the justice system as juveniles and incarcerated as adults, such as young people from impoverished backgrounds, those belonging to historically marginalized racial or ethnic groups, and those with family histories of incarceration. Evaluations of mentoring programs for youth, on the whole, have yielded findings consistent with their potential for delinquency and crime prevention (for a review, see Hawkins et al., 2020). These findings, however, have several limitations. First, many evaluations have used quasi-experimental as opposed to randomized controlled designs

(see DuBois et al., 2002, 2011; Raposa et al., 2019), the former being notably more susceptible to threats to internal validity and thus biased estimates of program effects (Shadish et al., 2002). Second, the programs evaluated have often included additional components, such that it is not possible to distill the effects of mentoring per se (DuBois et al., 2011). Third, most of the evidence to date comes from fairly small-scale evaluations of mentoring programs implemented at a single site. This leaves as a critically important question the effectiveness of mentoring programs under real-world implementation conditions that are typical of scaled-up interventions, especially in view of evidence of an observed drop off in desired program effects under these circumstances (for discussion, see DuBois, 2017).

Research on effects of mentoring for crime and delinquency prevention specifically is also limited for a number of reasons. First, remarkably few evaluations of mentoring programs, particularly those without additional non-mentoring components, have included measures of contact with law enforcement or the courts (e.g., arrests; DuBois et al., 2011; Hawkins et al., 2020). In a notable exception, a recent randomized controlled trial (RCT) of the Fostering Healthy Futures for Teens program (Taussig, 2021)—a 9-month intensive mentoring program for 8th and 9th graders who have open child welfare cases—included collection of court records for study participants. Intent-to-treat analyses for the full study sample ($N = 245$) indicated lower likelihood of a post-program court charge for those assigned to the program, but this difference was not statistically significant. In analyses of youth in two of the four study cohorts that predated the pandemic and a change in Colorado’s expungement laws that affected collection of court records, the treatment-control difference on

this outcome approached statistical significance. Second, when evaluations have included other relevant measures (e.g., self-reports of delinquent behavior), results have been mixed, with several studies failing to find evidence of effects on these measures (e.g., Herrera et al., 2013; De Wit et al., 2007; Taussig, 2021). Third, the time frames over which outcomes have been assessed typically do not encompass peak years of risk for delinquent behavior or juvenile justice system involvement and/or the full duration of program participation, both of which could lead to underestimates of effects. Illustratively, in a multi-site RCT of the Big Brothers Big Sisters (BBBS) school-based mentoring program, 85% of the participants were in 4th through 6th grades at the start of the study and participants were followed for only one and a half school years (Herrera et al., 2007). Similarly, in the landmark Public/Private Ventures (P/PV) RCT of the BBBS community-based mentoring program, participants were, for the most part, between 10 and 13 years old (79% of the sample) and were followed for only 18 months (Tierney et al., 1995). Risk for involvement in the juvenile justice system and many delinquent behaviors does not peak until later ages than those encompassed by these and other studies. For example, substance use initiation peaks at age 18 (Vega et al., 2002). Finally, for the most part, existing evaluations have not been designed with an explicit goal of gauging the potential for mentoring programs to induce favorable change in risk and protective factors for delinquent or criminal behavior and justice system involvement. There is thus limited understanding of the potential for mentoring programs to influence the wide range of aspects of development and adaptation that can predict susceptibility to, or protection against, emergence of delinquent and criminal behavior in later stages of adolescence or early adulthood—a peak period for involvement in the justice system.

The present study, an RCT of the Big Brothers Big Sisters of America (BBBSA) Community-Based Mentoring (CBM) program, was intended to address each of the foregoing limitations. BBBSA is the largest mentoring organization in the U.S. In 2020, over 230 BBBSA agencies served 109,254 youth nationwide, with over 90 percent being between 9 and 18 years old (Porzig, 2021). Most youth served by the organization are facing one or more forms of adversity. Illustratively, in 2019, 73% were eligible for free lunch; 15% had one or more parents incarcerated; 35% lived with a family member experiencing mental health concerns; and 26% had a family member struggling with substance abuse (Iorio, 2020). In the CBM program, which is the flagship program of the organization, adult volunteers and youth are expected to spend time together one-on-one in community-based activities for a minimum of one year. The program was created over a century ago to stem juvenile delinquency (Baker & Maguire, 2005), but over time has developed a broader aim of promoting the overall positive development of participating youth in areas such as academic achievement, self-esteem, and social competence. The Washington State Institute for Public Policy (WSIPP, 2018) estimated the cost per youth for a year of services in the CBM program at \$1,765. Another recent study, relying on a BBBS agency in the mid-Atlantic, estimated a higher marginal cost of \$2,498 to add a mentoring relationship (i.e., “match”) to a caseload for 12 months (Alfonso et al., 2019). These marginal costs were much higher in the first month of a match (\$1,398) than the following 11 months (\$1,100 total or \$100 per month), reflecting significant staff time devoted to recruitment, screening, enrollment, and matching.

Youth are most often referred to the CBM program by their parents or caregivers (referred to as “parents” hereafter). Both the youth and parent

are interviewed by an agency staff person to ensure appropriateness for the program and gather information to assist in pairing the youth with an appropriate mentor. Mentors in the CBM program are adult volunteers from the surrounding community who are screened by the agency, a process which includes a criminal background check, interview, reference check, and home assessment (see Method for more details). Using the available pool of approved volunteers, the agency seeks to identify a suitable volunteer to pair with each youth. Typically, this match is created based on gender (i.e., mentor and youth with the same expressed gender), location (proximity of volunteer and youth residences), and shared interests, while also considering any family and/or volunteer preferences. Each prospective match requires approval by both the volunteer and the youth's family. Youth often are successfully matched with a volunteer within a few months of program enrollment. The wait can be significantly longer, however, depending on the agency's ability to find a suitable volunteer. For example, men are particularly difficult for most mentoring programs to recruit, so boys are more likely to be on program waitlists than girls (Garringer et al., 2017). Once a match is established, the youth (referred to as a "Little Brother/Sister" or "Little") and volunteer (referred to as a "Big Brother/Sister" or "Big") are expected to spend time together a few times a month in activities and locations of their choosing (DuBois & Friend, 2017).

Matches generally are encouraged to continue beyond the one-year minimum and can extend until the youth ages out of the program (this age is 18 years old in many agencies). Program staff roles include recruiting, screening, and training mentors, enrolling youth, matching youth and volunteers, providing ongoing support and monitoring for each match through regular check-ins with the volunteer, parent, and youth, and implementing a closure process when matches end (DuBois & Friend, 2017). In 2020, BBBSA reported that about three-quarters of matches in the CBM program (74.5%) reached the one-year minimum and that the average length of matches that had closed was just over two and a half years (Porzig, 2021).

The mentor-youth relationship and the interactions that contribute to its development are central in BBBSA CBM—an emphasis that is consistent with Rhodes' (2005) theoretical model of youth mentoring. This model posits that mentoring interactions can provide youth with a positive, supportive role model and opportunities to develop new skills that support identity development and social-emotional and cognitive growth. These processes are assumed to depend on the development of a strong, trusting relationship between the mentor and youth (Rhodes, 2005). The mentoring relationship is also typically viewed as important in other types of mentoring programs. However, in these programs, other, more instrumental aspects of mentor-youth interactions—for example, academic activities in programs focusing on academic outcomes (Larose & Tarabulsky, 2005) and peer interactions in group mentoring programs (Kuperminc & Thomason, 2013)—are also often conceptualized as being of central importance for achieving desired outcomes.

The BBBSA CBM program was not subjected to rigorous testing until the earlier-referenced P/PV RCT of the program in the early 1990s that included 1,138 youth (Tierney et al., 1995). At the 18-month follow-up, relative to those assigned to the wait-list control group, those assigned to the treatment group (i.e., immediate eligibility for mentoring through the program) were significantly less likely to report initiation of substance use, skipping school, and aggressive behavior. Treatment group youth also showed improvement relative to control group youth in self-reports of grade point average, ability to do schoolwork, and some aspects of their relationships with parents and peers. The study did not, however, find impacts in several areas tested, including stealing, damaging property, valuing of school, hours spent on homework or reading, various aspects of parent and peer relationship quality, global feelings of self-worth, self-confidence, perceived social acceptance, and engagement in social and cultural enrichment activities. A more recent RCT of the CBM program in two BBBS agencies involving 654 youth found evidence at a 13-month follow-up of favorable impacts of assignment to the treatment group on youth-reported depressive symptoms but not on the other youth-reported academic, social or behavioral outcomes tested (Herrera et al., 2022). When parent-report outcomes were considered, youth in the treatment group were rated more favorably than those comprising the control group on the Emotional Symptoms, Prosocial Behavior, and Peer Problems scales of the Strengths and Difficulties Questionnaire (Goodman, 1997).

The P/PV study was extremely influential, and the BBBSA CBM program continues to be one of the most popular in the U.S. However, the program has experienced notable changes since the study was conducted (BBBSA, 2013). Standards for the content and timing of match support (i.e.,

contacts agency staff have with mentors, youth, and parents during the mentoring relationship) have evolved over time in ways that arguably might both enhance and decrease program benefits. It also appears that fewer mentor-youth (“match”) meetings are now typically required, with 6 of the 8 agencies in the P/PV study asking mentors to meet weekly with youth (Tierney et al., 1995) and none of the agencies in the current study expecting more than a minimum of two meetings per month. Today, most BBBSA agencies also use a national web-based management information system (MIS) that tracks demographics, match support contacts, and other key aspects of service provision; indices of match quality administered to the volunteer and youth and an outcomes measure completed at the start of the match and annually thereafter by youth also have been introduced. This type of monitoring of program implementation was found in a meta-analysis to be associated with stronger estimated effects of mentoring programs on youth outcomes (DuBois et al., 2002). Finally, many agencies are now receiving funding that supports services to youth at higher risk for delinquent/criminal behavior, such as those having an incarcerated parent or a history of contact with the juvenile justice system. Such changes further underscore the need for an updated evaluation of the program’s effectiveness.

The P/PV study also lacked multiple informants (all outcomes were self-reported) and included a relatively small number of agencies that lacked diversity (all 8 agencies were fairly large and located in sizable urban areas). The study has been criticized as well for not including more “objective” administrative records in assessing outcomes (Roberts et al., 2004). To address these concerns, the current evaluation includes outcomes assessed using multiple informants (youth and parent) and administrative records (i.e., youth arrest) as well as

a larger, more representative group of agencies. It also includes more intentional and comprehensive measurement of risk and protective factors for delinquent behavior/justice system involvement (e.g., association with peers involved in problem behavior, self-control). As noted, the P/PV study followed youth only for 18 months, after which youth in the control group could be matched with a mentor. In the present study, youth are being followed for 4 years, during which time control group youth are not eligible for matching. The study's findings will thus better capture effects of a "full dose" of program participation (i.e., the entire duration of BBBSA CBM mentoring relationships, which often extend over multiple years) as well as effects of the program that may emerge during later stages of adolescence in which there is greater risk for delinquent behavior, substance use, and juvenile justice system involvement. A final important consideration distinguishing the current trial from the earlier P/PV study is that study hypotheses and methodology, including procedures for testing of program effects, were specified prior to initiation of the research and registered publicly on the Open Science Framework (DuBois, 2016).

The present report summarizes findings from the first follow-up for the study (from baseline to the 18-month follow-up), testing the following sets of primary and secondary hypotheses using data collected from the baseline and 18-month follow-up (a later report will test hypotheses that have been specified for the four-year follow-up):

Primary H1:

Program participation will decrease the likelihood that youth will have a court-related arrest for any of the following types of offenses during the 18-month period after study enrollment: person offense, property offense, drug law violation, public

order offense, or status offense (i.e., a binary variable indicating whether the youth has had an arrest for any of the indicated types of offenses. *Note that in this report, we are using self- and parent-reported arrests in lieu of administrative records, which are the pre-specified data to be used in testing this hypothesis; the administrative records data will be analyzed in a later report once they have been fully collected.*);

Primary H2:

Program participation will decrease the likelihood of youth involvement in both property-related and violence-related delinquent behavior during the period between study enrollment and the 18-month follow-up (i.e., dichotomous measures indicating involvement or not in each type of delinquent behavior is reported by the youth or parent, as described in Appendix 1);

Primary H3:

Program participation will decrease the likelihood of youth involvement in substance use (i.e., any report of alcohol use to point of drunkenness, tobacco use, or illicit drug use) during the period between study enrollment and the 18-month follow-up;

Secondary H1:

Program participation will *decrease* risk factors for delinquent/criminal behavior as assessed 18 months after enrollment (i.e., school misbehavior; truancy; aggressive behavior; association with deviant peers; depressive symptoms); and

Secondary H2:

Program participation will *increase* protective factors for delinquent/criminal behavior as assessed 18 months after study enrollment in the following four broad areas:¹ **(1) personal resources** (i.e., self-control; conventional values; social skills; coping efficacy; spark development; grit; self-advocacy; hopeful future expectations; goal setting and pursuit); **(2) social-contextual resources** (i.e., family members, friends, and significant other perceived social support; family functioning; parenting behaviors; involvement in out-of-school activities; volunteering); **(3) mental health and well-being** (i.e., self-esteem; happiness/positive affect; life satisfaction) and **(4) academic engagement and performance** (i.e., school engagement; academic performance; college exploration; career exploration).

¹ The categorization of the hypothesized protective factor outcomes into subdomains was not part of the pre-specified protocol for study design and analyses and is included in this report only for sake of exposition.

A woman with long dark hair, wearing a grey sweater and a blue apron, is smiling and looking at a young girl. The girl, with her hair in braids, is wearing a purple t-shirt and a blue and white checkered apron. They are in a kitchen, and the woman is holding a small jar of jam, using a spoon to spread it on a piece of bread. The girl is holding a large metal spoon. In the foreground, there are several white bowls, one containing a yellow substance, and a muffin tin filled with small round items. A blue circular graphic is in the bottom right corner.

Method

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Little Layla & Big Blake

Method

Site Selection

BBBSA agencies were selected for invitation to participate in this research with the aim of having the resulting group of agencies be as representative as possible of the BBBSA network of agencies in terms of size (i.e., large-, mid-, and small-sized agencies as designated by BBBSA based on numbers of youth served) and other potentially relevant operational and performance characteristics (i.e., proportion of youth served who participate in the CBM program, percentage of expected support contacts completed for youth served in the CBM program, and percentage of CBM mentoring relationships sustained for at least one year), characteristics of youth served in the CBM program (i.e., age, gender, family structure and income, percentage with an incarcerated parent), age of volunteer mentors in the CBM program, and geographic location (urban versus non-urban; Northeast, Southwest, Southeast, Midwest, or West). All agency characteristics were assessed for 2015, the most recent calendar year of operation. At the time of selection, a minority of BBBSA agencies did not use the organization's web-based MIS for capturing service delivery data; these agencies were excluded from consideration, as the MIS data were anticipated to be an important source of information regarding program implementation. An additional group of 50 agencies operated within the umbrella of a larger organization (e.g., a YMCA). Because these agencies do not necessarily follow the same

program guidelines as standard agencies, they also were excluded from the pool of agencies eligible for selection. Two additional agencies were excluded because they served either only girls or only Jewish youth. Finally, agencies also were excluded if they had paired fewer than 50 youth with mentors in the CBM program during the most recent calendar year (2015). The aim was to recruit a total of 20 agencies.

As a first step in the site selection process, a cluster analysis was conducted to divide eligible agencies into groups based on the above-referenced factors. Three distinct groupings of agencies were identified:

- **"Larger, Higher-Need-Youth-Serving Agencies"** ($n = 36$ agencies; 20% of eligible pool): These agencies tended to serve relatively greater proportions of "high-need" youth (e.g., those with an incarcerated parent) as well as male youth. These agencies were almost all from BBBSA's mid- and large-size agency alliances and are relatively more likely to be in Southeast and West regions.
- **"Northeastern, Larger Agencies"** ($n = 63$; 35% of pool): These agencies were predominantly those designated by BBBSA as mid- or large-size and relatively more likely to be in the Northeastern region (although Southwest and Midwest regions were also well represented). Relative to those in the above, "Larger, Higher-Need" cluster, these agencies tended to serve youth who are more typical of youth served across all agencies.
- **"Midwest, Small, Non-Urban Agencies"** ($n = 79$; 44% of pool): These agencies were nearly exclusively small size, relatively less likely to be in urban areas, and more likely to be located in the Midwest, although other regions were represented as well.

Agencies were randomly selected from each of these clusters proportional to its size (i.e., number of agencies in the cluster), with the constraint that should the level or distribution of any factor (e.g., % male) for the resulting set of agencies differ significantly ($p < .05$) from that of the national network, the most deviant agency on that factor was replaced with a different random selection from the same cluster. As a safeguard against lack of geographic representativeness, the maximum number of participating agencies located within any given state was set at 40% of the agencies in that state or four, whichever number was larger. As site recruitment progressed and feasible study enrollment targets began to be formulated for accepting agencies, it became apparent that a greater number of larger agencies would be needed to ensure that study enrollment goals could be reached. Thus, in the later stage of site recruitment, the selection procedures were modified to increase the minimum size threshold (i.e., number of CBM matches established in the past year) to 285, which corresponded to the 15 largest agencies. Ultimately, three of these agencies were selected and elected to participate in the study, one of these having been selected prior to this change in procedure.

Each selected agency was notified via email by BBBSA and provided with written materials that summarized information about the study and what would be entailed in being a study site. Selected agencies also were invited to an informational webinar about the study, facilitated by the research team and national BBBSA staff, and provided with the opportunity for dedicated communication with the researchers and/or BBBSA staff to inform their regarding potential study involvement.

Following selection and invitation of an initial group of 20 agencies, additional agencies were invited as needed. Ultimately, 54 agencies were invited to participate in the study, with 17 agreeing to participate. Three of the participating agencies were in the “Larger, Higher-Need-Youth-Serving Agencies” cluster, nine were in the “Northeastern, Larger Agencies” cluster, and five were in the “Midwest, Small, Non-Urban Agencies” cluster. One agency from the “Larger, Higher-Need” cluster subsequently withdrew from the study prior to the start of study enrollment, leaving 16 as the total number of participating agencies at the start of enrollment.

Each participating agency was given a study enrollment target based on planning discussions that considered the agency’s size, with a maximum of 300 youth. One of the 16 original participating agencies experienced financial challenges and a change of executive director and subsequently withdrew from study involvement prior to enrolling any participants. Another agency similarly closed operations prior to enrolling any participants. This agency was small and served a predominately rural population. Another agency with similar characteristics, close to the withdrawing agency, was invited to join the study and accepted. As study enrollment proceeded, another participating agency closed after having already begun to enroll participants in the study (BBBS Illinois Capital Region). This agency was replaced with a nearby agency that was assuming responsibility for families that the closing agency had been in the process of serving (BBBS Central Illinois). This new agency also enrolled youth in the study from its own service area. Finally, in an effort to address a slower than anticipated rate of study enrollment, an agency (BBBS Miami) serving a large urban area was added to the study with approximately one year remaining in the enrollment period, starting

enrollment in April of 2019. Ultimately, due to the above factors, a total of 17 sites enrolled youth into the study.

The 17 participating agencies (listed in Table 1) had been affiliated with BBBS from five to 106 years and were medium to large in size, serving from about 200 youth (five agencies) to 500

or more (six agencies) annually in their CBM programs. Nine agencies operated out of one location, while eight oversaw one or more satellite locations. Agencies served a wide age range of youth, starting with youth as young as five years old and typically serving youth until they turned 18 (seven continued to serve youth into young adulthood, with one agency serving youth up to age 25).

Table 1: Participating Agencies

Agency	Location	Number of Study Participants	Number of CBM Youth Served in 2019 ^a
Catholic Big Brothers Big Sisters of Los Angeles	Los Angeles, CA	84	300
Big Brothers Big Sisters of Colorado	Englewood, CO	79	880
Nutmeg Big Brothers Big Sisters ^b	Hartford, CT	132	508
Big Brothers Big Sisters of Delaware	Wilmington, DE	64	340
Big Brothers Big Sisters of Broward County	Ft. Lauderdale, FL	76	411
Big Brothers Big Sisters Miami	Miami, FL	<10	617
Big Brothers Big Sisters of Central Illinois	Decatur, IL	22	298
Heart of Illinois Big Brothers Big Sisters	Peoria, IL	54	217
Big Brothers Big Sisters of Illinois Capital Region	Springfield, IL	46	48
Kansas Big Brothers Big Sisters	Wichita, KS	245	1,842
Big Brothers Big Sisters of Central Missouri	Columbia, MO	26	201
Big Brothers Big Sisters Mountain Region	Santa Fe, NM	71	390
Big Brothers Big Sisters of the Capital Region	Albany, NY	37	273
Big Brothers Big Sisters Independence	Philadelphia, PA	142	1,030
Big Brothers Big Sisters of El Paso	El Paso, TX	51	174
Big Brothers Big Sisters Lone Star	Irving, TX	213	3,165
Big Brothers Big Sisters of the Tri-State	Huntington, WV	<10	85

^a Number of youth served is the total number of youth who were in a match in the program at any time during the year. This number thus includes all continuing matches already in existence at the start of 2019 and is not limited to newly served youth (i.e., those matched with a mentor) during the year.

^b In 2022, Nutmeg Big Brothers Big Sisters changed their name to Big Brothers Big Sisters of Connecticut.

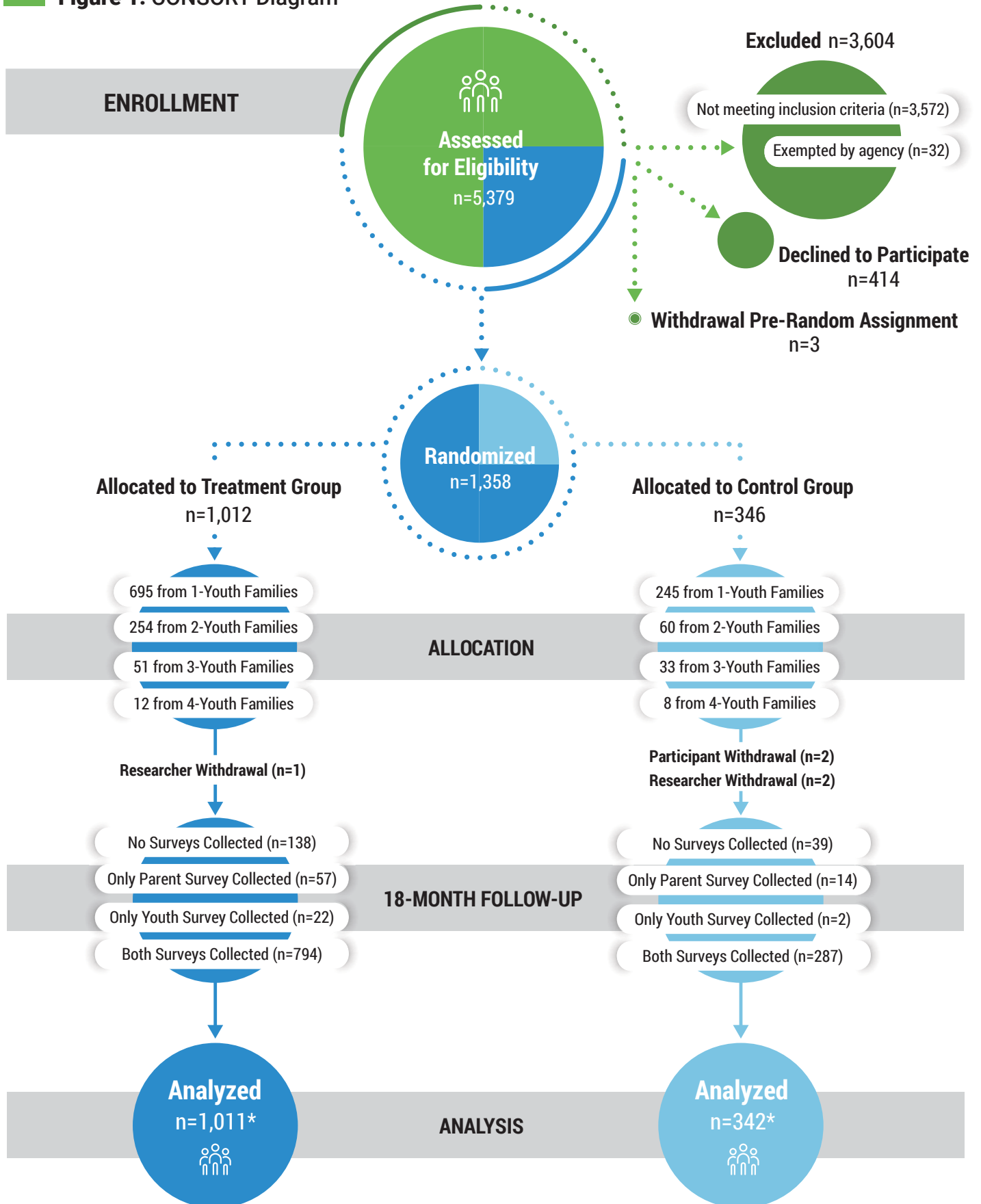
Study Enrollment, Randomization, and Baseline Data Collection

The parent of each youth who presented to a participating agency within the study enrollment period (February 2018 through February 2020) and met *program* eligibility criteria (e.g., lives in the agency's catchment area) was assessed for *study* eligibility. Study eligibility criteria consisted of: a) youth being 10 years of age or older, to ensure they could complete study surveys; b) youth not having a sibling who was already a study participant, to avoid the potential for contamination if siblings were assigned to different groups; c) youth not having a severe learning, cognitive or other intellectual disability as reported by the parent; d) parent both speaks and reads English or Spanish; e) youth never having been previously matched with a Big Brother/Sister through any of the agency's programs; f) youth not having a sibling currently receiving services from the agency for whom services were initiated (i.e., inquiry was made) prior to the start of the study; and g) youth not falling into a group that the agency excluded from study participation based on agreement with the research team (e.g., some agencies chose to omit one or more service regions from participation). Of 5,379 youth assessed for eligibility, 3,604 (67.0%) were excluded due to not meeting inclusion criteria (see CONSORT diagram in Figure 1). Youth age accounted for the majority of the exclusions (68.6%), followed by agency exclusions due to prior agreement (16.4%). Each agency also was allowed to exclude a small number of study-eligible youth from the research—up to 4% of their total recruitment goal—prior to consent and random assignment for any reason deemed appropriate (e.g., perceived high need of the youth). In total, 32 youth were excluded from study participation by the agencies through this provision.

If a youth was study eligible, their parent was informed that they had the option to either: a) proceed with program enrollment, with the understanding that the youth being matched with a Big Brother/Sister at any point during the youth's 4 years of study participation would be contingent on the youth being one of the 3 out of 4 study youth who were selected by lottery to receive services; or b) wait for up to 18 months beyond the agency's normal wait time to have program enrollment completed and thus be eligible to be matched with a Big Brother/Sister, in which case the parent would be given a list of referrals to non-mentoring youth programs in the community and a tip sheet for connecting youth with supportive adults (these materials also were provided to parents of all youth who enrolled in the study). Those who agreed to potential study participation met, along with their children, with BBBS staff as they would have normally as part of program enrollment. During this meeting, program staff obtained formal parent consent and youth assent, both of which were required for study participation. As part of the consent process, parents and youth were informed that the research team had obtained a Certificate of Confidentiality by the National Institute of Child Health and Development, which ensured that the team could not be forced, even by a court subpoena, to disclose any information that might identify the child or parent.

Each agency was also given the option of recruiting youth from its existing waitlist (i.e., those for whom program enrollment had been completed but who had not yet been matched with a Big Brother/Sister as well as those for whom inquiry was initiated prior to study launch, but program enrollment had not yet been completed). In these instances, a phone call was made to the youth's parent for study recruitment, and consent/assent was obtained in an in-person meeting as with new inquiries to

Figure 1: CONSORT Diagram



*Multiple imputation was used to account for missing data at follow-up. See text for details.

the program. A total of 136 youth were enrolled in this way.

Overall, parent consent and youth assent for study participation was obtained from slightly over three-quarters of those approached (76.5%; see Figure 1).

Following consent/assent, program staff administered baseline surveys to the parent (on paper) and youth (reading questions aloud while the youth marked his or her responses on paper behind a privacy screen). Parents also completed a brief “administration survey” to guide and streamline the 18-month survey administration, answering questions such as: In what format would you/your child like to complete your follow-up survey (online/paper)? In what language? Will you/your child have access to a computer? Will he/she need assistance? Parent baseline surveys were administered in either English (93%) or Spanish (7%), and the parent and youth each received a \$10 incentive for completing their survey.

Random assignment to study group was conducted following the survey assessments. For youth who were enrolling with one or more siblings, the siblings were yoked for random assignment (i.e., siblings all received the same group assignment). A total of 418 youth entered the study with at least one sibling (157 families enrolled two youth in the study; 28 enrolled three youth; and five enrolled four youth in the study). The sample allocation ratio was 3:1 in favor of the treatment group (i.e., three times as many youth were assigned to the treatment as the control group). Each agency was provided with

a set of sealed opaque envelopes that included notification of assignment to either the treatment or control group. Each agency received a number of envelopes equal to its targeted study enrollment number, plus 20%. Envelopes were consecutively numbered. Prior to enrolling a youth into the study, the staff person involved was asked to sign out an envelope through the agency’s Research Liaison (i.e., BBBS staff person who served as liaison with the research team), recording the envelope’s number and the family with which the envelope was being used. Staff opened the envelope in the presence of the parent and youth and shared the group assignment with them.

For youth assigned to the treatment group, agencies used standard procedures to continue the program enrollment process and match the youth with a volunteer mentor as soon as an appropriate one was identified. Youth assigned to the control group were not eligible to be matched with a Big Brother/Big Sister by the agency until the end of the youth’s four-year participation in the study. All control group youth and their parents received the above-referenced list of non-mentoring youth-serving organizations in the community and tip sheet for connecting youth with supportive adults. They also received an additional \$50 to compensate for the time invested in program enrollment and could participate in agency “waitlist activities” (i.e., activities for youth who are waiting to be matched with a mentor). Wait-list activities included sporting events, “Bigs for the day” events, gym programs, and educational activities; these activities were offered by half of participating agencies with a frequency ranging from twice a year (one agency) to every month (two agencies).²

² On the 18-month follow-up survey, 28.8% of parents in the treatment group reported having used the list of youth-serving organizations; the corresponding percentage for the control group was 21.3%. About one in four parents of youth in each group reported having used the tip sheet for connecting youth to supportive adults (24.2% and 22.7% for treatment and control groups, respectively). With respect to participation in BBBS agency waitlist activities, the percentages of parents reporting participation of their child in one or more of these activities was 18.4% for the treatment group and 13.3% for the control group.

All study procedures were approved by UIC's Institutional Review Board (IRB). A total of 1,358 youth were randomized to study condition, with 1,012 youth assigned to the treatment group and 346 assigned to the control group. Five youth were withdrawn from the study following randomization: three were subsequently determined to be ineligible due to age (2) or cognitive ability to complete the survey (1) and were withdrawn by the researchers; and two parents withdrew in response to their child being randomly assigned to the control group. This resulted in a study sample of 1,353 youth, with 1,011 in the treatment group (74.7%) and 342 (25.3%) in the control group.

18-Month Survey

Each participating youth and parent was approached for re-assessment regardless of services received 18 months after the date of the youth's study enrollment. Prior to the 18-month assessment, families were sent "thank-you" cards with a \$10 gift card in appreciation for their study participation; birthday cards for youth and annual holiday cards for families were also sent. In most cases, youth completed their 18-month survey online using a secure web-based platform (REDCap) while being guided through the survey by a member of the research team. The research team member reviewed instructions with the youth and read the questions aloud while the youth registered their answers without responding aloud. In a small number of cases, when necessary or requested, youth were mailed a hard copy of the survey and recorded their answers on the survey, which they then sealed in an envelope provided for return to the researchers. Parent surveys were self-administered, again for the most part online (REDCap) and in other cases via a paper survey returned by mail. The youth and

parent each received \$25 for completing their 18-month surveys. The parent of each youth in the control group received an additional \$50 to support involvement of the child in alternative activities. Those administering surveys were not blinded to study condition of the youth as this was deemed impractical due to the treatment group survey including content specific to that condition (e.g., questions about the youth's mentoring relationship).

Families were contacted by a combination of phone, email, and text messages by the research team. Up to six "packets" of contacts (with three varied contacts in each packet), separated by seven to 10 days, were used to contact each family. Researchers also reached out to secondary contacts provided by participants at study enrollment and used Lexis Nexis to facilitate contact with families.

Researchers succeeded in collecting 18-month surveys from 87% (1,176) of the youth and/or the parent of participating youth and 80% (1,081) of *both* the youth and parent (see Figure 1). All but 75 of the youth and their parent completed their 18-month surveys online rather than on paper. Survey completion rates were similar for treatment and control groups, with the youth and/or parent survey being completed for 86% of the treatment group and 89% of the control group. Both the study's overall and differential attrition are within the What Works Clearinghouse (WWC) conservative attrition standards, which are required to meet WWC's highest possible rating of "Meets WWC Group Design Standards without Reservations."

Agency Survey

Beginning in February of 2021, we administered a survey to each participating agency. A research team member administered each survey in an interview format by phone. The survey asked about the agency's size and history, characteristics of youth and volunteers serving as Big Brothers/Big Sisters, program practices (e.g., enrollment, screening, training, supervision and support, match closure), and finances. The agency's Research Liaison selected staff to be interviewed based on their ability to provide the requested information. In some cases, more than one staff person participated in the interview, and in almost all cases, questions about finances were shared with financial staff to facilitate collection of this information.

Participating agencies, with very few exceptions, reported following BBBS Standards of Practice (i.e., guidelines that describe practices that must be adhered to among BBBS agencies unless exceptions are granted by BBBSA) in six key practice areas (percentages reporting adhering to all standards in each area are noted in parentheses):

- Staff training (100%)
- Youth enrollment (94%)
- Matching (100%)
- Orientation and training (94%)
- Youth outcomes development plan (88%)
- Support and supervision (100%)
- Closure (100%)

See Appendix 1 for a description of the standards in each area. Two agencies (12%) did not report adhering to all outlined practices for the youth outcomes development plan. One of these agencies reported that staff developed the plan at the beginning of each match and reviewed it after one year, but did not use the plan in match support, as outlined in the standards. The other agency reported that it did not currently use the youth outcomes development plan but planned to put it in place in the upcoming year.

In alignment with standards, agencies reported following extensive practices around screening volunteers (i.e., prospective Big Brothers/Sisters), with all requiring a written application, personal interview, reference check, criminal records check and DMV check. Most also had additional requirements, which included a public domain search (94%), identity check (94%), assessment of the volunteer's home environment (94%), child abuse/neglect check (94%), and sex offender registry check (81%).

Outcomes Assessed

The pre-specified outcomes listed below were assessed through the youth and/or parent surveys. Further detail on the measurement and scoring of each outcome both at baseline and follow-up is provided in Appendix 2:

Primary Hypothesized Outcomes

- ✓ Arrest
- ✓ Property-related delinquent behavior
- ✓ Violence-related delinquent behavior
- ✓ Substance use

Secondary Hypothesized Outcomes: Risk Factors for Delinquent/Criminal Behavior

- ✓ Negative peer associations
- ✓ School misbehavior
- ✓ Skipping school
- ✓ Aggressive behavior
- ✓ Depressive symptoms

Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior

PERSONAL RESOURCES

- ✓ Self-control
- ✓ Conventional values
- ✓ Social skills
- ✓ Coping efficacy
- ✓ Spark development
- ✓ Grit
- ✓ Self-advocacy
- ✓ Hopeful future expectations
- ✓ Goal setting and pursuit

SOCIAL-CONTEXTUAL RESOURCES

- ✓ Perceived social support: Family members
- ✓ Perceived social support: Friends
- ✓ Perceived social support: Significant other
- ✓ Family functioning
- ✓ Parenting behaviors: Involvement
- ✓ Parenting behaviors: Positive parenting
- ✓ Parenting behaviors: Poor monitoring and supervision
- ✓ Parenting behaviors: Inconsistent discipline
- ✓ Involvement in out-of-school activities
- ✓ Volunteering

MENTAL HEALTH AND WELL-BEING

- ✓ Self-esteem
- ✓ Positive affect
- ✓ Life satisfaction

ACADEMIC ENGAGEMENT AND PERFORMANCE

- ✓ School engagement
- ✓ Academic performance
- ✓ College exploration
- ✓ Career exploration

The initial study plan as registered on the Open Science Framework specified an omnibus measure of involvement in delinquent behavior as a primary hypothesized outcome. This outcome was subsequently replaced by two separate primary hypothesized outcomes of involvement in property- and violence-related delinquent behavior, respectively, as indicated above.³ Thus, we treat the omnibus measure of delinquent behavior involvement as a secondary outcome.

Data Analyses

Analyses to test primary and secondary study hypotheses were conducted in accordance with an analysis plan that was shared on Open Science Framework prior to initiation of the study, except where noted below. Generalized linear and nonlinear mixed-effects models (Bryk & Raudenbush, 1992; Fitzmaurice et al., 2004) were used to test study hypotheses, as these models were able to account for dependence among outcomes due to nesting of youth within both sites and families (i.e., siblings) as well as varying distributions of outcomes (i.e., binary and continuous). Random intercepts were used to account for clustering (i.e., non-independence) of study participants within sites as well as families within sites⁴ (Hedeker et al., 1994); impact

coefficients were modeled as fixed. Pre-specified covariates for tests of primary hypotheses included youth demographics (i.e., age, gender, race/ethnicity, family structure, family income), baseline values of each primary outcome (i.e., history of court-related arrest pre-dating study enrollment, delinquent behavior, and substance use) and youth and parent reports of the youth's history, if any, of contacts with law enforcement not leading to arrest. In the case of a court-related arrest, self- and parent-reported history of any arrest at baseline are used in the analyses presented in this report in lieu of official records which, as noted previously, have not yet been fully collected. Also included as planned covariates were any other study measure for which there was evidence of a non-negligible association at baseline with treatment/control-group status (see Table 3); the criterion used was a standardized mean difference effect size of .05 or greater (What Works Clearinghouse, 2011).⁵ The same pre-specified covariates were used for tests of secondary hypotheses, with the addition of scores on the outcome measure at baseline.

The multiple tests associated with primary hypotheses were conducted using the Benjamini-Hochberg (1995) family-wise adjustment, advocated by the WWC, to control for Type I error with the false discovery rate set to .05. Missing

³ This decision to specify separate primary hypothesized outcomes for involvement in property- and violence-related delinquent behavior was based on factor analyses of baseline data which supported distinguishing between the two types of delinquent behavior and thus creating separate indices of each. Three items from the originally planned omnibus measure of delinquent behavior were not included in either of these indices. These items asked about running away, deliberately damaging someone else's property, and painting graffiti or signs on someone else's property or in a public place and failed to load with either the property- or violence-related behaviors in factor analyses. Additional concerns included running away being a status offense that did not fit conceptually with either set of delinquent behaviors, the possibility that painting graffiti could also have captured "sanctioned" art (e.g., public murals), and the potential for reports of deliberately damaging someone else's property to refer to lower-level mischief, as the endorsement rate for this item was quite high relative to others.

⁴ The approach of using a random intercept for families within sites, which accounted for non-independence among youth from the same family and randomization occurring at the level of the family (i.e., siblings who enrolled together were randomly assigned together, rather than individually, to either the treatment or control group), was added to the analysis plan during the process of conducting the analyses for this report. Because this adjustment is a more conservative approach (Hedeker et al., 1994), it was deemed appropriate to add despite the 18-month outcome analyses already being in progress.

⁵ Our approach in controlling for these types of measures is more conservative than WWC Standards, which require this type of control only for non-RCT designs and for RCT studies in which the combination of overall and differential attrition is high, which as noted is not the case for this study at the 18-month follow-up.

data on outcome measures at 18 months were addressed using multiple imputation (Rubin, 1987) as the assumption of ignorable missingness (i.e., missing at random) is reasonable in the context of the rich set of baseline covariate measures that were available for purposes of imputation. The pre-study analysis plan did not specify the particular approach to be used for multiple imputation. As recommended by Sullivan et al. (2018), multiple imputation was conducted separately for the control and treatment groups. The variables used for imputation of each outcome as assessed at the 18-month follow-up were limited to those available at study baseline (i.e., outcomes, planned covariates and selected other pre-specified measures – see Other Variables in Table 3, and BBBS agency) that demonstrated a statistically significant ($p < .05$) association with the outcome at 18 months. This approach is based on the concern that inclusion of variables exhibiting negligible associations with the variables that have missing data in the imputation process may introduce more noise than help (Allison, 2015). For outcomes that were based on both youth- and parent-report data (e.g., arrest), values on the two measures involved for each outcome were imputed separately prior to then computing the relevant outcome. This permitted taking advantage of youth report on an outcome at 18 months for imputing the parent-reported outcome in those instances in which the youth, but not the youth's parent, completed the 18-month survey and vice-versa for imputing youth report on an outcome when the parent, but not the youth, completed the 18-month survey. In addition, in the case of arrest, reports of the number of arrests (i.e., rather than only a dichotomous measure of any arrest versus none) from the youth and parent were used to enhance the precision of imputation. Small percentages of the sample also were missing data on various study measures at baseline (i.e., less than 5%

for all measures, except parent report of whether the youth was in a formal mentoring program in the past year; this variable was missing for 7.5% of participants, seemingly due to some parents reading the reference to their child's participation in a mentoring program in the stem and skipping the question entirely without selecting the response to affirm that the youth had not been in a program). Multiple imputation also was used to address these missing data. Multiple imputation was performed with PROC MI in SAS using the FCS statement, which specifies a multivariate imputation by fully conditional specification methods. The specified method was ordinary least squares regression in the case of continuous measures and logistic regression in the case of dichotomous measures. A total of 50 imputations were conducted.

The resulting datasets were analyzed via PROC MIXED and PROC GLIMMIX for continuous and dichotomous outcomes, respectively, using maximum likelihood estimation, in accordance with the specifications described above to evaluate the effect of being randomly assigned to the treatment group (i.e., immediate eligibility for the BBBS program) on each outcome specified in primary and secondary study hypotheses. Results were then integrated using PROC MIANALYZE to yield a single estimate of effect for each outcome.

Effect sizes were computed as standardized mean differences in the case of continuous outcomes (i.e., model-estimated difference in means between treatment and control groups divided by the pooled standard deviation of the outcome at 18 months). For dichotomous outcomes, effect size was estimated using the Cox index, a metric which aims to yield effect sizes comparable to Hedges' g for continuous outcomes (Sánchez-Meca et al., 2003). The Cox index has been noted to be sensitive to the base rate of the outcome and prone

to yielding large effect sizes for base rates close to 0 or 100 percent (WWC, 2022). For this reason, and because practitioners and policymakers may find raw percentages to be more informative and interpretable than a converted effect size, for each dichotomous outcome, the percentages of control and treatment participants with a score of “1,” or “yes,” on the outcome (e.g., substance use) are also reported (WWC, 2022). These percentages are model estimated and evaluated at the sample mean of all other model predictors.



Results

**the youth
relationships
study**

Little Alexa & Big Angie

Results

Mentor Characteristics

Characteristics of the mentors matched with youth in the treatment group were collected through their program applications and provided by the agencies. The volunteers ranged in age from 18 to 78 years old with an average age of 32. A little over half were male (53.2%). Most identified as straight (93.2%), with 3.6% identifying as bisexual and 3.2% as gay or lesbian. Most of the mentors identified as White or Caucasian (58.3%), with 16.5% identifying as Black or African American, 14.0% as Hispanic or Latinx, 4.9% as Asian, 0.8% as Native American, 0.3% as Middle Eastern, and 5.2% as some other race or ethnicity. The vast majority (81.6%) reported being employed. These mentors reported working in a wide range of areas, with the most common being business (20.3%), technical professions (8.6%), finance (8.2%), medicine/pharmacology (7.8%), education (7.1%), human services (5.2%), law (4.0%), and government (3.2%). Small percentages of mentors reported being students (9.6%), retired (2.4%), in the military (5.6%), homemakers (0.2%), or unemployed (0.7%).

Duration and Quality of Mentoring

As of the 18-month follow-up, all but one youth in the control group had not been matched with a BBBS mentor. However, 40 of the parents of youth

in the control group (13.3%) reported that their child had met with a mentor outside of the BBBS program (24 in a one-to-one mentoring program and 16 in a group mentoring program).

BBBS records revealed that about 65% of youth in the treatment group ($n = 652$) had been matched by the scheduled time of the youth's 18-month follow-up,⁶ leaving 359 youth in the treatment group not having been matched by that point in time. This rate of unmatched treatments is higher than that reported in the original RCT of the BBBS CBM program (Tierney et al., 1995). In that study, about 25% of youth assigned to the treatment group had not been matched by 18 months.

For each unmatched youth in the treatment group, agencies were asked to review the potential reasons for not matching listed in Table 2 (see below) and, working down the list, select the first reason that applied to the youth (i.e., although a youth could be unmatched for more than one reason, this approach was used to minimize agency reporting burden). As shown in Table 2, agencies reported that about one third of unmatched treatment youth (34%) were not matched because the agency lost contact with the family (23 of these 122 cases were from the agency that closed and transferred its cases to a new agency); 18% were reported to be unable to be matched due to a shortage of volunteers matched to the youth's gender; and 14% of families withdrew from consideration for matching. Other reasons were less frequent.

For those treatment youth who had been matched before the 18-month follow-up, BBBS records were used to determine the length of youth's match(es). By 18 months after baseline, youth in the treatment

⁶ Among youth whose parents completed the 18-month follow-up survey, an equivalent percentage (65%) reported that their child had been matched with a BBBS mentor in the past 18 months.

Table 2: Reasons Youth Assigned to the Treatment Group were Unable to be Matched

Reason	Total Number of Treatment Youth	Percent Unmatched
Family moved out of service area	17	5%
Family withdrew from consideration for matching (e.g., youth lost interest)	51	14%
Agency lost contact with family	122	34%
Program ineligibility discovered prior to matching or eligibility status changed prior to matching	17	5%
Parent or child rejected potential Big(s) presented by agency	5	1%
Youth did not meet preferences of otherwise suitable volunteer(s) (e.g., volunteer wanted to work with older child)	4	1%
Shortage of volunteers matched to youth's gender	66	18%
Shortage of volunteers sufficiently close to youth's home	30	8%
Lack of volunteer appropriate to youth's needs, interests, or personality as assessed by staff	35	9%
Lack of volunteer meeting other parent and/or youth preferences (e.g., for race/ethnicity of the Big)	2	1%
COVID-related challenges (e.g., unable to have match introduction meetings)	0	0%
Agency capacity (e.g., staff availability)	6	2%
Other reason	7	2%

group (who had been matched) had received an average of 11.4 months of mentoring ($SD = 4.6$); this figure incorporates mentoring that a small number of youth ($n = 38$) had received due to being matched with a second BBBS mentor by the time of the 18-month follow-up, after their initial match had ended. Nearly half (45.0%) of treatment youth were in an active match at the time of their 18-month follow-up.

When a match closes, BBBS staff record the primary reason from among a set of options. For matches that closed prior to the youth's 18-month follow-up, the most common reasons were moves

on the part of the child/family (15.2%) or volunteer (14.2%), time constraints on the part of the volunteer (13.2%), feelings of incompatibility on the part of the volunteer (10.7%) or child/family (6.6%), and child/family losing contact with the volunteer/agency (7.6%).

Among youth in the treatment group who had been matched by the time of their 18-month follow-up and who completed the follow-up survey, 40.0% reported meeting *in-person* with their Big at least every other week; 32.1% once a month; and 27.9% less than once a month.

The potential implications of COVID should be considered when interpreting these findings. For just over half the youth in our sample (56.5%), the scheduled timing of the follow-up survey was after the start of the pandemic (i.e., March 15, 2020, see <https://www.cdc.gov/museum/timeline/covid19.html>). The percentages of youth with different proportions of their 18-month follow-up period occurring after the start of the pandemic were as follows: none (43.5%), 1 to 25% (17.4%), 26 to 50% (18.8%), 51 to 75% (12.3%), and more than 75% (8.0%). Youth in the treatment and control groups did not differ in the proportion of their follow-up period occurring after the pandemic started.

As reported by youth, the time they spent with their Bigs (whether in-person or otherwise) generally lasted either 1 to 2 hours (49.4% of youth) or 3 or more hours (46.8%). Youth reported feeling close to their mentors, with an average rating of 7.4 ($SD = 2.5$) on a scale from 1 (not close at all) to 10 (extremely close) and over half (59.4%) providing a rating of 8 or higher.

Youth reported that they and their Big were generally well matched with respect to their interests or activities they enjoy doing (92% agreed or strongly agreed), the things they enjoy talking about (91%), and the Big being good at things that are important to the youth (87%), but slightly less so in their backgrounds, cultures, and life experiences (72%).

Youth also reported on the activities they engaged in with their Bigs and what they talked about together. The most frequently reported activities included sports/physical activity (42.6% reporting doing this type of activity often or very often), creative activities (e.g., crafts, cooking; 34.9%), community events/activities (e.g., museum,

concert; 33.5%), and simply “hanging out” together (e.g., playing video games, sharing a meal; 54.0%); less frequently reported activities included school-related activities (e.g., homework, school event; 26.6%) and participating in an activity with other BBBS matches (19.8%). Frequently reported topics of discussion included things that the youth likes to do or is interested in (76%), the youth’s friends or family (57.7%), ways of being healthy (e.g., avoiding unsafe or risky behaviors, making good eating choices; 45.4%), and the youth’s future (e.g., possible careers; 54.0%); less frequently discussed were social issues (e.g., current events; 29.3%) and the youth’s personal concerns or problems (26.3%).

As the COVID lockdown began, we added questions to our 18-month survey to assess how the lockdown may have affected the mentoring relationship. Parents surveyed after this point in time ($n = 191$) reported a number of changes in the relationship. For example, nearly half (49%) noted that their child was engaging in different types of activities with their mentor due to the COVID-19 outbreak, and 25% reported that their child seemed to feel less close or “connected” to their Big. Among several more specific COVID-related challenges that were asked about as having potentially affected the mentoring relationship (e.g., child not being as comfortable with new ways of communicating, challenges being experienced by the family or Big), by far the most frequently endorsed was the challenge of coming up with fun activities (47%). We presume that this is attributable to being restricted to online activities during at least portions of the pandemic. Among youth in the treatment group who responded to a question about online or phone contact with their Big ($n = 157$), which was added after the start of the pandemic, about one in four (26.8%) reported having had this type of contact at least every other week.

At the same time, some parents reported positive effects of having a mentor during this time. For example, 18% noted that their child seemed to feel closer or more connected to their Big; 23% noted that their child's Big said or did things to help their child with handling COVID-related challenges; and 8% noted that their child's Big said or did things to help the parent handle COVID-related challenges.

Youth and Family Characteristics at Baseline (Baseline Equivalence)

Analyses were conducted to compare the treatment and control groups on demographic characteristics and baseline values of all study measures. The results of these analyses, as

summarized in Table 3, on the whole, are in line with the generally expected comparability between the groups. More specifically, we find statistically significant ($p < .05$) differences for only 3 of the 46 measures/characteristics examined, a rate (.065) close to what would be expected by chance. Treatment-control group differences do not approach statistical significance for any of our three survey-based measures of primary outcomes (i.e., property-related delinquent behavior, violence-related delinquent behavior, substance use) or for parent or youth reports of history of arrest (in lieu of administrative records of arrest for purposes of this report, as explained previously).

There are, however, a substantial number of measures for which the standardized mean

Table 3: Baseline Equivalence of Study Measures for Youth Assigned to the Treatment and Control Groups

Characteristic/Measure	Treatment (<i>n</i> = 1,011)	Control (<i>n</i> = 342)	Two-tailed <i>p</i> -value	SMD
<i>Demographics</i>				
Youth gender	Male (62.4%)	Male (63.7%)	.660	.027
Youth age in years	12.31 (1.54)	12.28 (1.52)	.786	.017
Youth race/ethnicity	Hispanic (29.4%) Black (38.5%) White (25.0%) Other (7.1%)	Hispanic (32.7%) Black (39.2%) White (21.9%) Other (6.1%)	.501	N/A
Family structure	One adult (46.4%)	One adult (39.1%)	.020	.148
Family income	4.35 (2.56) ^a	4.36 (2.48) ^a	.933	-.005
<i>Primary Outcomes and Related Variables</i>				
Ever arrested (YR)	6.5%	7.1%	.686	-.025
Ever arrested (PR)	3.3%	4.4%	.336	-.060
Ever stopped by police (YR)	12.7%	12.5%	.910	.007

Characteristic/Measure	Treatment (<i>n</i> = 1,011)	Control (<i>n</i> = 342)	Two-tailed <i>p</i> -value	SMD
Primary Outcomes and Related Variables				
Ever stopped by police (PR)	6.1%	5.9%	.897	.008
Property-related delinquent behavior past year (CR)	26.2%	29.5%	.232	-.077
Violence-related delinquent behavior past year (CR)	38.1%	37.1%	.755	.020
Any substance use (YR)	14.0%	15.0%	.654	-.028
Risk Factors for Delinquent/Criminal Behavior				
Negative peer associations (YR)	1.53 (.61)	1.56 (.64)	.518	-.041
School misbehavior (PR)	33.2%	32.0%	.682	.025
Skipping School (CR)	12.9%	15.6%	.213	-.079
Aggressive behavior (CR)	-.01 (.75)	.03 (.86)	.361	-.057
Depressive symptoms (YR)	9.06 (8.20)	8.46 (8.06)	.247	.073
Protective Factors for Delinquent/Criminal Behavior: Personal Resources				
Self-control (CR)	.02 (.79)	-.04 (.77)	.232	.075
Conventional values (YR)	4.18 (.78)	4.18 (.76)	.968	-.002
Social skills (YR)	3.67 (.76)	3.71 (.75)	.450	-.047
Coping efficacy (YR)	6.35 (2.63)	6.56 (2.60)	.203	-.080
Spark development (YR)	2.46 (.71)	2.42 (.71)	.355	.059
Grit (YR)	3.30 (.63)	3.23 (.62)	.070	.114
Self-advocacy (YR)	3.86 (.77)	3.84 (.78)	.676	.026
Hopeful future expectations (YR)	3.44 (.46)	3.44 (.47)	.933	-.005
Goal setting and pursuit (PR)	3.02 (.98)	3.19 (1.01)	.005	-.175

Characteristic/Measure	Treatment (n = 1,011)	Control (n = 342)	Two-tailed p-value	SMD
<i>Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources</i>				
Perceived social support: Family members (YR)	4.05 (.99)	4.10 (1.02)	.383	-.055
Perceived social support: Friends (YR)	3.81 (1.16)	3.83 (1.18)	.769	-.019
Perceived social support: Significant Other (YR)	3.95 (1.08)	3.99 (1.12)	.570	-.036
Family functioning (PR)	3.13 (.54)	3.15 (.51)	.488	-.043
Parenting behaviors: Involvement (PR)	3.85 (.62)	3.87 (.57)	.688	-.025
Parenting behaviors: Positive parenting (PR)	4.29 (.59)	4.35 (.57)	.108	-.101
Parenting behaviors: Poor monitoring/supervision (PR)	1.58 (.52)	1.61 (.51)	.439	-.049
Parenting behaviors: Inconsistent discipline (PR)	2.29 (.71)	2.27 (.69)	.613	.032
Involvement in organized youth activities (PR)	1.34 (1.12)	1.53 (1.11)	.007	-.171
Volunteering (YR)	36.8%	40.3%	.251	-.072
<i>Protective Factors for Delinquent/Criminal Behavior: Mental Health and Well-Being</i>				
Self-esteem (YR)	4.07 (.97)	4.12 (.93)	.373	-.056
Positive affect (YR)	11.80 (3.83)	11.69 (3.57)	.623	.031
Life satisfaction (YR)	7.28 (2.27)	7.38 (2.31)	.479	-.044
<i>Protective Factors for Delinquent/Criminal Behavior: Academic Engagement and Performance</i>				
School engagement (YR)	4.00 (.89)	3.93 (.91)	.198	.081
Academic performance (CR)	-.02 (.91)	.03 (.95)	.404	-.053
College exploration (YR)	31.1%	31.0%	.957	-.003
Career exploration (YR)	38.1%	40.7%	.404	-.053

Characteristic/Measure	Treatment (<i>n</i> = 1,011)	Control (<i>n</i> = 342)	Two-tailed <i>p</i> -value	SMD
Other Measures				
Receipt of formal mentoring (PR)	10.7%	14.1%	.103	-.106
Presence of a very important nonparental adult (YR)	59.6%	61.4%	.566	-.036
Youth risk exposure (PR)	7.30 (3.61)	6.99 (3.62)	.175	.085

Notes. YR = Youth report; PR = Parent report; CR = Combination of youth and parent report. SMD = Standardized Mean Difference. For continuous measures, means and standard deviations (parentheses) are reported, and the *p*-value for the equivalence test is based on an independent groups *t*-test (two-tailed). For categorical measures, the *p*-value for the equivalence test is based on a chi-square test.

^a Household income was reported by parents on a 12-point scale from “\$0-\$5,000” to “More than \$100,000”, with 4.35 indicating a total household combined family income of slightly over “\$20,001 to \$30,000.”

difference (Cohen’s *d*) exceeds .050. As described previously, these measures were controlled for in our impact analyses per our pre-specified analysis plan. Some of our pre-specified control measures also exhibited standardized mean differences of this magnitude. There is no obvious pattern to the generally small differences on the measures involved in direction or construct (for example, treatment youth reported greater self-control than control youth, but less school engagement).

Intent-to-Treat Analyses

As shown in Table 4, impact analyses indicated statistically significant ($p < .05$) effects of assignment to the treatment group (i.e., immediate eligibility for the BBBS program) on two of the four primary hypothesized outcomes, arrest and substance use, each in a direction favoring the treatment group. The estimated effects for the other two primary outcomes, property- and violence-related delinquent behavior, did not reach or approach statistical significance, but were also in directions favoring the treatment group. When applying the Benjamini-Hochberg

procedure to control the Type I error rate at 5% across the four tests of primary outcomes, the effect estimates for both arrest and substance use remained statistically significant (see Table 4). It should be noted that the effect estimate for arrest showed sensitivity to model specification. Most notably, in analyses employing an alternative approach to multiple imputation which utilized only dichotomous measures of any arrest, and thus did not include reports of number of arrests to impute the arrest outcome, the impact estimate was not statistically significant after applying the Benjamini-Hochberg control for Type I error.

As can be seen in Table 5, the effect estimate for the secondary hypothesized outcome of overall delinquent behavior approached statistical significance ($p < .10$) in a direction favoring the treatment group. As also shown in Table 5, effect estimates were statistically significant ($p < .05$) or approached statistical significance ($p < .10$) for several secondary hypothesized outcomes of both risk and protective factors for delinquent/criminal behavior, the latter including measures in all domains except mental health and well-being.

We also conducted analyses that incorporated controls for whether the timing of the youth's 18-month follow-up assessment was before or after the start of the pandemic as well as the proportion of the youth's 18-month follow-up period that occurred after the pandemic start. There were no differences in findings relative to results of the planned analyses (i.e., all effect effects retained their same status as statistically significant, approaching statistical significance, or not reaching or approaching statistical significance).

Table 4: Effects of Random Assignment to Treatment Group (Immediate Eligibility for Big Brothers Big Sisters Program) on Primary Hypothesized Outcomes Assessed at 18-Month Follow-Up

Outcome Measure	Effect Estimate ^a	Percent of Treatment Group with Outcome ^b	Percent of Control Group with Outcome ^b	Two-tailed <i>p</i> -value	Significance after B-H Correction? ^c
Arrest past 18 months (CR)	-.510	4.9%	10.7%	.003	Yes
Property-related delinquent behavior past 18 months (CR)	-.155	17.1%	21.0%	.193	No
Violence-related delinquent behavior past 18 months (CR)	-.144	23.9%	28.5%	.182	No
Substance use past 18 months (YR)	-.370	10.1%	17.2%	.005	Yes

Notes. YR = Youth report; CR = Combination of youth and parent report. This column indicates whether the effect estimate is statistically significant using the Benjamini-Hochberg criterion where the False Discovery Rate is less than .05.

^a Effect estimates are the Cox index (see text for details) and are presented for treatments relative to controls (i.e., the negative direction of each effect estimate indicates that the rate of the outcome for the treatment group was lower than that for controls).

^b Model-adjusted percentage of the relevant group (i.e., treatment or control) with the outcome as assessed at the 18-month follow-up.

^c This column indicates whether the effect estimate is statistically significant using the Benjamini-Hochberg criterion where the False Discovery Rate is less than .05.

Table 5: Effects of Random Assignment to Treatment Group (Immediate Eligibility for Big Brothers Big Sisters Program) on Secondary Hypothesized Outcomes Assessed at 18-Month Follow-Up

Outcome Measure	Effect Estimate ^a	Percent of Treatment Group with Outcome ^b	Percent of Control Group with Outcome ^b	Two-tailed <i>p</i> -value
Overall delinquent behavior past 18 months (CR)	-.175	43.3%	50.5%	.075
Risk Factors for Delinquent/Criminal Behavior				
Negative peer associations (YR)	-.060	--	--	.364
School misbehavior (PR)	-.048	15.5%	16.6%	.673

Outcome Measure	Effect Estimate ^a	Percent of Treatment Group with Outcome ^b	Percent of Control Group with Outcome ^b	Two-tailed <i>p</i> -value
Risk Factors for Delinquent/Criminal Behavior				
Skipping school (CR)	-.195	18.4%	23.8%	.074
Aggressive behavior (CR)	-.169	--	--	.010
Depressive symptoms (YR)	-.001	--	--	.914
Protective Factors for Delinquent/Criminal Behavior: Personal Resources				
Self-control (CR)	.131	--	--	.036
Conventional values (YR)	-.042	--	--	.524
Social skills (YR)	.208	--	--	.002
Coping efficacy (YR)	.125	--	--	.059
Spark development (YR)	.109	--	--	.121
Grit (YR)	.140	--	--	.038
Self-advocacy (YR)	.133	--	--	.043
Hopeful future expectations (YR)	.141	--	--	.043
Goal setting and pursuit (PR)	.072	--	--	.232
Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources				
Perceived social support: Family members (YR)	-.057	--	--	.373
Perceived social support: Friends (YR)	-.057	--	--	.415
Perceived social support: Significant other (YR)	.051	--	--	.459
Family functioning (PR)	.179	--	--	.007
Parenting behaviors: Involvement (PR)	-.005	--	--	.935
Parenting behaviors: Positive parenting (PR)	-.026	--	--	.675
Parenting behaviors: Poor monitoring/supervision (PR)	-.032	--	--	.597

Outcome Measure	Effect Estimate ^a	Percent of Treatment Group with Outcome ^b	Percent of Control Group with Outcome ^b	Two-tailed <i>p</i> -value
Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources				
Parenting behaviors: Inconsistent discipline (PR)	-.156	--	--	.011
Involvement in organized youth activities (PR)	.070	--	--	.276
Volunteering (YR)	.098	40.2%	36.3%	.313
Protective Factors for Delinquent/Criminal Behavior: Mental Health and Well-Being				
Self-esteem (YR)	.040	--	--	.449
Positive affect (YR)	.107	--	--	.116
Life satisfaction (YR)	.071	--	--	.326
Protective Factors for Delinquent/Criminal Behavior: Academic Engagement and Performance				
School engagement (YR)	.132	--	--	.044
Academic performance (CR)	.062	--	--	.345
College exploration (YR)	.209	30.4%	23.6%	.045
Career exploration (YR)	.012	45.4%	44.9%	.891

Notes. YR = Youth report; PR = Parent report; CR = Combination of youth and parent report.

^a Effect estimates are standardized mean differences for continuous measures and the Cox index for dichotomous measures. Effect estimates are presented for treatments relative to controls (i.e., a positive effect estimate indicates that the treatment group average was numerically higher than that for controls; a negative effect estimate indicates that the treatment group average was lower than that for controls).

^b Model-adjusted percentage of the relevant group (i.e., treatment or control) with the outcome as assessed at 18-month follow-up. This information is applicable only for dichotomous outcomes.



Discussion



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Little Melody & Big Hailey

Discussion

The goal of this randomized controlled trial (RCT) of the Big Brothers Big Sisters of America (BBBSA) Community-Based Mentoring (CBM) program is to rigorously examine the effects of the program on crime and delinquency and associated risk and protective factors, addressing limitations both in previous studies of the program and in the broader literature on youth mentoring program effectiveness. This interim report addresses evidence of the program's effectiveness based on survey data obtained from youth and their parents 18 months after study enrollment. The final report will do so using survey data obtained four years after study enrollment. It also will examine program effects on arrest based on official records.

Despite facing significant recruitment challenges resulting from the COVID-19 pandemic, which began one year into the study's two-year recruitment period, the 17 participating BBBSA agencies were able to recruit over 1,300 youth and their families to take part in the research. Results of intent-to-treat analyses (i.e., analyses that include all study participants regardless of whether those assigned to the treatment group were actually matched with a mentor) indicate effects favoring the treatment group in several hypothesized areas. As discussed below, these impacts are largely in line with the four previous large-scale RCTs of BBBS mentoring, which include two studies of the BBBSA CBM program (Herrera et al., 2013; Tierney et al., 1995), a study of the BBBSA School-Based Mentoring (SBM) program (Herrera

et al., 2007), and a study of the community-based BBBS program in Ireland (Brady, 2011). The present RCT also provides evidence on the effectiveness of BBBS mentoring in several areas not examined in these previous trials.

Effects on Crime and Delinquency

With respect to our primary hypotheses, we found support for effects of the BBBS CBM program on two of the four outcomes involved (i.e., arrest and substance use, but not property- and violence-related delinquent behavior). Relative to youth assigned to the control group, those in the treatment group were less likely to have a youth- or parent-reported arrest in the 18 months following their baseline assessment. None of the above-noted RCTs of BBBS mentoring included arrest as an outcome. Evaluations of other mentoring programs have shown mixed results in this area, ranging from evidence suggesting prevention of arrests (Bry, 1982; DuBois, 2022), no effects (e.g., Schirm & Rodriguez-Planas, 2004), different findings over time within the same sample (O'Donnell & Williams, 2013), or *increased* arrests for youth receiving mentoring (e.g., Rodriguez-Planas, 2012). The programs evaluated in these studies have tended to target youth with relatively high risk for delinquency (e.g., those already experiencing at least one arrest) or include components beyond mentoring. These points of differentiation from the BBBS CBM program make it difficult to draw meaningful comparisons with the current findings. Our primary hypothesis (H1) is pre-specified to be based on records data that are not yet available for analysis. There is some research support for the validity of self-reports of arrests, especially when arrests are few in number (Thornberry & Krohn, 2000). Nonetheless, the present results should be viewed as preliminary

pending analyses with official records data in our final report.

Analyses also revealed significant impacts on substance use at the 18-month follow-up. The P/PV RCT of the CBM program (Tierney et al., 1995) similarly found that treatment group youth were less likely than those in the control group to report initiation of both alcohol and other substance use at 18-month follow-up. Effects on substance use were not replicated in the other three major BBBS RCTs. However, systematic reviews and meta-analyses considering mentoring programs for youth more broadly have reported generally positive (albeit mixed) findings related to substance use (Dunn et al. 2012; Thomas et al., 2011; Thomas et al., 2013; Tolan et al., 2014).

In contrast to the findings for arrest and substance use, we did not find significant effects on property-related and violence-related delinquent behavior, respectively, as reported by youth and their parents, although effect estimates for both were in a direction favoring the treatment group. The specific types of delinquent behavior assessed in our measures and their relevance for the age group represented in our sample are relevant to consider. For example, our measure of violence-related delinquent behavior reflects fairly serious violent and gang-related behavior (i.e., got into a serious physical fight; hurt someone badly enough to need bandages or care from a doctor or nurse; or took part in a fight where a group of your friends was against another group). Two of the prior RCTs of BBBS mentoring (Herrera et al., 2007; Herrera et al., 2007) reported favorable effects on relatively “minor” types of misbehavior that may be more relevant for youth in the current age range of our sample. One of these studies (Herrera et al., 2013) also tested effects on a youth-reported delinquency measure similar to that used in the current study

and did not find evidence of a program effect. The P/PV RCT of the CBM program (Tierney et al., 1995) asked about two property-related behaviors included in the current property-related delinquency variable (stealing and damaging property) and did not find significant effects were for either.

Effects on Risk and Protective Factors for Crime and Delinquency

The current findings also are consistent with favorable effects of BBBS CBM program involvement on several risk and protective factors for crime and delinquency, all of which were assessed as “secondary” hypothesized outcomes. These include a reduction in types of misbehavior that can serve as precursors for delinquency as well as growth in personal resources for avoiding involvement in crime and delinquent behavior. As discussed below, hypothesized effects on risk and protective factors are not evident in a number of instances, particularly for outcomes relating to mental health and academics.

Misbehavior. Despite the above-noted lack of effect on our measure of violence-related delinquent behavior, a significant program effect was found for our measure of aggression. Hitting was a significant impact in the P/PV RCT of the CBM program (Tierney et al., 1995), and Herrera et al.’s (2007) school-related misconduct measure (for which they found significant impacts) included aggressive behavior. The types of aggressive behavior reflected in the measures used in these studies and the measure used in the current study include less severe types of aggression (e.g., pushing or shoving other kids, threatening or bullying others) than those included in our measure of violence-related delinquency. These less severe types of aggression are more common and likely to

show variability during early adolescence—the age range of most youth in the current study as of the 18-month follow-up—and are correlated with later delinquency (Lynne-Landsman et al., 2011; Roff & Wirt, 1984). It could be, as well, that mentors in programs like BBBS CBM, which rely on volunteers without significant training or experience in youth work, are better equipped to help curb relatively more common and less serious forms of misbehavior among youth.

In line with this possibility, the present findings also suggest that participation in the BBBS CBM program may contribute to a reduction in skipping school. This finding only approached statistical significance, however, and no effect is apparent on our measure of school misbehavior that encompassed different types of disciplinary experiences (i.e., having been sent to the principal's office for misbehavior, receiving an in-school detention, or having been suspended). Disciplinary incidents were likely much less frequent during remote learning and potentially thereafter, due to accommodations for student behavioral issues in the context of the ongoing stress of the pandemic and challenges associated with reacclimating to the school environment. Future analyses will be able to explore potential differential effects on school misbehavior as a function of the timing of the youth's follow-up relative to the COVID lockdown.

Personal resources. Our interim findings also suggest that participation in the BBBS CBM program can strengthen personal resources that are important for both resilience (Alvord & Grados, 2005) and thriving (DuBois & Keller, 2017), with statistically significant impacts evident for self-control, social skills, grit, self-advocacy, and hopeful future expectations. For the most part, these outcomes have not been examined in previous studies of BBBS. Yet, they have plausible links

to the types of interactions that are emphasized as central to positive relationships with caring, supportive adults. Self-control, a well-established protective factor against involvement in delinquent behavior (Meldrum et al., 2009) and substance use (Wills & Stoolmiller, 2002), for example, could be cultivated through mentor role modeling of patience and frustration tolerance and encouragement to consider consequences of behavior. Improvements in social competence—a key developmental building block that predicts both later educational attainment and involvement in less serious forms of delinquency in early adulthood (Stepp et al., 2011)—likewise may be cultivated by virtue of interpersonal processes and experiences (e.g., feelings of social affirmation) posited to be of central importance in mentoring relationships (Rhodes, 2005). Mentors in a program such as BBBS CBM also are well-positioned to support youth with demonstrating adaptive persistence when confronted with obstacles or setbacks (i.e., grit), an important component of which may be seeking out access to resources and other forms of support (i.e., self-advocacy). Growth in these areas may translate to enhanced optimism and greater envisioning of positive future identities (Markus & Nurius, 1986) (i.e., hopeful future expectations), a process which our findings suggest mentors can further support by exposing youth to college as a viable pathway for realizing their goals.

Social-contextual resources. Findings also suggest benefits in youth's social-contextual resources, specifically in their family environment. Parent reports of family functioning improved significantly for treatment group youth relative to those in the control group, similar to the finding in the Tierney et al. (1995) study of improvements in the parent-child relationship. A longitudinal (non-experimental) study of youth referred to community-based BBBS programs in Canada, furthermore, found that the parents of those who were matched with mentors reported greater gains on the same measure of family functioning used in our trial relative to youth who were not matched (Erdem et al., 2015). Such benefits could accrue through several mechanisms, such as the mentor reinforcing the caregiver's approach with the child (Keller et al., 2018) or acting as a constructive sounding board regarding conflicts with parents or other members of the youth's family (Billingsley et al., 2021). Mentor-youth outings also may provide the parent with needed respite (Keller et al., 2018), reducing caregiver stress. Parents of treatment group youth reported using less inconsistent discipline with them at the 18-month follow-up than did those of control group youth, a finding which could be attributable to reduced parental stress as well as improved youth behavior. Shifts in parenting and family functioning merit consideration as one potential mechanism through which impacts can be sustained, even after mentoring relationships have ended—a hypothesis we can test longitudinally using data collected at the four-year follow-up.

Yet, the present findings do not indicate benefits of program participation on youth reports of support from family members. Nor do results indicate relative improvements in youth ratings of support from friends or significant others. These latter findings parallel results of both Herrera et al.

(2007) and Brady (2011) but run at least partially counter to those of Tierney et al. (1995) in which the treatment group reported relatively greater emotional support from peers at follow-up. In-person peer interactions were likely less frequent or at least very different from prior years, during the first year of the COVID outbreak, when schools operated remotely. This may have contributed to the lack of evidence of effects on our measures of both friendship support and negative peer associations.

Outcomes related to school and community involvement, including organized youth activities (e.g., clubs, music or sports, after-school programs), volunteering, and career exploration, may have been similarly affected by activity restrictions stemming from the COVID pandemic. Because these outcomes all focus on activities that typically take place outside of the home, they may have been less frequent within our sample regardless of study group.

Mental health and well-being. The present findings do not indicate benefits of program participation for measures related to mental health and well-being—specifically, positive affect, life satisfaction, self-esteem, and depressive symptoms (a risk factor for delinquent behavior). Depressive symptoms was included in only one of the major RCTs of BBBS programs (Herrera et al., 2013), which found reduced youth-reported depressive symptoms and parent-reported emotional symptoms for youth in the treatment group. Compromised mental health among adolescents during the COVID pandemic (Zolopa et al., 2022), including increased depression and anxiety (Hawes et al., 2021), may have overshadowed what a mentoring relationship could accomplish in this area. The inability of most matches to meet in person also may have

contributed to our lack of findings in this important area.

The absence of improvement in self-esteem is in line with findings from other RCTs of the BBBSA CBM and SBM programs (Herrera et al., 2007, 2013; Tierney et al., 1995). Prior research demonstrates that self-esteem of developing youth can be compromised by a wide range of personal and contextual factors (DuBois et al., 2009). Thus, it may be somewhat unrealistic to expect involvement in a mentoring program to make significant in-roads in this area, at least over a relatively short time horizon. In addition, some research suggests that programs specifically focused on improving self-esteem are much more effective than those without targeted attention to this goal (Haney & Durlak, 1998). Similar considerations may be germane to life satisfaction.

Academic engagement and performance.

Unlike two earlier evaluations of the BBBSA CBM and SBM programs (Herrera et al., 2017; Tierney et al., 1995), this study did not find evidence of an impact on academic performance. This finding could reflect the fact that grading standards shifted significantly during the COVID lockdown, with many schools shifting standards for grading due to remote learning (Townsend, 2020). These adjustments, furthermore, may have remained in effect to varying degrees throughout subsequent phases of the pandemic. Relative to mentoring occurring in the school setting (Herrera et al., 2017), it also may be the case that community-based mentoring is less conducive to improvements in academic performance. Noteworthy in this regard is that the finding for grades in the Tierney et al. (1995) study of the BBBSA CBM program, which was based solely on youth report, only approached a conventional level of statistical significance (i.e., $p < .10$). The

finding of improved reports of school engagement (e.g., putting effort into classwork) that approached statistical significance in our analyses, however, does suggest enhanced achievement motivation as one plausible pathway for eventual gains in academic achievement, a possibility that our 4-year follow-up will be able to shed light on.

Program Implementation

Treatment youth in the study who were matched had received an average of about 11 months of mentoring at the time we administered our follow-up survey and reported fairly close relationships with their mentors. However, importantly, 35% were not matched with a mentor prior to the 18-month follow-up. The major COVID-related disruptions in agency operations undoubtedly decreased the rate and extent of mentoring that agencies were able to facilitate for youth in the treatment group. Yet, even before the onset of the pandemic, we observed in informal preliminary analyses (not included in this report) that the rate of matching for treatment group youth by the time of their 18-month follow-up appeared to be trending lower than that seen in the P/PV RCT of the CBM program.

Given that unmatched youth in the treatment group would not be expected to benefit from program involvement, it is likely that results of the current intent-to-treat analyses underestimate the impact of program participation for those youth who were matched with a mentor. The potential also exists for the remaining youth in the treatment group (who expected to be matched but were not) to have experienced setbacks in the outcomes we assessed. Findings from a recent RCT in which the treatment group participated in a violence prevention program (Take Charge!) in conjunction with mentoring through the BBBS CBM program

are in line with this possibility (Lindstrom Johnson et al., 2022). Results from this trial suggest that a failure to match youth in the treatment group with a BBBS mentor may have contributed to more aggressive behavior, relative to similar youth in the control group. Similar analyses that consider differential effects associated with whether treatment group youth were matched or not may help to clarify differences between our results and those of prior trials of the program. Illustratively, it is notable that the Herrera et al. (2013) finding of a significant impact for depressive symptoms in intent-to-treat analyses was based on a sample with a much higher rate of matching for youth in the treatment group. Analyses of data from the Tierney et al. (1995) RCT, furthermore, revealed that treatment group youth who experienced the shortest matches (less than three months) had decrements in their reports of self-worth and perceived scholastic competence relative to youth in the control group, even when controlling for potential selection bias (Grossman & Rhodes, 2002). The authors noted that these findings could be attributable, at least in part, to feelings of rejection and disappointment among youth whose matches closed shortly after being established.

Potential dynamics such as this underscore the importance of further inquiry into differential outcomes within our treatment group associated with matching status. Contributions of the pandemic will merit careful consideration in these analyses.

Concluding Thoughts

The size of almost all of the effects evident thus far in the current trial of the BBBS CBM program would be categorized as “small” relative to generally accepted benchmarks (Lipsey, 1990). This is in line with results reported in previous trials of BBBS mentoring and in mentoring evaluations more broadly (for meta-analyses, see DuBois et al., 2002; DuBois et al., 2011; Raposa et al., 2019; Tolan et al., 2014). It does not follow, however, that these findings are unimportant for several reasons. First, given the well-scaled status of the BBBS CBM program, even modest-sized benefits take on greater significance when considered in the context of the relatively large numbers of youth who may be experiencing them through participation in the program (DuBois, 2017). Second, outcomes for which favorable effects of the program are evident, particularly arrest and substance use, may translate into monetized benefits that substantially exceed program costs, although such analyses remain to be conducted. Third, recent evidence suggests that considering program effects in isolation from one another may underestimate the magnitude of the benefits youth receive from mentoring (Herrera et al., 2022). A more holistic approach that considers outcomes collectively would be in line with the aim of BBBS CBM to support the overall positive development of participating youth. Our final report will include analyses that reflect this perspective.

In conclusion, the interim findings summarized in this report provide support for the effectiveness of the BBBS CBM program for delinquency and crime prevention. Results also are consistent with the program's aim of promoting overall youth development and resilience. It will be important, however, both to assess the extent to which program benefits remain evident at the four-year follow-up and to update preliminary analyses of youth- and parent-reported arrest with administrative records data.



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Appendix 1:

Overview of Selected BBBSA Standards for the Community-Based Mentoring (CBM) Program

Staff Training

After being hired, CBM program staff must participate in the following trainings:

1. BBBSA online cultural competency training;
2. Annual BBBS Child Safety and Youth Protection online training; and
3. (for program managers) BBBS Program Manager Certification online courses.

Youth Enrollment

When enrolling youth in CBM programs, the following are required:

1. The child meets the agency's written eligibility requirements;
2. Signed application from parent/guardian;
3. In-person child interview;
4. Parent interview;
5. Assessment of the home environment;
6. Written assessment and matching recommendations based on information gathered during inquiry and enrollment;
7. Request collateral information as needed (therapy report, school report, etc.); and
8. RTBM children are reassessed every 12 months if they have not yet been matched—all information about the child, family and home environment is updated.

Matching

When matching youth with a potential Big:

1. the pre-match presentation must be interactive (in person or by phone) and ensure that each party understands the agency's matching rationale;
2. documentation of match selection rationale, reaction of parties and all approval dates;
3. the Big must approve the match before the match introduction meeting;
4. the parent/guardian must approve the match before the match introduction meeting;
5. the match introduction meeting must be in person and involve the parent/guardian; and
6. written documentation of completed match introductions including a signed match agreement form and a post-match meeting assessment by staff.

Orientation and Training

Pre-match training must be conducted prior to the actual match and provide participants (Big, child, and parent/guardian) the information needed to begin a match and develop and sustain effective and enduring match relationships.

1. CBM pre-match training must be interactive, evaluated, and documented and can be provided in- person, online with interaction, and/or individually, in group sessions, or a combination thereof. Training should be conducted by an agency staff member who demonstrates a strong competency for training others.
2. CBM pre-match training must cover, at a minimum:

VOLUNTEER

- ✓ Ground rules / program rules
- ✓ Volunteer Big obligations and appropriate roles
- ✓ Expectations for the match relationship
- ✓ Relationship development cycles
- ✓ What match support is and why it is important
- ✓ Child safety / youth protection
- ✓ Ages and stages of child development
- ✓ The match closure process

PARENT/GUARDIAN

- ✓ Ground rules / program rules
- ✓ Expectations for the match relationship
- ✓ Relationship development cycles
- ✓ What a volunteer Big is and isn't
- ✓ Expectations for parent partnership (why the parent is important in mentoring)
- ✓ What match support is and why it is important
- ✓ Child safety / youth protection
- ✓ The match closure process

CHILD(REN)

- | | |
|---|---|
| ✓ What a Big Brother / Big Sister is | ✓ What match support is and why it is important |
| ✓ Ground rules / program rules | ✓ Personal safety |
| ✓ Expectations for the match relationship | ✓ The match closure process |

Youth Outcomes Development Plan

Agencies must develop a Youth Outcomes Development Plan (YODP) for the youth at the beginning of the match. It should be used in match support to coach the match toward desired outcomes. Staff must review the plan annually with match participants to assess progress made and make any needed adjustments.

Support/Supervision

Staff must contact the parent/guardian, child and Big within the first two weeks of the match. **During the first year of the match**, they are required to contact the parent/guardian monthly (which may alternate with the child), the child monthly (which may alternate with the parent/guardian), and the Big monthly. **Once a CBM match has passed a year being matched**, staff are required to contact the parent/guardian, child and Big every 3 months. Match contact may be in person, over the phone or via email/text/social media as long as it involves substantive, two-way communication and an opportunity for staff and clients to engage in follow-up questions or discussions.

Match Closure/Rematching

BBBS Standards of Practice outline that:

1. staff must make reasonable efforts to contact the parent/guardian, child and Big individually to explore reasons for closure, safety levels, satisfaction and youth outcomes associated with the match;
2. when no child safety issues are present and parties agree, every effort must be made to have a documented, facilitated final communication or visit with the Big and with the child, providing an explanation for the reason(s) for match closure and an assessment of the accomplishments of the match;
3. staff must provide a written assessment and any recommendations for re-matching the child or re-engaging of the Big; and
4. staff must provide written notification of match closure to all parties including the risks assumed if continuing a relationship outside of the agency.

Appendix 2:

Study Measures

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Primary Hypothesized Outcomes</i>					
Arrest	Adapted from Add Health Study (Wave III; Bearman et al., 1997) Single item asking about youth arrests at any prior point in time at baseline and in past 18 months at follow-up	Y / P	<ul style="list-style-type: none"> In just the last 1½ years (18 months), how many times have you been arrested or taken in by the police? <i>[If you drive, don't count minor traffic violations.]</i> In just the last 1½ years (18 months), how many times has this child been arrested or taken in by the police? <i>[If he/she drives, don't count minor traffic violations.]</i> 	0 = No arrest in past 18 months 1 = One or more arrests in past 18 months	NA
Property-Related Delinquent Behavior	Adapted from Add Health Study (Wave I; Bearman et al., 1997) 7 items asking about youth's engagement in different behaviors during the past 12 months at baseline and past 18 months at follow-up	Y / P	<ul style="list-style-type: none"> Go into a house or building to steal something Deliberately damage property that didn't belong to you Steal something worth more than \$50 	0 = No behaviors in past 18 months 1 = One or more behaviors in past 18 months	NA
Violence-Related Delinquent Behavior	Adapted from Add Health Study (Wave I; Bearman et al., 1997) 3 items asking about youth's engagement in different behaviors during the past 12 months at baseline and past 18 months at follow-up	Y / P	<ul style="list-style-type: none"> Get into a serious physical fight Hurt someone badly enough to need bandages or care from a doctor or nurse Take part in a fight where a group of your friends was against another group 	0 = No behaviors in past 18 months 1 = One or more behaviors in past 18 months	NA
Substance Use	Adapted from Herrera et al. (2013) 6 items asking about youth's use of different substances during the past 12 months at baseline and past 18 months at follow-up	Y	<ul style="list-style-type: none"> Drink alcohol to the point of getting drunk Use or try out marijuana (pot) Use or try out other drugs (such as inhalants, cocaine, LSD, heroin, steroids), not including medicine 	0 = No substance use in past 18 months 1 = Use of one or more substances in past 18 months	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
Secondary Hypothesized Outcomes: Overall Delinquent Behavior					
Overall Delinquent Behavior	<p>Adapted from Add Health Study (Wave I; Bearman et al., 1997)</p> <p>13 items asking about youth's engagement in different behaviors during the past 12 months at baseline and past 18 months at follow-up</p>	Y / P	<ul style="list-style-type: none"> Go into a house or building to steal something Hurt someone badly enough to need bandages or care from a doctor or nurse Paint graffiti or signs on someone else's property or in a public place 	<p>0 = No behaviors in past 18 months</p> <p>1 = One or more behaviors in past 18 months</p>	NA
Secondary Hypothesized Outcomes: Risk Factors for Delinquent/Criminal Behavior					
Association with Deviant Peers	<p>Adapted from Elliott et al. (1996)</p> <p>4 items asking youth how many of their friends engage in different behaviors</p> <p>Response options:</p> <ul style="list-style-type: none"> None (1) Some (2) Most (3) All (4) 	Y	<ul style="list-style-type: none"> Bully other kids Get into fights at school Do bad things 	Average across items	.82/.77
School Misbehavior	<p>Herrera et al. (2013)</p> <p>3 items asking about different disciplinary experiences at school during the past 3 months of school</p>	P	<ul style="list-style-type: none"> Sent to the principal's office or spoke with a school administrator for misbehavior Received an in-school detention Received an out-of-school suspension 	<p>0 = No disciplinary experiences in past 3 months</p> <p>1 = One or more disciplinary experiences in past 3 months</p>	NA
Skipping School	<p>Adapted from Herrera et al. (2013)</p> <p>3 items asking about skipping school during the past 3 months of school</p>	Y / P	<ul style="list-style-type: none"> Skipped one or more classes at school without your parent or guardian knowing Skipped a full day of school without your parent or guardian knowing Lied to your parent or guardian so that you could skip all or part of a day of school (for example, told them you were sick when you really weren't) 	<p>0 = No skipping school in past 3 months (no items endorsed)</p> <p>1 = Skipped school in past 3 months (one or more items endorsed)</p>	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Risk Factors for Delinquent/Criminal Behavior</i>					
Aggressive Behavior	<p>The Aggression Scale (Orpinas & Frankowski, 2001) and Parent Checklist – Fast Track Project (adapted from Dodge & Coie, 1987)</p> <p>9 items asking youth how often they engaged in each behavior during the past 7 days and 6 items asking parent how true each statement is of the youth</p> <p>Youth response options:</p> <ul style="list-style-type: none"> • 0 times (1) • 1 time (2) • 2-3 times (3) • 4 or more times (4) <p>Parent response options:</p> <ul style="list-style-type: none"> • Never true (1) • Rarely true (2) • Sometimes true (3) • Usually true (4) • Almost always true (5) 	Y / P	<p>Youth-report</p> <ul style="list-style-type: none"> • I threatened to hurt or to hit someone. • I pushed or shoved other kids. • I called other students bad names. <p>Parent-report</p> <ul style="list-style-type: none"> • This child uses physical force (or threatens to use force) in order to dominate other kids. • When this child is teased or threatened, he or she gets angry easily and strikes back. • This child gets other kids to gang up on somebody that he or she does not like. 	<p>Average of standardized ($M = 0$, $SD = 1$) scores on youth- and parent-report measures</p> <p>(each scored as average across items)</p>	<p>Y: .86/.85</p> <p>P: .84/.84</p>
Depressive Symptoms	<p>Short-form Pediatric Depressive Symptoms Scale: Patient-Reported Outcomes Measurement Information System (PROMIS; Irwin et al., 2010)</p> <p>8 items asking how often each statement has been true over the past 7 days</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (0) • Almost never (1) • Sometimes (2) • Often (3) • Almost always (4) 	Y	<ul style="list-style-type: none"> • I felt sad. • I felt like I couldn't do anything right. • I felt lonely. • It was hard for me to have fun. 	Sum across items	.92/.94

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Personal Resources</i>					
Self-Control	<p>Grasmick et al. (1993)</p> <p>8 items asking youth how true each statement is for them or parent about agreement that the statement describes the youth</p> <p>Youth response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Always true (5) <p>Parent response options:</p> <ul style="list-style-type: none"> • Strongly disagree (1) • Disagree (2) • Agree (3) • Strongly agree (4) 	Y / P	<ul style="list-style-type: none"> • I often act on the spur of the moment without stopping to think. (R) • Sometimes I will take a risk just for the fun of it. (R) • I often do whatever brings me pleasure here and now, even at the cost of some distant goal. (R) 	<p>Average of standardized ($M = 0$, $SD = 1$) scores on youth- and parent-report measures</p> <p>(each scored as average across items)</p>	<p>Y: .65/.77</p> <p>P: .77/.90</p>
Conventional Values	<p>Belief in the Moral Order Scale from the Communities that Care Survey (Arthur et al., 2002)</p> <p>4 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • I think sometimes it is okay to cheat at school. • I think it is important to be honest with your parents, even if they become upset or you get punished. (R) • I think it is okay to take something without asking if you can get away with it. 	Average across items	.58/.61
Social Skills	<p>Social Competencies scale of the Youth Outcome Measures Online Toolbox (adapted from Muris, 2001)</p> <p>7 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • I can make friends with other kids. • I can stay friends with other kids. • I can tell other kids what I think, even if they disagree with me. 	Average across items	.70/.76

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Personal Resources</i>					
Coping Efficacy	<p>Adapted from Coping Efficacy Scale (Sandler et al., 2000)</p> <p>Single item</p> <p>Response options from 0 to 10 presented on a ladder:</p> <ul style="list-style-type: none"> 0 (What you did, did not make things better at all) to 10 (What you did made things completely better) 	Y	<ul style="list-style-type: none"> Sometimes the things people do to handle their problems work really well to make the situation or how they feel better. Other times what they try doesn't work at all. Think about the difficult situations or problems you have faced in the last month. How well did what you tried for handling these situations work? 	Response on the single item	NA
Spark Development	<p>Adapted from Benson & Scales (2009)</p> <p>Single item</p> <p>Response options:</p> <ul style="list-style-type: none"> No, not at this time (1) Sort of (2) Yes, definitely! (3) 	Y	<ul style="list-style-type: none"> Some people have a special interest or hobby that they really care about. This is something that takes time and effort to learn about and do well. So it would not be just watching TV or spending time on the internet or social media (e.g., YouTube). Do you have a special interest or hobby like this? 	Response on the single item	NA
Grit	<p>Short Grit Scale for Children (Duckworth & Quinn, 2009)</p> <p>8 items asking youth how much each statement is like them</p> <p>Response options:</p> <ul style="list-style-type: none"> Not like me at all (1) Not much like me (2) Somewhat like me (3) Mostly like me (4) Very much like me (5) 	Y	<ul style="list-style-type: none"> I am a hard worker. Setbacks (delays and obstacles) don't discourage me. I bounce back from disappointments faster than most people. New ideas and projects sometimes distract me from previous ones. (R) 	Average across items	.61/.72
Self-Advocacy	<p>Self-Advocacy Scale (Jarjoura et al., 2018)</p> <p>5 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> Not at all true (1) A little true (2) Somewhat true (3) Mostly true (4) Completely true (5) 	Y	<ul style="list-style-type: none"> I am good at figuring out how to get the kind of help I need to solve a problem. I can figure out how to get involved in activities that I enjoy or want to learn more about. When I want to do something new, I think of ideas for how to make it happen. 	Average across items	.75/.79

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Personal Resources</i>					
Hopeful Future Expectations	<p>Abbreviated version of the Hopeful Future Expectations Scale (Bowers et al., 2012)</p> <p>7 items asking youth how they see each description being true for them when they are older and an adult</p> <p>Response options:</p> <ul style="list-style-type: none"> • I'm very sure it won't be true (1) • I think it probably won't be true (2) • I think it probably will be true (3) • I'm sure it will be true (4) 	Y	<ul style="list-style-type: none"> • Having a job or career that you really enjoy • Having enough money to buy the things you need • Being healthy 	Average across items	.76/.77
Goal Setting and Pursuit	<p>Goal Orientation Scale (Child Trends, 2022)</p> <p>7 items asking how much each statement describes the youth</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all like this child (1) • A little like this child (2) • Somewhat like this child (3) • A lot like this child (4) • Exactly like this child (5) 	P	<ul style="list-style-type: none"> • This child has goals in his/her life. • This child develops step-by-step plans to reach his/her goals. • If this child sets goals, he/she takes action to reach them. 	Average across items	.89/.91
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources</i>					
Perceived Social Support from Family Members	<p>Family subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988)</p> <p>4 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • I can talk about my problems with my family. • My family really tries to help me. • My family is willing to help me make decisions. 	Average across items	.85/.90

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources</i>					
Perceived Social Support from Friends	<p>Friends subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988)</p> <p>4 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • My friends really try to help me. • I can count on my friends when things go wrong. • I can talk about my problems with my friends. 	Average across items	.89/.93
Perceived Social Support from Significant Other	<p>Significant Other subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988)</p> <p>4 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • There is a special person who is around when I am in need. • There is a special person in my life who cares about my feelings. • I have a special person who is a real source of comfort to me. 	Average across items	.86/.90
Family Functioning	<p>General Family Functioning scale of the Family Assessment Device (Epstein et al., 1983)</p> <p>12 items asking parent how much they agree or disagree with each statement</p> <p>Response options:</p> <ul style="list-style-type: none"> • Strongly disagree (1) • Disagree (2) • Agree (3) • Strongly agree (4) 	P	<ul style="list-style-type: none"> • Making decisions is a problem for our family. (R) • Individuals are accepted for what they are. • We avoid discussing our fears and concerns. (R) 	Average across items	.89/.90

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources</i>					
Parenting Behaviors	<p>Involvement subscale of the Alabama Parenting Questionnaire (Essau et al., 2006)</p> <p>10 items asking how often each behavior or situation typically occurs in the youth's home</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (1) • Almost never (2) • Sometimes (3) • Often (4) • Always (5) 	P	<ul style="list-style-type: none"> • You have a friendly talk with this child. • You volunteer to help with special activities that this child is involved in (such as sports, Boy/Girl Scouts, church youth groups). • You help this child with his/her homework. 	Average across items	.78/.83
Parenting Behaviors	<p>Positive Parenting subscale of the Alabama Parenting Questionnaire (Essau et al., 2006)</p> <p>6 items asking how often each behavior or situation typically occurs in the youth's home</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (1) • Almost never (2) • Sometimes (3) • Often (4) • Always (5) 	P	<ul style="list-style-type: none"> • You praise this child if he/she behaves well. • You compliment this child when he/she does something well. • You tell this child that you like it when he/she helps out around the house. 	Average across items	.83/80
Parenting Behaviors	<p>Poor Monitoring and Supervision scale of the Alabama Parenting Questionnaire (Essau et al., 2006)</p> <p>10 items asking how often each behavior or situation typically occurs in the youth's home</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (1) • Almost never (2) • Sometimes (3) • Often (4) • Always (5) 	P	<ul style="list-style-type: none"> • This child is out with friends you don't know. • This child goes out without a set time to be home. • You get so busy that you forget where this child is and what he/she is doing. 	Average across items	.68/.74

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Social-Contextual Resources</i>					
Parenting Behaviors	<p>Inconsistent Discipline scale of the Alabama Parenting Questionnaire (Essau et al., 2006)</p> <p>6 items asking how often each behavior or situation typically occurs in the youth's home</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (1) • Almost never (2) • Sometimes (3) • Often (4) • Always (5) 	P	<ul style="list-style-type: none"> • You threaten to punish this child and then do not actually punish him/her. • This child talks you out of being punished after he/she has done something wrong. • You feel that getting this child to obey you is more trouble than it's worth. 	Average across items	.70/.76
Involvement in Organized Youth Activities	<p>Herrera et al. (2007)</p> <p>4 items asking whether youth has been involved in different types of activities during the past 12 months at baseline and past 18 months at follow-up</p> <p>Response options:</p> <ul style="list-style-type: none"> • No • Yes 	P	<ul style="list-style-type: none"> • After-school programs or activities at their school (like arts, science club, music or sports)? • Clubs during the school day at his/her school (like band, newspaper, drama, chorus, public speaking)? • An after-school program or activity but not at his/her school (like a sports team, music lessons, Boys & Girls Club, 4H, Boy/Girl Scouts, YMCA, recreation center or a church youth group)? 	Number of activities with yes responses	NA
Volunteering	<p>Herrera et al. (2013)</p> <p>Single item asking youth if they engaged in the activity described during the past 12 months at baseline and past 18 months at follow-up</p> <p>Response options:</p> <ul style="list-style-type: none"> • No (0) • Yes (1) 	Y	<ul style="list-style-type: none"> • Volunteered in your community 	Response on the single item	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Mental Health and Well-being</i>					
Self-esteem	<p>Global Self-Esteem subscale of the Brief version of the Self-Esteem Questionnaire (DuBois et al., 1996)</p> <p>4 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • I like being just the way I am. • I am happy with myself as a person. • I am the kind of person I want to be. 	Average across items	.83/.87
Positive Affect	<p>Short-form Pediatric Positive Affect Scale: Patient-Reported Outcomes Measurement Information System (PROMIS; Forrest et al., 2018)</p> <p>4 items asking how often statement has been true over the past 7 days</p> <p>Response options:</p> <ul style="list-style-type: none"> • Never (0) • Almost never (1) • Sometimes (2) • Often (3) • Almost always (4) 	Y	<ul style="list-style-type: none"> • I felt great. • I felt cheerful. • I felt joyful. • I felt happy. 	Sum across items	.87/.88
Life Satisfaction	<p>Cantril (1965); WHO (2006)</p> <p>Single item asking youth how they feel about the way their life is</p> <p>Response options from 0 to 10 presented on a ladder:</p> <ul style="list-style-type: none"> • 0 (The worst possible life) to 10 (The best possible life) 	Y	<ul style="list-style-type: none"> • In general, where on the ladder do you feel you stand at the moment? 	Response on the single item	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Academic Engagement & Performance</i>					
School Engagement	<p>Behavioral Engagement subscale of Engagement versus Disaffection with Learning Scale (Skinner et al., 2009)</p> <p>5 items asking youth how true each statement is for them</p> <p>Response options:</p> <ul style="list-style-type: none"> • Not at all true (1) • A little true (2) • Somewhat true (3) • Mostly true (4) • Completely true (5) 	Y	<ul style="list-style-type: none"> • I try hard to do well in school. • When I'm in class, I participate in class discussions. • When I'm in class, I listen very carefully. 	Average across items	.88/.90
Academic Performance	<p>Adapted from Herrera et al. (2013)</p> <p>Single item asking about grades youth received on their last report card</p> <p>Response options:</p> <ul style="list-style-type: none"> • F's (1) • D's and F's (2) • D's (3) • C's and D's (4) • C's (5) • B's and C's (6) • B's (7) • A's and B's (8) • A's (9) • I don't get marks or letter grades on my report cards (parallel wording for parent report) 	Y / P	<ul style="list-style-type: none"> • Think about the grades you got on your last report card. Which of the choices below best describes these grades? If you get a different kind of marks, like from 0 to 100 or other kinds of letter grades, please choose the answer that comes closest to those marks or grades. If you don't get marks or letter grades, just choose the last box in the list to show this. 	Average of standardized responses ($M = 0$, $SD = 1$) on the single youth- and parent-report measures	NA
College Exploration	<p>Herrera et al. (2011)</p> <p>Single item asking youth if they engaged in the activity described during the past 12 months at baseline and past 18 months at follow-up</p> <p>Response options:</p> <ul style="list-style-type: none"> • No (0) • Yes (1) 	Y	<ul style="list-style-type: none"> • Visited a college or university with an adult (other than a family member) where you were able to learn about college life or what subjects you might be interested in studying 	Response on the single item	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Secondary Hypothesized Outcomes: Protective Factors for Delinquent/Criminal Behavior: Academic Engagement & Performance</i>					
Career Exploration	<p>Herrera et al. (2011)</p> <p>2 items asking youth if they engaged in the activity described during the past 12 months at baseline and past 18 months at follow-up</p> <p>Response options:</p> <ul style="list-style-type: none"> No Yes 	Y	<ul style="list-style-type: none"> Worked at a job for pay Visited a workplace to get to know more about what it would be like to work there or in a certain kind of job (do not include a family member's workplace) 	<p>0 = Did not engage in either career exploration behavior in past 18 months</p> <p>1 = Engaged in one or both career behaviors in the past 18 months</p>	NA
<i>Other Measures</i>					
Receipt of Formal Mentoring	<p>Herrera et al. (2013)</p> <p>1 item asking about youth's involvement in a formal mentoring program in the past 12 months at baseline</p> <p>Response options (check all that apply):</p> <ul style="list-style-type: none"> A program in which he/she had an assigned mentor who met with just him/her, one-on-one A program in which he/she had an assigned mentor who met with him/her and other kids in a group This child has not been part of either of these types of programs in the past 12 months. 	P	<ul style="list-style-type: none"> In the past 12 months, has this child been part of the following types of mentoring programs? 	<p>0 = Youth not part of a one-on-one or group mentoring program in past year</p> <p>1 = Youth was in a one-on-one or group mentoring program in past year</p>	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Other Measures</i>					
Very Important Nonparental Adult	<p>Herrera et al. (2013)</p> <p>Single item asking youth if they have a Very Important Adult (VIA) in their life at baseline</p> <p>Response options (check all that apply if answer yes to having a VIA):</p> <ul style="list-style-type: none"> • My parent or other person who raises me • Another adult relative (grandparent, aunt or uncle, etc.) • Teacher, guidance counselor, or other adult at school • Coach or activity leader outside of school • Adult friend, neighbor, friend of your family, or friend's parent • A mentor through this program • A mentor through a different program than this one • If you have a Very Important Adult that is not listed here, please check this box and write in the blank who that person is to you—not the person's name 	P	<ul style="list-style-type: none"> • A Very Important Adult is a person who is ALL of these things: • someone who spends a lot of time with you; • someone you can really count on; • someone who gets you to do your best; AND • someone who cares a lot about what happens to you. • Please answer No or Yes to show whether you happen to have a Very Important Adult in your life right now. Then, if you do have one, please check the box next to who that person is. If you have more than one Very Important Adult, you may check more than one box. 	<p>0 = Youth did not report a VIA or reported only parent/caregiver as a VIA</p> <p>1 = Youth reported one or more VIAs other than parent/caregiver</p>	NA

Construct	Measure(s)	Reporter(s) ^a	Sample Item(s)	Scoring	Reliability
<i>Other Measures</i>					
Youth's Risk Exposure	<p>Herrera et al. (2013)</p> <p>29 items, administered at baseline, asking if youth has had the experience indicated (domains include economic disadvantage, family risk/stress, peer difficulties, behavioral, academic, and mental health)</p> <p>Response options:</p> <ul style="list-style-type: none"> No Yes 	P	<ul style="list-style-type: none"> In the last 12 months, there have been times when it was hard for the family this child lives with to pay the bills. There have been many fights or arguments in this child's home in the last 12 months. This child has been picked on or bullied often in the last 12 months. This child has a physical, emotional or mental condition that makes it difficult for him/her to do schoolwork at grade level (for example, ADHD, ADD or a learning disability). This child spends time with gang members. A professional has said that this child has a mental health issue or he/she is currently under the care of a mental health care provider (a therapist or counselor). 	Number of items with yes responses	NA

Note. (R) designates an item that was reverse-scored.

^a Y=Youth; P=Parent.



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