

RESEARCH ARTICLE

What We Bring to the Table: An Examination of the Developing Relationship Between Youth Mentees and Their College Mentors

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ABSTRACT

Mentoring programs are a popular approach for supporting youth through relationships with adult mentors, but few mentoring studies have included the mentor perspective. The present study comprised 80 undergraduate mentors (M age = 19.83, 52.5% White, 76.3% female) and elementary-aged mentees (M age = 10.61, 91.3% Black, 53.8% female). Mentee and mentor perceptions of the mentoring relationship and their other adult social supports were assessed over an academic year, in addition to mentor internalizing problems. It was hypothesized that mentor and mentee mentoring relationship quality would both be predicted by and predict the other variables of interest. For mentees, cross-lagged panel models indicated pre-existing adult social supports were positively associated with perception of the mentoring relationship, while for mentors, multiple regression highlighted the negative association of mentor internalizing problems with perceived mentoring relationship quality. These findings highlight the need for dyadic perspectives in future mentoring research.

1 | Introduction

Mentoring programs have become increasingly common for youth experiencing structural poverty rooted in racism and discrimination, which generates a broad range of chronic stressors and destabilizes family and community-level social supports. Specifically, low-income Black families living in disinvested communities are often faced with limited access to employment opportunities and affordable childcare or safety net programs to support financial stability (Haider 2021), resulting in caregivers experiencing both restricted availability and heightened mental and physical health problems (Conger and Donnellan 2007; Grant and McMahon 2005; Morrison Gutman et al. 2005; Sanchez et al. 2014). In an effort to bolster

existing social support networks and create new avenues for interpersonal relationships, mentoring programs pair youth with supportive, nonfamilial adult mentors, who may improve perceptions of and functioning in relationships across parents, peers, and other adults, as well as promote academic and psychological growth (Rhodes et al. 2000).

While mentoring programs are developed specifically to promote positive outcomes for youth, the dyadic nature of mentoring cannot be ignored. In recognition of the reciprocal nature of interpersonal relationships, the current study utilizes the framework of Lewin (1951) person-environment fit theory, which identifies behavior as a factor of the interaction between an individual and their physical/social environments, such that

individuals both shape and are shaped by their environments. There are multiple dimensions of this theory, one being person-person fit, which represents interpersonal relationships such as mentor and mentee and the dual influences individuals can have on each other (Jansen and Kristof-Brown 2006). While person-environment fit theory has been primarily utilized within adult contexts (e.g., Wang et al. 2021), this theory presents a key consideration of the ways in which individual strengths and challenges, everyday environmental factors, and the mentoring context may jointly shape social supports and mentoring outcomes. Further, this theory challenges underlying assumptions often inherent in youth mentoring programs that adult mentors are universally positive role models tasked with transforming the lives of youth. Rather, person-environment fit theory recognizes the individual contributions of both mentees and mentors within the context of overarching environmental influences (e.g., systemic racism, poverty). In consideration of the most immediate environmental influences, it is important to keep in mind the influence that family and community support can have on mentoring relationships, with caregivers often framed as an interfering or disruptive factor rather than a positive resource to the match by program staff and mentors (Basualdo-Delmonico and Spencer 2016). Centering the active role caregivers have in the mentoring process, recent research by Erdem et al. (2024) notes that every adult in a child's life can indirectly influence one another through their personal relationship with the child (Erdem et al. 2024). Thus, not only may a caregiver's relationship with their child contribute to the growth of the mentoring relationship, but the mentoring process may present benefits to well-being and functioning of mentors, youth, and their families.

1.1 | Youth Mentee Characteristics

Although the purpose of mentoring is often identified as providing youth with a close adult relationship, research has indicated that youth may vary in their ability to engage in this relationship based on their pre-existing adult social supports. It is well-established that children who are disconnected from their caregivers are more likely to develop lower quality relationships (i.e., teachers, peers, other intimate relationships; Allen et al. 2007), along with facing barriers such as negative self-worth and poor school competence (Grossman and Rhodes 2002). Considering the person-environment fit theory, youths' extant social supports and individual and environmental characteristics can influence their relationship styles and behaviors. For instance, Raposa et al. (2016) identified that youth with higher levels of environmental stress at home or at school experienced shorter matches, while both mentors and mentees reported lower relationship satisfaction when youth presented with poor academic performance or misconduct. On the contrary, when caregivers are involved and supportive of mentoring matches, even in the presence of heightened environmental stressors, youth may experience higher quality and longer-lasting matches, speaking to the profound positive impact caregivers may have on the mentoring process (Parnes et al. 2023). Therefore, it is essential to continue evaluating mentee social supports as well as explore avenues within the mentoring relationship for bolstering connections.

1.2 | Youth Mentee Outcomes

Youth in supportive mentoring relationships may develop across several domains, including emotional and behavioral outcomes with several meta-analyses indicating moderate effect sizes of mentoring (e.g., DuBois et al. 2011; Raposa et al. 2019). The mentoring relationship may also have the potential to promote improvements across other relationships, with prior research reporting the predictive value of the mentoring relationship on factors such as parental attachment, interpersonal relationships with other adults, and disclosure to adults (Renick Thomson and Zand 2010), as well as experiences of support (DeWit et al. 2016; Goldner and Mayseless 2009). Based on these findings, the mentoring relationship may serve as the vehicle through which mentees begin seeing the potential for other adult relationships at home and school to be positive experiences. Larose et al. (2010) reported that youth who shared a stronger working alliance with their mentors, for example, were more likely to participate in class and seek help from teachers compared to other mentored and non-mentored students.

Despite substantial evidence of positive mentoring outcomes for mentees, it is important to remember when considering person-person fit that not all mentoring relationships lead to improvements or even a strong mentor-mentee connection. Whether stemming from mentor or mentee factors or a combination, early relationship termination often has a detrimental impact on youth, including increased substance use, feelings of rejection or abandonment (Grossman and Rhodes 2002), and lower self-esteem (DuBois et al. 2011). Given potential benefits and harms of mentoring to mentees, it is essential to elucidate characteristics and outcomes for the other half of the relationship: the mentor.

1.3 | College Mentor Characteristics

Although youth mentoring has traditionally been provided by adult volunteers with stable careers, programs have been increasingly recruiting college students to fill this role, most recently an estimated 13% of youth mentoring volunteers (Garringer et al. 2017). Mentors are generally assumed to be competent, caring adults equipped to serve as positive role models and develop supportive relationships with their mentees (Spencer 2012). However, the transition to college marks a vulnerable time for many young adults that can lead to difficulties maintaining their social support network, a factor which plays a key role in academic and emotional adjustment (Albright and Hurd 2017; Bernier et al. 2004; Hefner and Eisenberg 2009). At the same time college students may experience more environmental challenges such as frequent schedule changes and the demands of balancing their coursework with part-time employment and participation in student organizations (Grossman et al. 2012; Rhodes and DuBois 2006). For college students who report insecure parental attachment, this transition may generate even more adjustment issues due to distal effects on the development of other relationships (Mattanah et al. 2011).

In consideration of college mentor individual characteristics, untreated mental health challenges are also prominent within this population, as the number of students meeting criteria for one or more mental health problems has doubled since 2013,

while mental health service utilization has not proportionally increased (Lipson et al. 2022). Although few studies have examined mentor mental health specifically, Leyton-Armakan et al. (2012) found mentor depressive symptoms negatively predicted mentee competence, while mentor anxiety symptoms positively predicted mentee competence. Lindquist and Raposa (2020) also recently linked depressive symptoms to mentors' negative perceptions of the mentoring relationship and relational avoidance. Given the possible combined impact of college students' environmental circumstances and personal psychological well-being, it is pertinent to consider college student mentors' relational capacities and need for ongoing support within mentoring programs (Spencer 2012).

1.4 | College Mentor Outcomes

While mentor individual and environmental characteristics may pose barriers to forming a strong mentoring relationship, it is also possible that, similar to mentees, involvement in mentoring may forge a path for improved social supports and psychosocial outcomes. Several studies have suggested participation in mentoring programs supports self-reported improvements in college student mentors' abilities to connect with others and may have psychosocial benefits as well, such as increased self-esteem (Banks 2010; Wasburn-Moses et al. 2014; Weiler et al. 2013; Weiler et al. 2014). Further, Faith et al. (2011) found that having a supportive mentoring relationship was associated with mentors reporting less avoidant attachment tendencies, suggesting the potential for broader interpersonal growth. However, little attention has been paid to internalizing (e.g., anxiety, depression) outcomes of college student mentors post-mentoring despite the known elevated rates of psychosocial distress in this population (Lipson et al. 2022) and possible benefits of bolstering their social networks.

In consideration of person-environment fit theory, mentoring programs aimed at improving social and psychological outcomes for mentees may also provide a key opportunity to meet individual mentor needs in a similar way. While studies show some promising mentor outcomes, however, college mentors remain understudied, in contrast to the larger body of research on youth mentee outcomes, with a recent review by Anderson and DuBois (2022) indicating the extant mentor literature is limited by several factors, including sample composition, study design, analytic approach, and assessed outcomes. This prominent gap in the research warrants investigation to help bridge the field's understanding of mentoring from the perspective of both the mentee and mentor.

1.5 | Present Study

Although youth mentoring relationships have been studied extensively, few studies have investigated predictors and outcomes for youth mentees and college mentors in conjunction. The purpose of this study is to examine both college mentors and youth mentees through a person-environment lens in recognition that both youth mentees and college mentors may enter the relationship with their own personal set of strengths,

challenges, and environmental influences. To accomplish this, the current study utilized the same assessments for both college mentors and youth mentees to identify patterns of interpersonal functioning across the mentoring relationship.

It was hypothesized for mentees that there would be reciprocal associations over time between external social supports and experiences within the mentoring relationship, such that stronger adult social supports at baseline would predict higher mentoring relationship quality at 3 months and higher mentoring relationship quality would predict stronger social supports at subsequent timepoints. For mentors, it was hypothesized that this same pattern would emerge and that higher reported internalizing problems would be associated with more negative perceptions of the mentoring relationship, while improvements to the mentoring relationship would predict subsequent improvements to internalizing symptoms. Lastly, this study sought to explore the following exploratory research question to better understand dyadic effects: In consideration of possible interdependence within the mentoring relationship, what patterns of influence exist between mentors and mentees on reports of mentoring relationship quality and other social supports?

2 | Materials and Methods

2.1 | Participants

Mentees participating in this study were 80 youth (46.3% male, 53.8% female) at three public elementary schools between grades 2 and 8 (M age = 10.61) who were intervention recipients of a mentoring program, known as the Cities Mentor Project, between fall of 2016 and fall of 2020. A total of 91.3% of the youth identified as Black or African American, while the remaining youth described themselves as Biracial or Multiracial (6.3%), Hispanic or Latino (1.3%), and White (1.3%). Mentees attended schools with student bodies classified as 95% low-income, with student attainment below the national average and weak or very weak safety ratings for the surrounding areas (Chicago Public Schools 2019).

Mentors participating in this study were 80 undergraduate students (21.3% male, 76.3% female, 2.5% other) enrolled at one private university who were between ages 17 and 27 (M age = 19.83) who took part as mentors in the mentoring intervention during the same time period. A total of 7.5% of the mentors identified as Black or African American, 52.5% identified as White, 20% identified as Hispanic or Latino, 7.5% identified as Asian American, 2.5% identified as Middle Eastern, and 10% identified as Biracial or Multiracial.

2.2 | Procedure

Participants were recruited for the larger study through promotional materials and information sessions at their respective schools with parent consent and youth assent required for the elementary school students and self-consent for the college students. This study did not utilize any inclusion or exclusion

criteria beyond requiring college students to pass a background check. To be retained in the study and randomized into a control or intervention group, participants completed a baseline survey administered in-person for youth and both in-person and online for college students, for which both youth and college participants were compensated. Participants were then randomized into the year-long mentoring intervention or a waitlist control. After either a spot opening or the following academic year, participants in the waitlist control group were transitioned to the intervention and paired with a mentor or mentee. The current study included mentees and mentors who were matched within the first 3 months of the intervention period and who completed surveys beyond baseline, which were administered at three additional time points across the academic year.

The Cities Mentor Project is an after-school program at each of three partner elementary schools that offers 1-to-1.5-h weekly mentoring sessions for a full academic year. Mentors and mentees are matched by a Program Director based on initial interviews (e.g., prior experiences/skills, shared interests, strengths and needs, youth preferences) and pairs are placed with three to four other mentors and mentees assigned to a graduate-level clinical supervisor. This structure allows mentors and mentees to develop one-on-one relationships while engaging in group activities, which follow a modified version of Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS; DeRosa et al. 2006), a curriculum that supports relationship and skill building. Mentors and mentees are also expected to have contact outside of mentoring sessions at least once a week. Mentors enroll in an experiential learning course at their university for ongoing training and meet with their supervisor 1.5 to 2 h per week.

2.3 | Measures

Internalizing symptoms: Mentors completed the Internalizing Problems composite of the Behavior Assessment System for Children: Self-Report of Personality—College Form, which demonstrates strong psychometric properties, with high internal consistency, test-retest reliability, construct validity, and criterion-related validity (BASC-2 and BASC-3; Reynolds and Kamphaus 2004; Reynolds et al. (2015)). Internalizing Problems is comprised of the following scales: Atypicality, Locus of Control, Social Stress, Anxiety, Depression, Sense of Inadequacy, and Somatization, with higher scores indicating greater internalizing problems. The measure uses a 4-point Likert scale response set with options of *Never* (1), *Sometimes* (2), *Often* (3), and *Almost Always* (4). As both the BASC-2 ($\alpha = 0.85$) and BASC-3 ($\alpha = 0.89$) were used, proportion scores (raw score divided by total possible raw score) were calculated for standardization.

Social supports: Two measures were used to assess quality of mentor and mentee experiences of social support with other adults in their lives. The Very Important Adults (VIA) measure was developed for the Cities Mentor Project based on existing instruments (e.g., see Hamilton et al. 2016). More specifically, the VIA asks respondents to nominate up to two very important adults, who can be related (e.g., mom, uncle) or unrelated (e.g.,

coach, pastor) to them. A “very important” adult is defined as someone who is 18 years old or older and is someone you look up to. Respondents completed a 3-point (mentees) or 5-point (mentors) Likert scale response set with options of *Never* (1), *Hardly Ever* (2), *Sometimes* (3), *Often* (4), and *Very Often* (5). The response set asks, “How much does this person do each of the following things?” with nine (mentees) or 10 (mentors) items such as, “Says or does something that helps me with my feelings,” “Gives me advice or information about how to do something,” and “Helps to make sure I have the things I need to be successful.” Total scores at baseline, 3 months, 6 months, and 9 months were calculated using the mean of all items (mentor $\alpha = 0.87$, mentee $\alpha = 0.89$), with higher scores indicating more supportive interpersonal experiences.

A new measure designed for the study, Places I Spend Time (PIST; Duffy et al. 2020), provides information on experiences of social support at home (PISTH) and at school (PISTS). Participants answer 22 (mentee) or 30 (mentor) questions about “What kinds of things happen [at this place] and how much do they happen?” using a 3-point Likert scale including *Never* (1), *Sometimes* (2), and *A Lot* (3). Sample items include “Someone helps me when things go wrong,” “I get help solving a problem,” and “Someone shows me that I am important.” Total scores for home and school at baseline, 3 months, 6 months, and 9 months were calculated using the mean of all items (mentor home $\alpha = 0.98$, mentor school $\alpha = 0.98$, mentee home $\alpha = 0.94$, mentee school $\alpha = 0.95$), with higher scores indicating more supportive interpersonal experiences.

Mentoring relationship quality: To assess perceptions of mentoring relationship quality, this study used shortened versions of the Match Characteristics Questionnaire (MCQ; Harris and Nakkula 2003a) for mentors and Youth Mentoring Survey (Harris and Nakkula 2003b) for mentees. This 22-item measure for mentors and 16-item measure for mentees uses a 6-point Likert scale response set ranging from 1 (*Never*) to 6 (*Always*). Example items for both mentors and mentees include “I feel frustrated or disappointed with how the match is going” (reverse coded), “I can trust what my mentee/or tells me,” and “I feel like my mentee/or and I are good friends (buddies, pals).” Additional mentee items include overlapping items from the VIA, such as “My mentor helps to make sure I have the things I need to be successful.” Additional mentor items include, “My mentee does things to push me away” (reverse coded) and “My mentee makes me aware of his/her problems or concerns.” Total scores at 3 months, 6 months, and 9 months were calculated using the mean of all items (mentor $\alpha = 0.92$, mentee $\alpha = 0.88$), with higher scores indicating more positive perceptions of the match.

2.4 | Data Analysis

In preparation for analyses, the missing values procedure in SPSS (IBM Corp. Released (2020)) was used to assess patterns of missing data in the data sets. Both mentor and mentee data sets exhibited an increasing percentage of missing data with time, with mentors displaying an overall higher level of missingness (see Table 1). The Little’s Missing Completely at Random (MCAR; Little 1988) test was conducted to better understand

the nature of these patterns and to establish the usability of missing data techniques. Results of this test for mentees (χ^2 (585, $N=80$) = 551.437, $p=0.837$) and mentors (χ^2 (526, $N=80$) = 478.907, $p=0.930$) were insignificant, indicating the null hypothesis (i.e., the data are MCAR) could not be rejected for either data set. Based on this finding, full information maximum likelihood (FIML) was used for subsequent analyses, a missing data procedure commonly implemented in structural equation modeling (SEM) and general linear models, which estimates parameters and standard errors in one step (Graham 2009) and is available as a feature of MPlus version 8 (Muthén and Muthén 1998–2017).

The data were then evaluated for normality using both skewness and kurtosis values as well as visualization through histograms in MPlus. All measures within the mentee and mentor datasets exhibited non-normal distributions; therefore, bootstrapping was used to account for these distributions. Bootstrapping is a statistical procedure that resamples from the current sample many times with the assumption that the sample is representative of the population and can be used in conjunction with FIML for non-normal data (Enders 2001). For the current study, 5000 replications were used to improve model estimation (Banjanovic and Osborne 2016).

Different analytic approaches were applied for mentor and mentee datasets to investigate the hypothesis that the mentoring relationship and external social supports (as well as internalizing problems for mentors) would show reciprocal associations. Cross-lagged panel models (CLPMs) are a type of SEM commonly used for longitudinal data sets to assess directional influences between variables of interest over time (Kearney 2017). CLPMs typically require a large sample size to identify significant effects but are useful for assessing the hypothesized reciprocal patterns amongst variables (MacCallum and Austin 2000). Four CLPM models were tested for the mentee data set, while the mentor data set lacked sufficient data at later time points to generate an identifiable model. Alternatively, multiple regression was used for mentors assessing a unidirectional pathway of social support and internalizing symptoms as indicators of mentoring relationship quality, and subsequently mentoring relationship quality as a predictor of the other variables. Lastly, to address this study's exploratory research question on interdependence, the actor-partner interdependence model (APIM; Fitzpatrick et al. 2016; Peugh et al. 2013) was used to assess individual (actor) and dyadic (partner) effects.

3 | Results

3.1 | Youth Mentee Hypothesis

Four models for mentees were identified using CLPMs with FIML in MPlus to estimate the reciprocal relationship between perceived mentoring and external social supports across all four time points (baseline, 3 months, 6 months, and 9 months). Three models contained single measures (PISTS, PISTH, or VIA), while the fourth combined these measures into a latent variable representing overall social supports beyond mentoring as each of the measures are conceptually related with an

TABLE 1 | Descriptive statistics and missing data patterns.

Measure	N (% Missing) at T1	N (% Missing) at T2	N (% Missing) at T3	N (% Missing) at T4	Possible range	M (SD) at T1	M (SD) at T2	M (SD) at T3	M (SD) at T4
Mentor MCQ	—	51 (36.3%)	47 (41.3%)	21 (73.8%)	1–5	—	3.977 (0.875)	4.065 (0.818)	4.169 (0.633)
Mentee YMS	—	57 (28.7%)	43 (46.3%)	46 (42.5%)	1–3	—	2.586 (0.422)	2.623 (0.326)	2.638 (0.374)
Mentor VIA	8 (90%)	5 (93.8%)	36 (55%)	3 (96.3%)	1–5	4.590 (0.511)	4.556 (0.370)	4.312 (0.622)	4.243 (0.846)
Mentee VIA	58 (27.5%)	66 (17.5%)	44 (45%)	43 (46.3%)	1–3	2.585 (0.465)	2.580 (0.519)	2.712 (0.334)	2.663 (0.385)
Mentor PISTH	57 (28.7%)	44 (45%)	46 (42.5%)	27 (66.3%)	1–3	2.390 (0.612)	2.492 (0.585)	2.553 (0.500)	2.387 (0.576)
Mentee PISTH	63 (21.3%)	73 (8.8%)	52 (35%)	47 (41.3%)	1–3	2.445 (0.423)	2.440 (0.446)	2.524 (0.389)	2.456 (0.371)
Mentor PISTS	56 (30%)	53 (33.8%)	51 (36.3%)	27 (66.3%)	1–3	2.260 (0.564)	2.240 (0.562)	2.278 (0.562)	2.180 (0.550)
Mentee PISTS	62 (22.5%)	73 (8.8%)	52 (35%)	47 (41.3%)	1–3	2.465 (0.414)	2.425 (0.415)	2.489 (0.458)	2.458 (0.415)
Mentor INZ	58 (27.5%)	41 (48.8%)	48 (40%)	20 (75%)	0–1	0.203 (0.126)	0.215 (0.124)	0.202 (0.149)	0.207 (0.121)

Abbreviations: INZ = Behavioral Assessment System for Children: Internalizing Problems; MCQ = Match Characteristics Questionnaire, PISTH = Places I Spend Time: Home, PISTS = Places I Spend Time: School, VIA = Very Important Adults, YMS = Youth Mentoring Survey.

emphasis on current interpersonal experiences with adults in their life. All time points of the latent variable showed strong factor loadings across each measure ($\beta \geq 0.607$), while also capturing the full sample.

Reduced versions of the four proposed models revealed differences in social support by school and in the mentoring relationship by gender (i.e., mentees who identified as male perceived the mentoring relationship quality as lower at 3 months). These two covariates were subsequently added to the relevant arms (i.e., social support vs. mentoring relationship) of the proposed models, remaining significant. Each of the models (latent variable, VIA, PISTH, PISTS) was then assessed for model fit as reported in Table 2. Model fit was determined based on the following standard criteria: Model Chi Square (χ^2) p -value > 0.05 , Comparative Fit Index (CFI) ≥ 0.90 , Root Mean Square Error of Approximation (RMSEA) < 0.08 , and Standardized Root Mean Square Residual (SRMR) < 0.08 (Kline 2005).

The latent variable model, while attaining a larger sample size, shows weaker model fit, with the criteria falling just below typical cutoffs and suggesting results should be interpreted with particular caution (see Table 2). Cross-lagged paths within the latent variable model indicate a significant positive association between social support at baseline and the mentoring relationship at 3 months ($\beta = 0.455$, $SE = 0.197$, standardized coefficient [β^*] = 0.414, $p < 0.01$). Following the latent variable model, each indicator was assessed independently, generating improved model fit but reduced sample size. The model assessing associations between the mentoring relationship and experiences with a nominated very important adult (VIA) showed no significant cross-lagged paths. For PISTH, baseline at-home social support was associated with a nonsignificant positive trend for perception of the mentoring relationship at 3 months ($\beta = 0.323$, $SE = 0.177$, $\beta^* = 0.320$, $p = 0.053$). Findings for the PISTS model included a significant positive path from at-school social support at baseline to mentoring relationship quality at 3 months ($\beta = 0.393$, $SE = 0.142$, $\beta^* = 0.385$, $p < 0.01$). Across the remaining time points included within the CLPM for each of the tested models, no significant pathways were identified, possibly due to reductions in sample size.

3.2 | College Mentor Hypothesis

Due to sample size limitations in the mentor data, multiple regression was conducted in MPlus using variables and time points with the least missing data, with a model of social support (PISTS, PISTH) and internalizing problems at baseline as predictors of the mentoring relationship at 3 months. Results indicate higher levels of mentor internalizing problems at

baseline are associated with more negative perceptions of the mentoring relationship at 3 months ($\beta = -2.116$, $SE = 1.108$, $\beta^* = -0.302$, $p < 0.05$). Neither social support measures nor relevant covariates significantly contributed to this model. Subsequent models assessing mentoring relationship quality at 3 months as a predictor of the other study variables at 6 months did not generate adequate sample size ($N < 20$) and power due to patterns of missingness.

3.3 | Dyadic Research Question

To assess this study's exploratory research question, a subset of the mentor and mentee data was evaluated using the APIM, with 50 matched mentor and mentee pairs who provided ratings of the mentoring relationship for at least one time point. The APIM was selected because of its ability to identify both individual (actor effects) and dyadic (partner effects) pathways for matched pairs theorized to have a potential impact on each other, such as mentors and mentees. Two models were evaluated based on the available data: (1) The effect of social support at home (PISTH) at baseline on perceptions of mentoring relationship quality at 3 months and (2) The effect of mentoring relationship quality at 3 months on social support at home (PISTH) between six and 9 months.

APIM Model 1 demonstrated acceptable model fit based on CFI (1.00), RMSEA (0.000), and SRMR (0.000), but the Model χ^2 p -value was significant ($p < 0.001$), suggesting potential issues with model fit and as such should be interpreted with caution. As expected, mentees continued to show significant actor effects such that at-home social support at baseline was positively associated with perceptions of the mentoring relationship at 3 months ($\beta = 0.112$, $SE = 0.050$, $\beta^* = 0.355$, $p < 0.01$). No significant mentor actor effects or significant partner effects were identified for this model.

APIM Model 2 also demonstrated acceptable model fit based on CFI (1.00), RMSEA (0.000), and SRMR (0.003), but the Model χ^2 p -value was again significant ($p < 0.001$), suggesting potential issues with model fit and the need to interpret results with caution. A significant actor effect was identified such that higher mentee perceptions of the mentoring relationship at 3 months were predictive of higher social support at the mentee's home between six and 9 months ($\beta = 1.720$, $SE = 0.625$, $\beta^* = 0.571$, $p < 0.05$). A significant partner effect emerged such that higher mentor ratings of the mentoring relationship at 3 months were associated with lower social support for mentees between six and 9 months ($\beta = -1.644$, $SE = 0.779$, $\beta^* = -0.534$, $p < 0.05$). Mentor and mentee ratings of the mentoring

TABLE 2 | Measurements of CLPMs Goodness of Fit.

Variable	<i>N</i>	χ^2	CFI	RMSEA	SRMR
Social Support	80	225.079, $p < 0.05$	0.808	0.105	0.156
VIA	58	16.581, $p = 0.483$	1.000	0.000	0.117
PISTH	63	24.138, $p = 0.116$	0.914	0.082	0.121
PISTS	62	20.528, $p = 0.248$	0.970	0.058	0.124

relationship at 3 months were also positively associated with each other ($\beta = 0.008$, $SE = 0.004$, $\beta^* = 0.500$, $p < 0.01$), while mentor and mentee social support at home between six and 9 months were not significantly related.

4 | Discussion

As hypothesized, results from the mentee cross-lagged panel models (CLPMs) indicated stronger social supports at baseline positively predicted perceptions of the mentoring relationship at 3 months, although results should be interpreted with caution due to small sample size and missingness of data. These findings are consistent with prior research indicating mentees with lower quality interpersonal relationships and social supports may have more difficulty engaging with their mentor (Schwartz et al. 2011; Spencer 2007; Zilberstein and Spencer 2014). From a person-environment perspective, youths' experiences within their home and school environments may shape how they interpret and respond to interpersonal interactions with their mentors. As external social support and the mentoring relationship were no longer significantly associated at later time points, it is possible that the addition of the mentoring environment may shift mentees' experiences and beliefs such that prior experiences in relationships became less relevant as they built trust with their mentor. Alternatively, the lack of significant associations at later time points may be a product of shrinking sample size rather than true shifts in the relation between external social support and the mentoring relationship. Findings from this study did not support the hypothesis that mentoring relationship quality would predict improvements across social supports at home and school, suggesting mentees did not reach the threshold of significantly altering their experiences within other environments. As data was only gathered through 9 months, however, longer term social support outcomes could not be captured.

In terms of college mentor findings, the mentoring relationship as a predictor of mentor external social supports and internalizing problems could not ultimately be assessed in this study, warranting investigation in future studies. While limited results were obtained for mentors due to missing data, partial support was obtained for the hypothesis that mentor social support and internalizing symptoms would be associated with perceptions of the mentoring relationship. Findings from multiple regression indicated that mentors with higher internalizing problems at baseline perceived the mentoring relationship more negatively at 3 months, similar to Lindquist and Raposa (2020) findings. Although considerably more mentor research is essential, it is important to be reminded of the challenges mentors may enter the mentoring relationship with, presenting an opportunity for mentoring programs to better support their needs. From a person-environment fit perspective, fostering a positive mentoring environment at the organizational level for not only mentees, but also mentors, may be crucial to ensure individual needs are adequately addressed (Wu et al. 2017; Chan and Ho 2008).

In assessing dyadic effects, a significant actor effect indicated some support for the hypothesis that mentees who rate the mentoring relationship more positively then report higher

social support at later time points. However, given the unidirectionality of the APIM, these findings do not account for the impact of social support on the mentoring relationship and may therefore overestimate this association as suggested by results of the CLPM. A significant partner effect also emerged such that if mentors rated the mentoring relationship more positively at 3 months, mentees later reported lower quality social supports at home. This finding could suggest that mentees who are able to build a close relationship with their mentor then have a supportive environment to compare their other interpersonal contexts to more critically. However, these results showed some inconsistencies in comparison to the identified actor effect as mentee and mentor ratings of the mentor relationship were significantly associated, suggesting the actor and partner effects should mirror rather than contradict each other. For this reason, further exploration will be needed to better understand possible interconnections between mentee and mentor reports.

4.1 | Strengths and Limitations

The current study has some significant strengths in its utilization of longitudinal data across four time points for both mentees and mentors. Few studies to date have evaluated intervention effects on college mentors, with the majority of mentor data remaining centered on outcomes most pertinent to mentees (e.g., better understanding their mentee; Hughes and Dykstra 2008). Unlike previous research, this study considers potential strengths and vulnerabilities both mentees and mentors may bring into the mentoring relationship from a person-environment lens. To this end, the current study shows an additional strength in evaluating two populations facing higher levels of individual and environmental challenges: (1) Low-income Black youth whose caregivers may be less available and faced heightened stressors due to the effects of poverty and systemic oppression (Conger and Donnellan 2007; Grant and McMahon 2005; Morrison Gutman et al. 2005; Sanchez et al. 2014), and (2) A diverse pool of undergraduate students transitioning into adulthood with the psychosocial stressors that often accompany adjustment to college life (Albright and Hurd 2017; Bernier et al. 2004; Blanco et al. 2008; Hefner and Eisenberg 2009; Li et al. 2014; Mistler et al. 2013). While the results of this study are not generalizable to other populations (e.g., public rather than private university students, rural rather than urban setting), the mentors and mentees in this study both represent understudied and vulnerable groups. Mentors and mentees were also randomized into rather than recruited for the intervention, increasing the potential for a broader range of experience and interests; however, it should be noted mentor-mentee pairs were not randomly assigned and therefore matching may have impacted observed outcomes. Despite having notable strengths, several limitations created barriers to properly evaluating the stated hypotheses and research question and these limitations warrant further discussion.

4.1.1 | Sample Size and Missing Data

Given the scale of the intervention, a sample size of only 80 youth mentees and college mentors was attained after 4 years, with no control group included in the current study. While the

small sample size was bolstered by the inclusion of multiple time points of data, the CLPM is typically recommended to include a larger sample size for adequate statistical power (MacCallum and Austin 2000). While there is no set rule for minimum sample size, the majority of studies attain a sample size of at least 100 (MacCallum and Austin 2000) and a number of researchers have suggested a sample size of at least 200 (Wolf et al. 2013). With the current study generally displaying at least 20% missing data across time points, the small sample size attained for this study was problematic and particularly so for mentors, suggesting the need for improved data collection strategies amongst college students participating in such interventions. As previously discussed, college students face a unique constellation of stressors (e.g., schedule demands, major life transition, psychosocial difficulties) to consider when planning and preparing for data collection with this population.

4.1.2 | Measures

While the selected measures for the current study showed sufficient reliability, one measure (PISTH/PISTS) has not been evaluated across other settings and all measures were self-report, introducing several opportunities for bias. Certain relevant covariates were also excluded from analyses as they were either not collected (e.g., socioeconomic status) or inconsistently collected (e.g., dosage data). Therefore, this study was unable to evaluate ways in which the intervention beyond the mentoring relationship may have contributed to the other variables of interest. Other mentor and mentee personality characteristics that may have impacted perceptions of relationships were also not available as covariates for the tested models. Additionally, the current study may have benefited from utilizing a mixed methods approach, providing further context to our findings via qualitative data, which has been utilized effectively across several studies of mentors (e.g., Banks 2010; Spencer 2007; Wasburn-Moses et al. 2014; Weiler et al. 2013; Weiler et al. 2014).

4.1.3 | CLPM

In recent years, a number of researchers have begun to question the validity of the traditional CLPM in its potential to overestimate or misrepresent relationships among study variables, although the CLPM continues to be widely used across fields. More specifically, Hamaker et al. (2015) have proposed replacing the CLPM with the RI-CLPM, which separates between-person and within-person effects to better distinguish stable, trait-like individual differences from causal influences. While the CLPM and RI-CLPM may produce similar results, several recently published studies comparing the two techniques have found distinct differences that further support the argument that the RI-CLPM provides a more nuanced interpretation of the data (Etherson et al. 2022; Yang et al. 2021; Yirmiya et al. 2021). The RI-CLPM was attempted in the current study, but each RI-CLPM failed to converge and therefore no results were available for interpretation. Accordingly, only the CLPM could be performed and interpreted for the current study, and the limitations of this analysis should thus be noted in addition to the other known barriers to interpretation (e.g., small sample size, missing data).

5 | Conclusion

The current study established the importance of viewing both mentees and mentors as intervention recipients with relevant individual characteristics and environmental experiences, while assessing individual and dyadic effects. Several dyadic analyses, such as the APIM, have been utilized across the social sciences but have had limited applications within the field of mentoring (Fitzpatrick et al. 2016). With dyadic analyses in mind, future studies should select measures that can be administered to both mentors and mentees to assess actor and partner effects. As very few studies have been conducted with mentors themselves, an important next step for the field is to obtain a clearer understanding of both halves of the mentoring dyad, including factors each person brings into the relationship and outcomes associated with the relationship. Specifically, theories such as person-environment fit theory are understudied within youth mentoring and may benefit from further application in recognition of the various personal and environmental factors that influence and are influenced by college mentors and youth mentees. It is particularly important to recognize the relationships children have within their developmental environments, perhaps expanding the notion of the mentoring dyad to include the ways caregiver relationships are inherently connected to the growth of the mentoring relationship (Erdem et al. 2024). Specifically, this requires the mentoring field to continue challenging biases that place blame on caregivers for unsuccessful matches, and to understand the ways caregivers, mentees, and mentors may all contribute to and derive benefit from mentoring.

While this study provided a limited glimpse into the mentor experience, consistent with prior research, results suggested that mentors' own mental health challenges may interfere with their feelings of connectedness within the mentoring relationship. It is well-established that the college student population faces a myriad of mental health challenges with rates rising over time (Lipson et al. 2022). Accordingly, increased campus mental health programming and outreach may be needed to support vulnerable students. With universities, whether public or private, being well-situated to provide both accessible mental health services and service-learning opportunities for students, mentoring programs present an ideal outlet to integrate these offerings and offer explicit, targeted support to not only youth mentees, but adult mentors as well. This notion challenges the traditional structure of mentoring programs, which often presume adults to be more knowledgeable or capable than youth, compounded by socioeconomic and racial biases (Albright et al. 2017).

In translating values to practice, it is vital for mentoring programs to treat mentors as intervention recipients who will need extensive training and support. Mentoring programs affiliated with universities may have the advantage of being able to facilitate a mentoring course that provides not only initial trainings, but also opportunities to build on these trainings over the course of the academic year. In addition to formalized trainings, readings, and resources within mentoring courses, from a person-environment perspective it is equally important for program supervisors to develop warm and responsive bonds with college mentors to model healthy relationships, reinforce the learning process, and provide space for individual mentor

needs. The Cities Mentor Project utilizes tiered supports for mentors to build connections beyond the mentoring relationship with their peers and staff. A similar model, while requiring significant staffing demands, may be beneficial to other programs to ensure appropriate safety nets are in place to better identify mentor needs as well as foster a positive environment to shape ongoing mentor development.

Although mentees are traditionally the primary focus of mentoring programs, programs often intervene when youth are perceived to be at a disadvantage without addressing the factors that lead to those disadvantages. Mentoring may be able to structure positive environments for youth, but interventions must also engage in further efforts to challenge the systems that originally lead to compromised relationships, such as poverty generated from inequitable access to resources and systemic oppression extending across generations, which has a disproportionate impact on families of color resulting from racism and discrimination (National Center for Children in Poverty 2019). With an understanding of root causes, it is important that future mentoring programs seek not only to bolster mentees' connections with their mentors, but also to disrupt the systems that present such significant barriers to caregivers and natural supports. Such changes to these systems would additionally carry implications for mentoring program benefits, as person-environment fit theory highlights the value of mentors and mentees having strong support from their schools and community to promote longevity of the mentor-mentee relationship (Ballout 2007). While these systems appear daunting, mentoring programs can utilize their sphere of influence to intervene at the family and community level, which may in turn strengthen both immediate environmental contexts and mentoring program outcomes. Ultimately, while mentors and mentees may be able to mutually benefit from the mentoring relationship, programs have a larger responsibility in extending their reach past the surface to enact multilevel change.

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Ethics Statement

This study was approved by the DePaul University Institutional Review Board.

Consent

Informed consent for research was obtained for all study participants; assent was additionally obtained for youth under age 18.

Conflicts of Interest

The authors have no conflicts of interest.

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Peer Review

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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