

THESIS

THE ASSOCIATION BETWEEN OBSERVED MENTOR-MENTEE RELATIONSHIP
QUALITY AND SELF-REPORTED MENTEE AND PARENT-REPORTED EXTERNALIZING
BEHAVIOR

Submitted by

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ABSTRACT

THE ASSOCIATION BETWEEN OBSERVED MENTOR-MENTEE RELATIONSHIP QUALITY AND SELF-REPORTED MENTEE AND PARENT-REPORTED EXTERNALIZING BEHAVIOR

Youth mentoring programs can have a significant impact in the lives of at-risk youth. A relationship between youth and an adult can act as a powerful protective factor for youth at risk of developing externalizing behaviors (conduct problems and delinquency). Within the mentor dyad, the quality of the mentoring relationship is theorized to be the key mechanism of change, and there is empirical support that the quality of the mentoring relationship is associated with positive youth outcomes. Specifically, a high-quality mentoring relationship is related to a reduction in externalizing behaviors. Historically, almost all assessments of mentoring relationship quality are self-reports, thus to build upon the existing literature, this thesis incorporates the novel component of observed mentor-mentee relational quality in relation to externalizing behavior within the context of Campus Connections (CC), a time-limited and structured therapeutic mentoring program.

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Introduction

A positive relationship with a caring adult is a powerful protective factor for at-risk youth (Sieving et al., 2017). Mentoring programs provide youth with a caring adult mentor. Empirical evidence suggests that mentoring programs are effective in promoting positive youth development across a range of outcomes (DuBois, Holloway, Valentine, & Cooper, 2002). These outcomes include improving youths' academic performance and scholastic efficacy (Bayer, Grossman & DuBois, 2015), mental health (Herrera, Dubois, & Grossman, 2013), social competence (Goldner & Mayseless, 2009; Renick Thomson & Zand, 2010), and reducing their substance use and engagement in problem behaviors (Weiler et al., 2015).

The quality of the mentoring relationship has been theorized to be the key mechanism of change in mentoring programs (Rhodes, 2002). Empirical evidence supports the theorized role of the mentoring relationship quality in relation to positive youth outcomes (e.g. Bayer et al., 2015; Goldner & Mayseless, 2009; Grossman & Rhodes, 2002). Relationship quality dimensions identified in the literature as the most important for positive youth outcomes include authenticity, closeness (Bayer et al., 2015; Goldner & Mayseless, 2009), empathy, companionship (Kelley & Lee, 2018), collaboration, and sage mentoring (Keller & Pryce, 2012; Spencer, 2006). These dimensions have been found to be unique and important components of a high-quality mentoring relationship in relation to outcomes.

The majority of prior research that examined the relationship between mentoring relationship quality and youth outcomes relies heavily on self-reports of mentoring relationship quality (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011; Raposa et al., 2019). Relying solely on self-report of mentoring relationship quality is limited in that it provides little insight into the actual process and dimensions of the relationship quality. In developing this more robust understanding, using observational methods to measure mentor relationship quality is valuable.

The purpose of this study is to contribute to the literature by examining the relationship between observed mentoring relationship quality dimensions and self-reported youth externalizing behavior.

Externalizing Behaviors in At-Risk Youth

The transition to adolescence is characterized by significant biological and psychosocial changes (Gerard & Buehler, 2004), which increase youths' risk for emotional and behavioral problems. Environmental factors, such as insufficient parental supervision, greater parental punishments, parental incarceration, attendance at a high crime school, and having a lower family income, are associated with an increased likelihood of developing externalizing behaviors in adolescence (Farrington, Ttofi, & Piquero, 2016; Murray & Farrington, 2010). In fact, research conducted by Gerard and Buehler (2004) found these cumulative risk factors predicted 8% of the variance in externalizing behaviors in youth. The presence of problem behaviors during adolescence has been linked to adverse functioning in early adulthood (Gerard & Buehler, 2004), as status violations typically increases over the course of adolescent development and approximately 36% of youth follow a deviant developmental trajectory (Bongers, Koot, Van Der Ende, & Verhulst, 2004).

Previous literature suggests that a strong relationship between youth and an adult can act as a powerful protective factor for youth at risk of developing externalizing symptoms (DuBois et al., 2011; Raposa et al., 2019). Youth who have experienced adverse situations as children were less likely to engage in delinquent acts if they reported having a protective adult relationship (Brown & Shillington, 2017). In fact, youth who face adverse childhood experiences were 13% less likely to engage in delinquent behavior and substance use if they were able to identify one or more protective adult relationships (Brown & Shilling, 2017). Specifically, a mentor relationship

– a bond between a youth and a nonparental adult – may provide such an opportunity (Kelley & Lee, 2018).

Youth mentoring effects on externalizing behavior. Studies investigating the effect of mentoring on mentees’ externalizing symptoms have shown mixed results. A minority of evaluations indicated no benefit (Herrera et al., 2013), whereas the majority found significant improvements on problem behaviors (DeWit, DuBois, Erdem, Larose, & Lipman, 2016; Keating, Tomishima, Foster, & Alessandri, 2002; Rhodes, Reddy, & Grossman, 2005; Tolan, Henry, Schoeny, Brass, 2008; Tolan, Henry, Schoeny, Lovegrove, & Nichols, 2013; Weiler et al., 2015). More specifically, previous mentoring research found that participation in a mentoring program promoted a reduction in conduct behaviors (Keating et al., 2002), lower hyperactivity-inattention problems, and an increase in prosocial behavior compared to never-mentored peers (DeWit et al., 2016). Meta-analyses support these findings and declare that youth mentoring programs have been found successful in reducing aggression, drug use, and increasing academic performance (Tolan et al., 2008; Tolan et al., 2013).

Other research has found that youth who participated in a time-limited mentoring program reported lower rates of problem behavior, lower acceptance of problem behavior, and increased independence from substance use compared to a matched sample of youth who did not participate in the program (Weiler et al., 2015). In addition to these findings, mentoring programs where the mentor-mentee relationship lasts longer than 12 months have significant impacts on substance use (Rhodes et al., 2005).

Rhodes’ model of youth mentoring. Rhodes (2002) proposed a theoretical model for hypothesizing the process by which mentoring produces positive outcomes for youth. Shown in Figure 1, the model posits that high-quality mentoring relationships, characterized by empathy, mutuality, and trust lead to gains in social-emotional (e.g., self-regulation), cognitive (e.g.,

decision-making), and identity (e.g., autonomy) development and these gains, in turn, promote positive youth outcomes (e.g., reduced problem behaviors.).

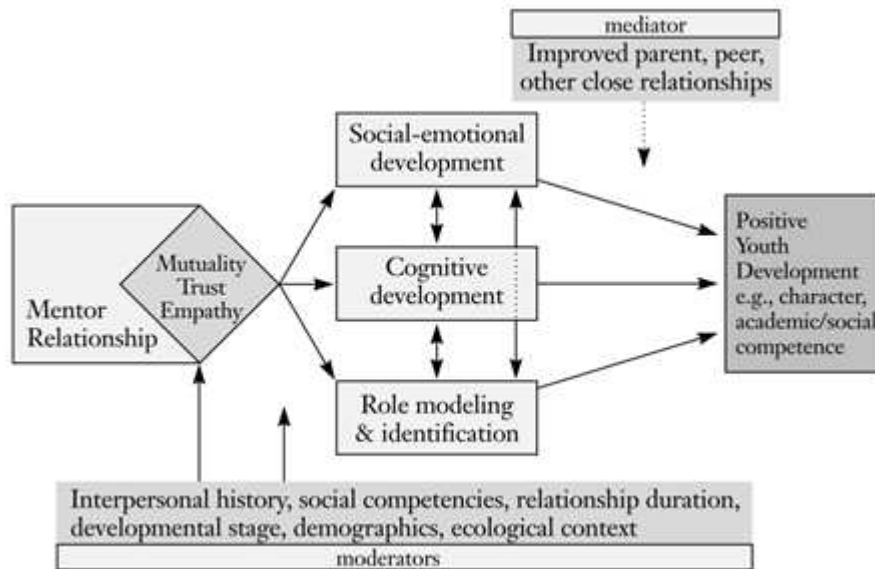


Figure 1. Rhodes' Model of Youth Mentoring. This figure illustrates Rhodes' proposed model of youth mentoring and the pathways of mentoring influence.

Empirical evidence supports the critical role that a quality mentoring relationship plays in producing outcomes for youth (e.g. Chan et al., 2013; Chesmore, Weiler, & Taussig, 2017; Erdem et al., 2016; Goldner & Mayseless, 2009; Herrera et al., 2007; Keller & Pryce, 2012; Renick Thomson & Zand, 2010). Renick Thomson and Zand (2010) found that increasing relational quality between the mentor and the mentee was associated with benefits in the mentees' relationships outside of mentoring. Other studies noted that when mentor-mentee pairs had a higher relationship quality, mentees had significantly greater improvements school performance (Bayer et al., 2015), increase in self-esteem, academic attitudes, and prosocial behaviors, as well as a decrease in conduct issues (Chan et al., 2013). Additionally, Erdem and colleagues (2016) examined how behavioral problems improved significantly after participation in Big Brother Big

Sister, a nationally recognized mentor program for at-risk youth. Specifically, youth who perceived that they had greater mentoring support reported an increase of positive outcomes related to delinquency.

Mentor relationship quality dimensions. Given the critical role of mentor relationship quality to mentoring outcomes, researchers have sought to discover which aspects of the relationship are most important. Studies have suggested that specific dimensions of a high-quality mentoring relationship related to positive youth outcomes (Spencer, 2006). Authenticity, closeness, empathy, companionship, collaboration, and sage mentoring have evidently been found to be unique and important dimensions of a high-quality mentoring relationship. Consistent with Rhodes (2002) youth mentoring model, DuBois and colleagues (2011) suggested that a strong mentor-mentee relationship is characterized by mutuality, trust, and empathy. Empathy is also supported by previous research as an important mechanism in externalizing behavior (Jolliffe & Farrington, 2007).

Moreover, multiple studies have identified closeness as one of the important components of a high-quality mentoring relationship (Bayer et al., 2015; Goldner & Mayseless, 2009; Kelley & Lee, 2018). In the Kelley and Lee study (2018), closeness and youth perception of importance to others were the strongest relationship quality correlates of delinquency outcomes. Sage mentoring, where mentors provide sensitive guidance and express interest in understanding the mentees' views, has been associated with reductions in both internalizing and externalizing behaviors (Keller & Pryce, 2012). Mentees who experienced companionship and believed that they were a significant part of another's life were significantly more likely to have reduced externalizing behaviors (Kelley & Lee, 2018). Mentor dyads who promoted empathy in their interactions experienced an increase in mentee self-esteem and collaboration (Spencer, 2006). When the interactions between the mentor and mentee displayed authenticity, the dyads were

significantly more likely to establish a meaningful connection between pairs with different backgrounds (Spencer, 2006).

Assessing Relational Quality in Mentor Research

Most studies examining mentoring relationship quality and externalizing behavior have relied on mentor or mentee self-report. This presents an issue since there are multiple limitations to relying on self-report; social desirability, retrospective accounts, and rating divergence in the mentoring dyad. Social desirability effects may contribute to an overestimate of the improvements at the end of an intervention or an underestimate of the problems at baseline. Self-report measures also rely on an assumption that retrospective reports will provide accurate accounts of relationship quality. Additionally, studies have found a high degree of divergence between mentors' and mentees' reports of relationship quality (Dutton, Deane & Bullen, 2018), and others have not (Rhodes, Schwartz, Willis, & Wu, 2017). Mentor-mentee pairs with a lower satisfaction level often had a mismatch between mentor and mentee reports of the positive aspects of their relationship with the mentor rating the relationship more positively (Varga & Deutsch, 2016). Previous studies have found that mentee reports of the negative aspects of the mentoring relationship are strong predictors of relationship termination (Rhodes, Reddy, Roffman, & Grossman, 2005). Other studies have found the opposite; mentor ratings of greater negative relationship quality were stronger predictors of relationship termination than youth reports (Rhodes et al., 2017).

Naturalistic observation. Naturalistic observation has rarely been used as a means to assess mentoring relationship quality within mentoring programs (DuBois, Doolittle, Yates, Silverthorn, & Tebes, 2006). Utilization of observational methodology allows for a measurement method independent of mentor approach (Deutsch & Spencer, 2009). Observational evaluations of mentoring relationship quality are collected real-time, allowing observational techniques to

combat some of the issues identified with self-report measures, such as the retrospective accounts. Additionally, naturalistic observation with trained coders allows for reliable comparison of relationship quality across dyads (Deutsch & Spencer, 2009).

To consider the discrepancy between mentor and mentee perception of relationship quality, Dutton and colleagues (2018) included observational measures from mentoring program staff. Utilizing a multi-methods approach, the relational quality of mentor-mentee dyads could be examined through various perspectives highlighting the convergence and sometimes divergence in multiple ratings of mentorship quality (Dutton et al., 2018). These findings suggest the need for different tools to capture the complexity of mentoring relationships.

Current Study

To date, no known study has examined observed mentorship quality in relation to youth outcomes. The purpose of this study is to examine the relationship between mentoring relationship quality and youth externalizing behaviors, using an observational method for measuring relationship quality in addition to self-report. This study also examines if observational mentoring relationship quality can uniquely predict residualized change in externalizing behaviors in at-risk youth.

Method

Campus Connections

Campus Connections Therapeutic Youth Mentoring Program (CC; previously Campus Corps) serves at-risk youth in the Northern Colorado area between ages 11-18. Youth (mentees) are referred by the juvenile justice system, schools, and other human services agencies. Undergraduate students (mentors) are enrolled in a 3-credit service-learning course. CC has research that has indicated a reduction in delinquency behaviors in youth (Weiler et al., 2015 & Haddock et al., 2017) and improvements in self-esteem and overall wellbeing (Haddock et al., 2017). This mentoring program is based on Rhodes' model of youth mentoring and incorporates a referral/selection process for mentees and mentors respectively. Mentees select their undergraduate mentor based on a mentor profile. The mentor mentee pairs meet 4 hours a week for 12 weeks engaging in a structured program that includes a walk across campus, homework assistance, dinner, prosocial activities and access to integrated mental health services. CC operates Monday through Thursday from 4-8 pm, with approx. 25 different mentor-mentee pairs per night.

Participants

Participants were 608 mentor-mentee pairs who participated in the Campus Connection program from 2015 to 2018. The mentor-mentee pairs were drawn from the community using convenience sampling. At week 0, both mentors and mentees had the option to opt-out of participating in any research, opting out would not affect their standing in CC. Youth participants (mentees) were both recruited and informed about the study during the youth intake for Campus Connections with a trained staff member.

Mentors. The age of the mentors ranged from 17-50 years ($M = 21$, $SD = 2.97$) The mentors were mostly female (83.7%) and White (78.37%) a representative sample of

undergraduate students in a social services major. In addition, the mentors were subject to a background check and if at any point mentors were deemed unqualified as a mentor to an at-risk youth, they were not eligible to participate in the study.

Mentees. Youth are referred by their families (17%), the juvenile system (13%), schools (43%), and other human services providers (27%). The mentees are framed as “at-risk” due to the following factors hindering them from reaching their full potential poverty, involvement in the court system, academic failure, family/behavioral/psychological issues, abuse, neglect, or trauma experiences, and drug or alcohol use. The mentees’ age range 10-19 years ($M = 14.18$, $SD = 1.83$). The mentees were 59.09% male, 40.3% female, and 0.61% identified as transgender. The race and ethnicity of mentees were similar to reported racial and ethnic demographics in the Northern Colorado area, with a European-American/White (59.12%) majority and fewer American Indian/Alaskan Native (2.07%), Asian-American/Asian (0.52%), African-American/Black (3.11%), Hispanic/Latino (25.1%), and other (10.09%).

Caregivers. The caregivers were recruited at the youth intake for Campus Connections and had an average age of 44 ($SD = 9.41$). The parents held similar racial and ethnic demographics as the youth, a European-American/White (69.39%) majority with fewer American Indian/Alaskan Native (1.12%), Asian-American/Asian (0.8%), African-American/Black (1.6%), Hispanic/Latino (20.03%), and other (7.05%). The families’ annual household income was as following: 22.92% made less than \$20,000, 29.17% made \$20,000-39,999, 17.95% made \$40,000-59,999, 11.06% made \$60,000-79,999, 6.25% made \$80,000-99,999, and 12.66% made more than \$100,000.

Procedure

Participants were a part of a larger project on the novel component of mentor families as a component to improve youth outcomes. Participants were recruited and informed about the study

during the youth intake for Campus Connections with a trained staff member. Youth were assured during their intake that refusing to participate in the study would not affect their standing in Campus Connections and that all information would be confidential. The intake session is also where parental consent and youth assent were attained. Compensation was provided for youth and caregivers after completion of surveys to incentivize completion.

The mentors were asked to wear the iEAR every week to become comfortable with the device, even the weeks when it was not recording. The three sections of CC that were coded were: 1) walk and talk, 2) supporting school success, and 3) dinner which were selected because they allow for the most social interaction between the mentor and the mentee. The iEAR collected data in 5-minute increments at weeks 3, 6, 9, and 12. For the purposes of this study, only recordings of week 12 for mentoring relationship quality will be looked at. Week 12 was chosen as a measure of quality as longer relationships typically are associated with greater relationship quality (Grossman & Rhodes, 2002).

Measures

Observational measures. Naturalistic Observations of Mentoring Relationship Quality (NO-MRQ) was measured by the iEAR technology. The Electronically Activated Recorder (EAR) technology enables the researcher to record moments in real-time. The EAR device has previously been used in family relationship research to record social interactions and allows for unobtrusive observations (Imami et al., 2015; Slatcher & Robles, 2012; Slatcher & Trentacosta, 2011). Similarly, to mentoring relationships, parent-child dyads have been studied utilizing the naturalistic observation device with significant findings (Imami et al., 2015; Slatcher & Trentacosta, 2011). The iEAR was worn by the mentors throughout the Campus Connections program and collected data is coded in 5-minute increments that were treated as global evaluations of relationship quality. Coders were trained to adequate reliability (ICCs of .70)

before coding independently. Across all semesters, 37% of interactions were coded by multiple coders, and discrepancies were consensus coded. Reliability for these independent coders without consensus coding was adequate ($>.70$ overall ICCs) for all variables except closeness, which had slightly less than adequate reliability (overall ICC = .64). Mentor-mentee interactions were coded and scored on a Likert scale (1-5) how much each conversation possesses a certain type of quality as instructed by Campus Connections' unique coding scheme, where 1 = *Low*, 2 and 3 = *Moderate*, 4 and 5 = *High*. The data was collected at week 12 to capture the mature relationship between mentor and mentee.

The relationship quality dimensions were developed from Spencer's (2006) relational themes and Price and Keller's (2012) dimensions associated with increased positive outcomes and were based on the characteristics of a successful mentoring relationship by Rhodes (2002).

Acceptance. *Acceptance* refers to the extent to which the mentor and the mentee have respect and unconditional positive regard towards each other. For *Acceptance*, a score of 1 was given if interactions between mentor and mentee consistently communicated non-acceptance, disregard or disapproval, a score of 2 or 3 was given if the mentor and mentee were occasionally accepting, and a 4 or 5 was given if the dyad consistently communicated acceptance, respect and unconditional positive regard.

Authenticity. *Authenticity* is defined as the extent to which the mentor and the mentee interact honestly and openly, sharing of thoughts and feelings are received non-judgmentally. For *Authenticity*, a score of 1 was given if interactions between mentor and mentee never contained personal thoughts or feelings, a score of 2 or 3 was given if the mentor and mentee occasionally shared thoughts or feelings with a 2 assigned if one partner shared (3 if both). A 4 or 5 was given if the dyad shared thoughts and feelings unobtrusively, and when something was disclosed and the other person responded in a meaningful way.

Empathy. *Empathy* in this study is defined as the extent to which the interactions between the mentor and mentee show an understanding of the other's perspective, compassion and concern for the other. For *Empathy*, a score of 1 was given if the dyad displayed little interest or effort in gaining a deeper understanding, a score of 2 or 3 was given if the mentor and mentee were occasionally empathetic, and a 4 or 5 was given if the dyad use reflective listening and accurately follow complex stories.

Mutuality/collaboration. *Mutuality/Collaboration* refers to the extent to which both mentor and mentee contribute in relationship and show enthusiasm. For *Mutuality/Collaboration*, a score of 1 was given if mentors are prescriptive and little effort is given to include mentee's ideas, a score of 2 or 3 was given if the mentor and mentee were occasionally displays collaboration, and a 4 or 5 was given if the mentor showed respect for mentee's ideas and were able to negotiate activities.

Closeness/companionship. *Closeness/Companionship* is defined as the extent to which mentor and mentee seem to enjoy each other's presence and share experiences with one another. For *Closeness/Companionship*, a score of 1 was given if interactions between mentor and mentee were uncomfortable as marked by frequent awkward silences and difficulties, a score of 2 or 3 was given if the mentor and mentee were not uncomfortable with each other but warmth and liking were lacking in interactions, and a 4 or 5 was given if the dyad communicated genuine displays of positive affect and warmth.

Sage mentoring. *Sage Mentoring* encompasses both the extent to which the mentors provide *guidance* in a sensitive and appropriate way, and the mentor's *expertise* in including providing guidance in a mentee-centered way. In Campus Connections unique coding scheme, *Expertise* is a function of *Guidance*, thus, not every instance of guidance interaction has an element of expertise. Across 608 dyads, guidance is coded for approximately 5,000 interactions

while expertise is only coded for 500 of those, suggesting that expertise is a small portion of all interactions. In addition, sage mentoring was excluded from this study since this dimension is qualitatively different from the others in the sense that it measures the effectiveness of mentoring rather than a positive relationship quality.

Self-report measurements. A basic demographic form was administered at the start of the program to capture age, gender, family income, and other important information relevant to the larger study. The demographic form was completed by mentors, mentees, and the mentees' caregivers.

Mentor self-report. Mentoring relationship quality was measured using the Mentor Alliance Scale (MAS; adapted from Cavell, Elledge, Malcolm, Faith, & Huges, 2009).

Mentor Alliance Scale. The adapted MAS includes 16 items and measures a mentees relationship to their mentor. The scale asks the mentor about their relationship with their mentee and how often they experience different scenarios with their mentees. The responses are recorded using likert-type answer choices ranging from *1 = Never, Hardly Ever=2, Sometimes=3, Usually=4*, and *5 = Always*. Sample items from the MAS include “My mentee brings up things that bother him or her” and “My mentee likes spending time with me”. The mentor MAS had a Cronbach's alpha of 0.88 at week 11 showing good internal consistency from the Campus Connection program.

Youth self-report. Youth were assessed their perception of externalizing behavior using the Self-Reported Delinquency scale (SRD; adapted from Elliot, Huiziga & Ageton, 1985) and mentoring relationship quality using the Mentor Alliance Scale (MAS; adapted from Cavell et al., 2009).

Mentor Alliance Scale. The adapted MAS includes 16 items and measures a mentees relationship to their mentor. The scale asks the mentee how often they experience different

scenarios with their mentors and implements likert-type answer choices with responses range from *1 = Never* to *5 = Always*. Sample items from the MAS include “I look forward to meeting my mentor” and “When my mentor asks about my problems, I talk about them”. Cronbach’s alpha have shown good internal consistency from the Campus Connection program ($\alpha = 0.88$) at week 11.

Self-Reported Delinquency. The adapted SRD included 10 items and measures frequency of delinquent activity in the past 30 days. The measure asks youth to rate on a scale how many days in the last month the delinquent behavior occurred, youth are given a range from *0 days* to *30 days*. Sample items from the SRD include “I hit someone or got into a physical fight” and “I drank alcohol”. Cronbach’s alpha showed good internal consistency from the Campus Connection program ($\alpha = 0.89$) at week 11.

Caregiver self-report. The Strength and Difficulties Questionnaire (SDQ; Goodman, 1997) is administered to record caregiver accounts of youth externalizing behavior and consists of 25 items and is composed of five subscales; emotional problems, conduct problems, hyperactivity, peer problems, and pro-social behaviors. The SDQ-conduct subscale asks the caregivers to rate their child’s behavior of the last six months and includes three types of scale choices *1 = Not True*, *2 = Somewhat True*, *3 = Certainly True*. To compare caregiver answers to youth self-report, this thesis will look at the conduct subscale where sample items include “Often lies or cheats” and “Often fights with other youth or bullies them”. The SDQ had acceptable coefficients for internal consistency in Campus Connections ($\alpha = 0.77$) at post-intervention.

This study will use mentee gender, mentee age, mentee ethnicity, family income and mentor family condition as control variables. Mentee gender, age, and ethnicity are obtained from youth self-report on basic demographic forms and family income are obtained from caregiver demographic form. Mentor family condition was recorded by researchers on the night where the

mentor-mentee pairs were either assigned to a Mentor Family (small groups of four mentor-mentee pairs of youth of similar ages who engage in activities together) or not.

Research Questions and Hypotheses

Research Question 1

To what extent is mentoring relationship quality associated with youth externalizing behavior? Consistent with previous youth mentoring research (Erdem et al., 2016; Weiler et al., 2015) it is hypothesized that greater reported mentoring relationship quality, measured by mentor reports of the mentoring relationship and youth self-report, will have a negative association with self-reported youth externalizing behaviors and parent reports of youth externalizing behavior.

Research Question 2

To what extent is observed mentoring relationship quality associated with youth externalizing behavior? Measured by both youth self-reported delinquency and caregiver reports of externalizing behaviors.

This study includes naturalistic observation as a novel component in assessing mentoring relationship quality in relation to youth outcomes. Therefore, no previous literature can be consulted regarding the effect of observed quality on youth outcomes. However, consistent with previous research on family relationships, naturalistic observations have been successful at capturing positive behaviors and responsiveness (Imami et al., 2015). It is hypothesized that greater observed mentoring relationship quality (as characterized by a composite score consisting of authenticity, acceptance, empathy, mutuality/collaboration, closeness/companionship) is negatively associated with self-reported youth externalizing behaviors. It is hypothesized that caregiver reports and youth self-report of delinquency will show a convergence in the manner that greater observed mentoring relationship quality (as characterized by a composite score consisting of authenticity, acceptance, empathy, mutuality/collaboration, closeness/companionship) is negatively associated with caregiver reports of youth externalizing behavior.

Research Question 3

To what extent does observed mentoring relationship quality predict residualized change in youth externalizing behavior in addition to self-reported mentoring relationship quality?

Previous research suggests that self-reported mentoring relationship quality predicts around 10% of the variance in externalizing behavior (Brown & Shilling, 2017). It is hypothesized that observed, in combination with self-reported, mentoring relationship quality will increase the explanatory power for residualized change in youth externalizing behaviors.

Analytical Plan

A composite score was created for the observed relationship quality dimensions authenticity, acceptance, empathy, mutuality/collaboration, closeness/companionship to encompass an overall positive relationship quality rating. *Guidance* and *Expertise* are qualitatively different in the sense they assess mentoring effectiveness and are not included in the composite score of positive mentoring relationship qualities that creates a meaningful connection between a mentor and a mentee. To create a composite score, first an average from each dimension for week 12 was calculated. An average for week 12 self-reported relationship quality was created for both mentor and mentee ratings on the Mentor Alliance Scale. Difference scores were created for parent reports of externalizing symptoms and youth reports of externalizing behaviors to highlight the difference in externalizing behaviors between baseline and at the completion of the mentoring program. An average was also created for the caregiver reports of youth delinquent behaviors using the Strength and Difficulties Questionnaire (SDQ) conduct subscale. Higher scores on the caregiver reports for youth delinquent behaviors indicates that the youth engages more often in externalizing behaviors. In addition, an average was created for the Self-Reported Delinquency (SRD) scores. However, while conducting the initial analyses, the SRD distribution proved to not be normally distributed as most youth reported a number of 0 (how many times they engaged in delinquent behavior in the last 30 days) and few youths reporting a high frequency. In an attempt to correct this, a winsorized score was created for the youth Self-Reported Delinquency scores to reduce the effect of possibly spurious outliers. This winsorized score was created using a three standard deviation limit. Furthermore, all variables with reserve coding were reversed coded.

All analyses were performed while including the following control variables: mentor family condition, mentee gender, mentee age, mentee ethnicity, and family income. When

controlling for ethnic and racial background of the mentees, new ethnicity variables were created to reflect the different ethnic and racial groups Hispanic, Black, and Other/Mixed (Alaskan Indian, Asian, and Hawaiian) compared to White.

Mentee sex was originally coded as a 3-level variable with 1 = Male, 2 = Female, 3 = Transgender. However, due to the small number of mentees reporting transgender as their identity, mentee gender was coded as a 2-level variable where 1 = Male and 2 = Female based on their assigned sex at birth.

Correlations

Bivariate correlations was conducted to investigate the linear relationship the variables have with each other. A correlation analysis will be conducted to examine all hypothesized associations. For research question one, this includes the proposed inverse association between youth self-reported mentoring relationship quality and self-reported youth externalizing behaviors. For research question two, this includes the inverse association between observed mentoring relationship quality (as characterized by a composite score consisting of authenticity, acceptance, empathy, mutuality/collaboration, closeness/companionship) and self-reported youth externalizing behaviors. A similar analysis will be conducted to examine the relationship between caregiver reports and observed mentoring relationship quality.

In this analysis, mentoring relationship quality is measured by Mentor Alliance Scale (MAS) for both mentors and mentees self-report and the observational mentoring relationship quality measure. Both indications of mentoring relationship quality are the independent variables and youth externalizing behavior as measured by the youth Self-Reported Delinquency (SRD) and caregiver reports on the Strengths and Difficulties Questionnaire (SDQ) as the dependent variables. Correlations are appropriate for this analysis since this study is looking at the strength of the association between the variables.

Linear Regression

In addition, a linear regression analysis will be conducted to examine to what extent externalizing behavior can be predicted by self-reported and observed mentoring relationship quality. In other words, linear regression will enable this study to look at two what extent the independent variables (self-reported relationship quality and observed relationship quality) are related to the dependent variables (SRD and SDQ). A regression analysis also provides a means of analysis to control for the two variables age and gender as they might influence the strength of the relationship. A semi-partial F-statistic test will be conducted to determine the effect of observed mentoring relationship quality in addition to self-reported quality on youth externalizing behavior. It is hypothesized that observed, in combination with self-reported, mentoring relationship quality will increase the explanatory power for residual change in youth externalizing behaviors.

Results

Correlations

Bivariate correlations showed that in terms of research question 1 (To what extent is self-reported mentoring relationship quality associated with youth externalizing behavior?), mentee ratings of the mentor-mentee relationship were significantly associated with parent reports of youth externalizing behaviors (see Table 1). More positive ratings from mentees regarding the relationship were related to parents reporting youth externalizing behavior at a higher frequency.

For research question 2 (To what extent is observed mentoring relationship quality associated with youth externalizing behavior?), this study found no significant results.

Other significant correlations illustrated that greater observational relationship quality was significantly related to higher mentor ratings of the mentor-mentee relationship (see Table 1). Observational mentoring relationship quality was also negatively related to mentor family condition, meaning that lower relationship quality was recorded when the mentor-mentee pair belonged to the mentor family condition compared to a night with just pairs. Furthermore, positive mentor ratings on the Mentor Alliance Scale was associated with higher family income. Mentee ethnicity, specifically, Hispanic compared White, Black, Mixed/Other, was related to decreased mentee and parent reports of externalizing behavior. Mentor ratings of the mentor-mentee relationship was significantly higher when the mentee identified as a non-cisgender male adolescent. Mentee gender was also significantly associated with observational mentoring relationship quality, such that higher quality was observed in dyads where the mentee did not identify as a cisgender male. Lastly, mentee gender was associated with parent reported delinquency, such that cisgender males received higher reports of delinquency scores from parents. All other correlations involving key variables were non-significant.

Table 1.*Correlation Matrix Showing Correlations Between Variables.*

Variable Names	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Observed Relationship Quality	r —											
	p —											
(2) Mentee Reported Relationship Quality	r 0.091	—										
	p 0.057	—										
(3) Mentor Reported Relationship Quality	r 0.109 *	0.339 ***	—									
	p 0.020	< .001	—									
(4) Youth Reported Delinquency	r 0.003	0.044	0.011	—								
	p 0.951	0.312	0.796	—								
(5) Parent Reported Delinquency	r 0.025	0.051	0.007	0.042	—							
	p 0.616	0.252	0.865	0.351	—							
(6) Ethnicity Hispanic	r 0.102 *	-0.012	-0.015	0.069	0.065	—						
	p 0.025	0.781	0.706	0.108	0.124	—						
(7) Ethnicity Black	r 0.007	-0.053	0.034	0.035	0.088 *	-0.054	—					
	p 0.881	0.211	0.389	0.417	0.038	0.088	—					
(8) Ethnicity Other/Mixed	r 0.003	-0.040	0.034	0.010	0.028	-0.133 ***	0.045	—				
	p 0.950	0.345	0.385	0.815	0.507	< .001	0.153	—				
(9) Mentee Gender	r 0.144 **	0.199 ***	0.224 ***	0.020	0.031	0.072	0.045	0.036	—			
	p 0.002	< .001	< .001	0.645	0.468	0.065	0.243	0.351	—			
(10) Mentee Age	r 0.014	-0.050	-0.041	0.006	0.058	-0.045	0.004	0.062	0.008	—		
	p 0.757	0.240	0.300	0.893	0.172	0.244	0.912	0.113	0.835	—		
(11) Mentor Family Condition	r 0.103 *	-0.059	0.020	0.082	0.003	0.119 **	0.026	0.021	0.010	0.022	—	
	p 0.026	0.165	0.624	0.055	0.949	0.002	0.498	0.595	0.801	0.579	—	
(12) Family Income	r 0.048	0.072	0.101 *	0.036	0.013	-0.186 ***	0.015	0.104 **	0.056	0.135 ***	0.048	—
	p 0.319	0.103	0.014	0.420	0.770	< .001	0.703	0.009	0.160	< .001	0.231	—

* p < .05, ** p < .01, *** p < .001

Note: Mentor Family Condition and Mentee Gender are dichotomous variables where 1=Mentor Family, 0=No Mentor Family, and 1=Male, 2=Female/Transgender respectively.

Note: The racial and ethnic categories American Indian, Asian, Hawaiian, and Mixed have been collapsed into the category Other/Mixed.

Note: When analysing ethnicity, the following coding was done to distinguish between ethnic and racial groups (Hispanic=1, other=0), (Black=1, other=0), and (Other/Mixed=1, other=0).

Table 2.*Regression Analysis Predicting Youth Self-Reported Delinquency.*

	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>r_{sp}</i>	<i>r</i> ²
							0.025
Observed Relationship Quality	-0.007	0.163	-0.002	-0.044	0.965	-0.002	
Mentee Reported Relationship Quality	0.195	0.154	0.069	1.261	0.208	0.063	
Mentor Reported Relationship Quality	-0.100	0.190	-0.029	-0.523	0.601	-0.026	
Ethnicity Hispanic	0.214	0.205	0.056	1.043	0.298	0.052	
Ethnicity Black	-0.151	0.486	-0.016	-0.310	0.757	-0.016	
Ethnicity Other/Mixed	0.210	0.285	0.039	0.736	0.462	0.037	
Mentee Gender	0.003	0.184	0.00008	0.015	0.988	0.001	
Mentee Age	-0.026	0.046	-0.029	-0.563	0.573	-0.028	
Mentor Family Condition	0.418	0.174	0.124	2.399	0.017	0.121	
Family Income	-0.002	0.055	-0.002	-0.032	0.975	-0.002	
(Intercept)	-0.245	1.106		-0.221	0.825		

Table 3.*Regression Analysis Predicting Parent/Caregiver-Reported Delinquency*

	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>r_{sp}</i>	<i>r</i> ²
							0.039
Observed Relationship Quality	0.063	0.033	0.099	1.893	0.059	0.096	
Mentee Reported Relationship Quality	0.043	0.033	0.074	1.321	0.187	0.067	
Mentor Reported Relationship Quality	0.023	0.039	0.034	0.608	0.544	0.031	
Ethnicity Hispanic	0.023	0.043	0.029	0.548	0.584	0.028	
Ethnicity Black	-0.149	0.105	-0.073	-1.415	0.158	-0.072	
Ethnicity Other/Mixed	0.078	0.057	0.072	1.368	0.172	0.070	
Mentee Gender	-0.056	0.037	-0.081	-1.501	0.134	-0.076	
Mentee Age	-0.012	0.009	-0.068	-1.317	0.189	-0.067	
Mentor Family Condition	0.010	0.035	0.015	0.296	0.767	0.015	
Family Income	0.003	0.011	0.015	0.291	0.771	0.015	
(Intercept)	-0.210	0.223		-0.942	0.347		

Linear Regression

For research question one, there was a semi-partial positive correlation between self-reported mentee rating of the mentoring relationship and youth externalizing behaviors as reported by parents (see Table 3). Linear regression analyses revealed that there were no significant associations between observational mentoring relationship quality and youth-or-parent reported youth externalizing behaviors as hypothesized in conjunction with research questions two and three. In addition, there was no significant relationship between mentor and mentee reported relationship quality and youth externalizing symptoms as reported by both youth and parents. Despite the non-significant findings, observational mentoring quality accounts for the largest proportion by not a trivial amount in the semi-partial correlation between observed mentoring relationship quality and parent-reported delinquency. Both observational mentoring relationship quality and mentor and mentee reported relationship quality accounted for .04% of the variance in youth self-reported externalizing behavior.

Discussion

Empirical evidence indicates that mentoring can produce modest improvements in the externalizing behaviors of at-risk youth (DuBois, Holloway, Valentine, & Cooper, 2002; DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011; Jackson, 2002; Jolliffe & Farrington, 2007; Raposa et al., 2019; Sturza & Davidson, 2006; Tolan, et al., 2008; Tolan, Henry, Schoeny, Lovegrove, & Nichols, 2013). According to Rhodes' (2002, 2005) Model of Youth Mentoring, the most widely used model of youth mentoring, the central agent of change in promoting positive youth outcomes is the development of a high-quality mentoring relationship. However, past mentoring research have relied exclusively on self-report of the mentor and/or mentee to assess mentoring relationship quality. Relying solely on self-report, while valuable, can be problematic as the field of interpersonal relationships recommend a multi-method approach based on strong theoretical and empirical evidence for such (e.g., Lucas-Thompson, Graham, Ullrich, & MacPhee, 2017). This study is one among one of the first in the mentoring literature to use a multi-method approach to measure mentor relationship quality and its relationship to youth externalizing behavior. By using the Electronically Activated Recorder (EAR) methodology this study aims to allow an unobtrusive means of observing mentor-mentee interactions not previously been used in the study of mentoring dyads (Mehl & Holleran, 2007).

The purpose of this study was to examine the relationship between the frequency of youths' externalizing behaviors (as measured by youth and caregivers) and mentoring relationship quality, measured both through mentor and youth self-report and observational methods. The sample was drawn from participants of Campus Connections, a 12-week site-based mentoring program in Northern Colorado. At weeks 6 and 12 of the program, mentors and mentees provided self-reports of the quality of their mentoring relationship. Both parents and youth rated the youths' externalizing behaviors at Weeks 1 and 12. Simultaneously, iEAR

methodologies were used to measure natural social interactions between mentor and mentee. Three hypotheses were the focus of this research study, and the findings related to each are discussed below.

The first hypothesis—that greater reported mentoring relationship quality, measured by mentor and youth reports, will have a negative association with youth externalizing behaviors, measured by both youth and parent reports—was not supported. There are two parts to this hypothesis, the first part investigates youth-reported externalizing behavior and the other examines caregiver perception of these behaviors. Regarding both youth and parent reports of externalizing behaviors, no relationship was found between mentoring relationship quality, as reported by either mentors or youth, and youth externalizing behaviors. These findings are inconsistent with most, but not all, of the related research studies, which have found a significant—albeit small—relationship between mentoring relationship quality and youth externalizing behaviors (DeWit et al., 2006; Jolliffe & Farrington, 2007; Keating et al., 2002; Rhodes et al., 2005; Tolan et al., 2008; Weiler et al., 2015).

The findings related to our first hypothesis are particularly unexpected because a prior study of Campus Connections (Weiler et al., 2015) found that youth participants reported lower frequencies of problem behaviors than youth in the comparison group. Furthermore, in a single sample design study that used the same sample as the present study, Haddock et al. (2020) found youth reported lower frequency of problem behaviors at post-intervention as compared to pre-intervention. One possible explanation for these inconsistent findings is that instead of mentoring relationship quality being the primary mechanism of change, as proposed by Rhodes model, other factors are more salient in promoting youth outcomes in the design of Campus Connections than in other mentoring programs. Designed as a positive youth development setting, Campus Connections is a site-based program in which mentoring pairs are intentionally nested in a larger

community of other mentoring pairs. This community is overseen by family therapists who meet regularly with youth throughout the program. As a positive youth development setting, Campus Connections prioritizes providing youth with opportunities to develop relationships with not only their mentor but also with other youth participants and their mentors as well as program therapists. The program design also prioritizes youth having opportunities to develop a sense of belonging and mattering, self-efficacy, and new skills and to benefit from a safe and effective structure oriented around positive social norms. Perhaps these setting features serve as the mechanisms of change in this uniquely designed mentoring program instead of mentoring relationship quality, which is more salient in more traditionally designed mentoring programs.

Herrera and colleagues (2013), similarly to this study, examined the relationship between mentoring programs and at-risk youth and found no significant results. Herrera and colleagues found no relationships between participation in the program and problem behaviors; however, the researchers did note that mentors paired with higher risk youth reported more challenges with problem behaviors. Among the studies that did show support for mentoring relationship quality having an effect on externalizing symptoms, some compared the participants to a control group (Tolan et al., 2008; Weiler et al., 2015) and others found the effects present only when the relationship lasted for more than 12 months (Rhodes et al., 2005). In addition, a minority of studies have found empathy, emotional connection and longer mentor-mentee relationships as key processes involved in moderating the relationship between youth mentoring and externalizing behavior (Jolliffe & Farrington, 2007; Tolan et al., 2008).

The second hypothesis—that greater observed mentoring relationship quality (as characterized by a composite score consisting of authenticity, acceptance, empathy, mutuality/collaboration, closeness/companionship) would be negatively associated with self-reported youth externalizing behaviors—was not supported. The results showed that observed

mentoring relationship quality was not associated with externalizing behavior. The third hypothesis—that observed relationship quality could predict residualized gain in youth externalizing behavior in addition to self-reported mentoring relationship quality—was also not supported. However, by not a trivial amount, observed mentoring relationship quality uniquely accounted for the largest proportion of the variance in youth-reported externalizing behavior. Despite a non-significant finding, this result suggests that observational mentoring relationship quality tuning in to aspects unique in the mentor-mentee relationship that is not detected by self-report.

One reason behind these non-significant results may be related to the composite score that was created in order to analyze the data. A composite score was created from the average of each of the observed mentoring relationship quality dimensions, which means that this variable does not account for differences specific to one or more dimensions. Perhaps analyses on specific dimensions rather than a composite would be more helpful in indicating whether observed mentoring relationship quality is associated with externalizing behaviors.

Limitations and Future Directions

This sample is a community sample from Northern Colorado which may not be representative to a national sample. The community sample of youth was mostly White (59.12%) and Hispanic (25.1%) and for mentors White (78.37%) and female (83.7%). This research also relied on correlational analyses which implies that no causal links can be drawn from the conclusions. In addition, this study occurred in a naturalistic environment rather than a lab setting. A naturalistic setting is able to capture how the program operates naturally, however, it does not allow for the same control and manipulation of the variables that might occur in a lab setting.

Something of future interest is to examine how youth define a high-quality mentoring relationship. Observed relationship quality and mentor rated relationship quality had a positive association with each other, while mentee rated relationship quality was not significantly associated with observed relationship quality. Whereas Rhodes' defines positive mentoring relationship quality as characterized by mutuality, trust, and empathy, it may be that youth perceive a good mentoring relationship to be more akin to friendship. Given that Campus Connections utilized college students as mentors, the limited age difference between most paired mentors and mentees could also contribute to such a perception. Furthermore, perhaps youth who engage in more frequent problem behaviors are more likely to seek a more peer-like friendship with their mentors. A friendship may look different from a mentorship, the prior characterized by prosocial behavior, intimacy and levels of conflict, while the latter is defined by support, guidance, and empathy. This might explain why mentor ratings of relationship quality were significantly associated with observed relationship quality whilst mentee ratings were not.

Lastly, for this study, a composite score was created for the observed mentoring relationship quality instead of analyzing the unique dimensions separately (acceptance, authenticity, closeness collaboration, and empathy). Looking at these dimensions separately could be important for future research as literature as certain dimensions have been found more associated with externalizing outcomes than others in the mentoring literature. Moreover, past research has found closeness (Kelley & Lee, 2018) and empathy (Spencer 2006) so be specifically related to reductions in externalizing behaviors.

Implications

Mentoring programs collect data in order to improve the quality and effectiveness of their program and provide feedback to funders. This study illustrates the importance of including multiple perspectives and modes of collecting data for a more comprehensive assessment and

evaluation of the program. For example, past literature that has examined the mentoring relationship quality have found discrepancies in mentor and mentee reports of the relationship quality (e.g. Rhodes et al., 2017). By including both mentor and mentee reports in addition to operational relationship quality mentoring programs can provide important stakeholders with a more complete assessment. Additionally, in this study, observational mentoring relationship quality was found to carry a higher explanatory power compared to self-reported mentoring relationship quality while non-significant. This suggest that observational measures may provide a more accurate account of mentoring relationship quality and future studies should aim to investigate that further.

By including observational mentoring relationship quality, it would be important to look at the different dimensions (acceptance, authenticity, closeness collaboration, and empathy) separately as these might inform training and supervision on unique variable discrepancies. For example, if closeness was consistently low, the mentoring program would benefit from that information in order to target that variable in training and supervision.

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