

Examining the Influence and Implications of Peer Relationships on the Academic Motivation and College and Career Readiness of Rural Adolescents

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School experience factors, including peer relationships, internalized behavior, and externalized behavior, have been found to influence adolescent academic motivation and postsecondary readiness. However, the path these critical elements take to shape postsecondary motivation and readiness remains unclear, particularly among understudied rural contexts and populations. Thus, this study aimed to (a) examine the impact of positive rural peer relationships on academic motivation and college/career readiness, (b) examine the impact of positive rural peer relationships on internalized and externalized behavior in educational contexts, and (c) learn how both internalized and externalized behaviors might mediate the association between positive peer relationships and educational attainment factors. Two thousand sixteen survey responses from 8,541 rural adolescents (12–18 years old) from the Midwest United States were utilized to conduct a cross-sectional mediating path analysis investigating the associations among peer relationships, internalized behavior, externalized behavior, and academic motivation and college/career readiness. Results indicated that positive peer relationships are significantly associated with adolescent academic motivation and college/career readiness. A significant association between positive peer relationships, academic motivation, and college/career readiness mediated by adolescent externalized behavior and a significant association between positive peer relationships and academic motivation mediated by internalized behavior were also identified. This study advances the understanding of rural peer relationships' influence on adolescent behavior and subsequent perceptions of postsecondary readiness. Implications for school practices focused on climate and culture that foster prosocial rural adolescent relationships supporting educational attainment are discussed.

Keywords: peer relationships, internalized behavior, externalized behavior, academic motivation, postsecondary readiness, rural adolescents

Despite increasing graduation rates and math and reading test scores (Aud et al., 2013), rural students' transition to and successful completion of postsecondary education or training programs still lags behind urban and suburban peers (National Student

Clearing House [NSC] Research Center, 2016). This delay decreases the likelihood of attending and remaining enrolled in postsecondary education or training relative to non-rural peers (Byun et al., 2015). These barriers impact rural students' access to improved financial, health, and civic participation prospects later in life. Despite this growing evidence, the exact source of the divergence between rural and non-rural students is unknown (Player, 2015; Tieken, 2016). This lack of concrete evidence (Player, 2015; Sherman & Sage, 2011) requires a more focused investigation into other potential sources of this discrepancy, such as external factors like social connection (i.e., peer relationships), as well as internal mental and behavioral health factors and motivation and readiness for postsecondary pathways.

Evidence has begun to show that weaker social networks and connections to peers and school may be associated with increases in specific challenges such as substance abuse and delinquent behavior (Hoffman et al., 2017). Peer relationships have also been identified as influential on overall feelings of school connectedness, engagement (Gowing, 2019; Oldfield et al., 2016), and subsequent social and academic success (Wentzel, 2017). Examining these variables within rural populations supports a more nuanced understanding of school contexts that influence rural adolescent postsecondary trajectories and attainment (Sherman & Sage, 2011). Thus, this study aims to examine the impact of positive rural peer relationships on academic motivation and college/career readiness and learn how both internalized and externalized behaviors might mediate these relationships. A greater understanding of these factors and the mechanization of adolescent peer relationships within a rural context may influence school decisions and the provision of student support and guidance, ultimately impacting the postsecondary trajectories of rural adolescents.

Adolescent Peer Relationships

Social cognitive career theory (SCCT) suggests that school experiences and learning opportunities shape an individual's self-efficacy and value for postsecondary options (Brown & Lent, 2019). One environmental context or school experience variable particularly significant for adolescents is relationships and social connection with peers. The importance of peer relationships increases dramatically as children enter adolescence and develop into emerging adulthood (Scholte & Van Aken, 2020; Wang et al., 2018; Wentzel, 2017). As the school and community environments that children know expand to include a broader range of experiences and people, the perspectives and influence of similarly aged individuals also grow in importance (Li et al., 2011). This influence, sometimes called bonding social capital, can be thought of as connections and relationships within groups composed of individuals with similar personal characteristics and access to resources and information (Adler & Kwon, 2002). Trusting relationships, positive social embeddedness, and shared identity are often associated with this relationship (Szreter & Woolcock, 2004) and tend to include peers, siblings of similar age,

and significant others (Furman & Rose, 2015). Research has shown that peer relationships may strongly influence youth's academic motivation, self-efficacy, and postsecondary achievement levels (Li et al., 2011; Rosenqvist, 2018; Wentzel, 2017). However, evidence of what this looks like specifically for rural youth remains limited.

Research on rural youth academic motivation and college/career readiness often highlights barriers or challenges rural students face (e.g., pervasive poverty, limited school resources, and programming) (Biddle & Azano, 2016; Irvin et al., 2012; Lavalley, 2018). However, there is evidence that certain aspects of rurality and rural schools, such as sustained social connection, may positively impact academic motivation and attainment. For example, Byun et al. (2012) argued that strong social connections and support structures may benefit rural communities' academic aspirations and achievement levels. Close connections with peers, schools, and immediate communities, often more prevalent in rural contexts, may serve as facilitators to increase social capital, consequently impacting academic motivation and educational attainment (Byun et al., 2012). Further, social structures and support mechanisms have been found to influence educational aspirations and career and academic decision-making for rural youth by impacting their sense of belonging and academic self-concept (Howley, 2006; Irvin et al., 2011). This social relationship often found within rural communities extends into academic settings. Hardré & Hennessey (2010) noted that close student-teacher relationships, more significant opportunities for involvement with peers in both in-school and out-of-school activities, and a sustained connection to the same peer group contribute to a more positive educational experience for rural adolescents. As such, further intentional focus on non-academic social factors that may shape rural student postsecondary trajectories is needed to provide further evidence and clarification around this mechanism and process of influence.

Looking beyond a specific influence on academics, research has also demonstrated ways in which positive prosocial relationships impact specific adolescent health outcomes through reducing negative externalized behavior (e.g., bullying, absenteeism, aggression), support with chronic conditions, and buffering distress (Ehsan & De Silva, 2015; Gilbert et al., 2013; Hale et al., 2015). Other scholars have identified ways social ties and connections may affect physical, mental, and behavioral health (Buck-McFadyen et al., 2019; McPherson et al., 2013). Further, recent research has begun to identify strong connections between social cohesion and peer networks and positive adolescent internalized and externalized behaviors as demonstrated by lower rates of risk-taking behavior, a greater sense of belonging, and higher educational attainment (Benner, 2011; Borawski et al., 2003; Van Ryzin & Roseth, 2018; Yugo & Davidson, 2007) and lower rates of violence and aggression (Fu et al., 2021; Hale et al., 2015; McPherson et al., 2014). These positive characteristics often found within rural contexts and the experiences of adolescents (Hardré & Hennessey, 2010; Masland & Lease, 2016) may be contributing to recent increases observed in rural academic

achievement and postsecondary aspirations during high school (Aud et al., 2013; Molloy et al., 2011), yet further research investigating direct connections between these concepts is needed.

Adolescent Internalized and Externalized Behavior

A large body of scholarship has illuminated the critical role of internalized and externalized behaviors during adolescence and the ways they can shape both physical and psychological development (Andersen & Teicher, 2008; Cattelino et al., 2020; Currie & Morgan, 2020; Romeo, 2016). The relationship between adolescent internalized and externalized behaviors and academic achievement has also been researched intensively (Cattelino et al., 2020; Frank, 2020; McLeod et al., 2012; Totura et al., 2014). Both behaviors remain of interest to health and education professionals as individuals who struggle with negative internalized and externalized behavior during adolescence often see these challenges persist into emerging adulthood and later life, further impacting academic, social, and physical development and success (Johnson et al., 2018; McLeod et al., 2012).

Internalized behaviors are feelings and emotions that are dealt with internally rather than by acting them out in the home or school (e.g., anxiety, depression, loneliness, shyness) (Anderson-Butcher et al., 2013). Externalized behaviors, often closely linked to adolescent internalized behavior, are behaviors or actions directed outward, either toward the external environment or other individuals, such as poor attention, bullying, or impulsivity (Anderson-Butcher et al., 2013). Youth who struggle with negative internal and external behaviors often demonstrate lower levels of engagement, decreased interest, lower grade point averages, and achieve lower levels of postsecondary educational or career attainment (Diaconu-Gherasim & Mairean, 2020; McLeod et al., 2012; Vuolo et al., 2014). Further, recent research by Zhu et al. (2022) identified negative adolescent behavior as highly associated with a propensity for risk-taking, negatively impacting career success and attainment in later life. For rural adolescents, rates of mental illness and disorders remain on par with urban and suburban peers, yet treatment and management remain consistently lower in rural contexts (Robinson et al., 2017). Further, multiple heightened intersectional risk factors among rural adolescents alongside small, dense social networks can increase stigma and decrease help-seeking behavior among rural youth (Schleider et al., 2020).

Challenges with negative internal and external behaviors shape adolescent academic development and abilities (McLeod et al., 2012; Pascoe et al., 2020) that have been found to impact postsecondary attainment and performance (Vuolo et al., 2014), as well as success and stability in later adulthood (Kieling et al., 2011). In a systematic review of adolescent health impacts on adult education and employment, Hale and colleagues (2015) identified the strongest overall effect of adolescent health variables on secondary school completion. This significant overall effect, however, was only found within

adolescent internalized behaviors (e.g., depression, anxiety, loneliness, ADHD) as opposed to physical health conditions. Further, when examining participation in postsecondary education, this same analysis found that adolescent internalized behavior had a similar significant association and effect on this outcome and no significant impact on adolescent physical health.

Recent research by Scanlon et al. (2020) identified significant associations between adolescents' internalized and externalized behaviors and social interactions with peers. Negative internal and external behaviors were found to shape adolescent engagement with others, which subsequently impacted their performance with academic concepts and content. This research corroborates findings from similar scholarship investigating the association between adolescent internal and external behaviors (e.g., loneliness, life satisfaction, aggression) and critical connections such as peer relationships (Asher & McDonald, 2009; Wentzel & Muenks, 2016). Previous research noted that adolescent social support and internalized and externalized behaviors may collectively impact learning, development, and attainment (Benner, 2011; Fu et al., 2021; Oberle et al., 2011; Van Ryzin & Roseth, 2018). The role of internalized and externalized behaviors in shaping the development of effective prosocial relationships has also become a topic of increasing interest, particularly as postsecondary education programs and employers have demonstrated greater awareness and value in interpersonal skills and qualities (Johnson & Wiener, 2017; Schanzenbach et al., 2016). Internalized and externalized behaviors, in tandem with peer relationships, play a significant role in adolescents' academic and social development within rural areas and contexts where there are often increased barriers to social and emotional supports, resources, and interventions (Bellamy et al., 2011), a great need for localized, accessible interventions and policies that address these issues using readily available systems and supports remains (Schleider et al., 2020). Thus, the interaction of these constructs and the ways they might shape academic motivation, actions, and level of preparation become essential factors in supporting adolescent postsecondary success.

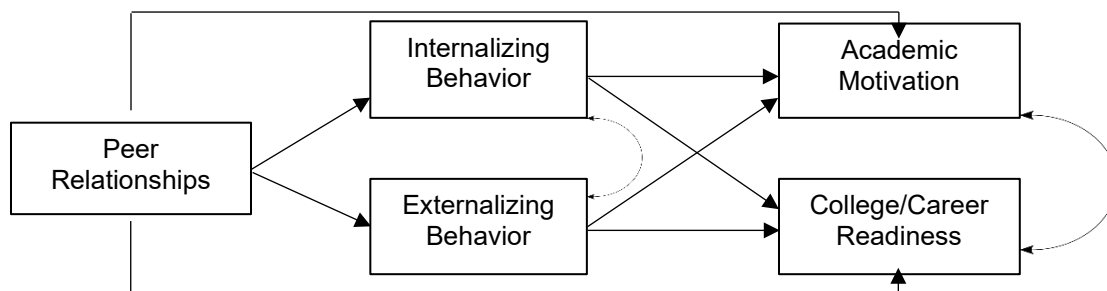
Study Hypotheses

Previous scholarship tells us that peer relationships influence adolescent socialization, decision-making, and internalized and externalized behaviors (Bagwell & Bukowski, 2018; McDonald & Asher, 2018). However, the *mechanisms* of this influence or ways these essential elements coalesce and shape postsecondary motivation and readiness remain unclear. Despite an increase in attention to the role that peer relationships and internalized and externalized behaviors may have on various noncognitive constructs of adolescents, these separate bodies of research have yet to be fully integrated. Further, exploring the integration of these critical constructs specific to rural youth and this population's postsecondary motivations and readiness remains limited. This gap in the literature calls for an intentional focus on rural adolescents and

their school experiences to better understand the unique circumstances of this population and the ways their environments and context may impact them. Thus, informed by social cognitive career theory that considers internal and external influences on postsecondary aspirations and attainment, the current study focused on rural youth peer relationships and their subsequent impact on academic motivation and college and career readiness. This association was further examined through youth internalizing (negative feelings) and externalizing (negative actions) behavior. Figure 1 demonstrates these relationships of interest.

Figure 1

Proposed path analysis model



This study aimed to provide greater insight into rural youth and their educational attainment by investigating several hypotheses:

Hypothesis 1: Positive rural adolescent peer relationships will demonstrate a positive association with their academic motivation.

Hypothesis 2: Positive rural adolescent peer relationships will positively affect their college and career readiness.

Hypothesis 3: Positive rural adolescent peer relationships will demonstrate a positive association with both positive internalizing and externalizing behaviors.

Hypothesis 4: The association between rural adolescent peer relationships, academic motivation, and college and career readiness will be positively mediated by positive internalized and externalized behaviors.

Methods

Participants and Procedures

Original data were collected using the middle and high school version of the Community and Youth Collaborative Institute - School Experience Scales [CAYCI-SES] (Anderson-Butcher et al., 2013; Anderson-Butcher et al., 2020). The study author received approval from the university institutional review board to conduct secondary data analysis on the collected information. Participants voluntarily completed approximately

30-minute surveys administered by school staff during school hours. This resulted in an original sample that included 8,541 youth in grades 6-12 from 37 participating rural middle and high schools in the Midwest United States. The Office of Management and Budget's (2000) definition of rurality indicated that schools are in counties with less than 50,000 inhabitants, and 84 percent of the land is classified as non-metropolitan. Sample demographic information can be seen in Table 1.

Table 1
Demographic information of study sample.

Variable	<i>n</i>	%
Gender		
Female	4241	49.7
Male	4061	47.5
Race/Ethnicity		
White	7285	85.3
Black/African American	308	3.6
Hispanic or Latino	73	0.9
Asian	70	0.8
Native Hawaiian/Pacific Islander	28	0.3
Multiracial	241	2.8
American Indian/Alaskan Native	122	1.4
Other	204	2.4
Grade		
6th	331	3.9
7th	1324	15.5
8th	1640	19.2
9th	1319	15.4
10th	1312	15.4
11th	1283	15.0
12th	1118	13.1
Age		
11 years old	829	9.7
12 years old	1524	17.8
13 years old	1468	17.2
14 years old	1316	15.4
15 years old	1287	15.1
16 years old	1172	13.7
17 years old	452	5.3
18 years old	43	0.5
19 years old	22	0.3
20 years old	43	0.5

Note. *N* = 8,541.

Measures

Cronbach's coefficient α – used to calculate the internal consistency coefficients of continuous variable survey items – is provided for each variable included in the current analysis. Previous research suggests that Cronbach's α levels of .70 or above indicate a reasonable measure of reliability or internal consistency of an instrument (Abraham & Barker, 2015; Taber, 2018). Guided by previous research that controlled for age, race, gender, socioeconomic status, parental involvement/support, and family/community connections (Baker et al., 2018; Stephens et al., 2015), five scales within the Middle and High School Student version of the CAYCI-SES were utilized, which were generated by the combining and averaging of subscale questions.

Academic Motivation and College/Career Readiness

The outcome variables of interest in this study are academic motivation and college and career readiness. The academic motivation scale consisted of six questions about students' feelings and attitudes toward school and academic experiences. An example item from this scale is, "*I feel my school experience is preparing me well for adulthood.*" Responses ranged from 1 = strongly disagree to 5 = strongly agree, and this variable obtained a Cronbach's alpha value of 0.84. The college and career readiness scale consists of seven questions focused on students' level of preparedness beyond high school. Example items from this scale are, "*What I learn in school will help me prepare for college*" and "*I am confident that I will reach my career goals.*" Responses range from 1 = strongly disagree to 5 = strongly agree with Cronbach's alpha value of .89.

Peer Relationships

The current study focused on one predictor variable and its relationship to the outcome variables described above. The peer relationships scale assessed the extent to which middle and high school students felt supported and had positive relationships with their peers (Anderson-Butcher et al., 2013). Example items from this six-question scale are, "*My friends support and care about me*" and "*My friends are people I can trust.*" Response options ranged from 1 = strongly disagree to 5 = strongly agree. The variable peer relationships obtained Cronbach's alpha value of .87.

Internalizing and Externalizing Behavior

The final variables accounted for in the current model are internalizing behavior and externalizing behavior. The 10-item internalizing behavior scale contained response options from 1 = strongly agree to 5 = strongly disagree, included items such as, "*In the past week, I felt sad,*" and obtained a Cronbach's alpha level of .92. An average of the response scores from the ten items was calculated and used as an indicator of internalizing behaviors, with higher scores reflecting students reporting lower rates of negative internalizing behaviors (Anderson-Butcher et al., 2013). The 10-item externalizing behavior scale contained response options from 1 = very often to 5 = never,

included items such as "*Within the current school year, have you ever been in a fight?*" and obtained Cronbach's alpha level of .85. An average of the response scores from the ten items was calculated and used as an indicator of externalizing behaviors, with higher scores reflecting students reporting lower rates of negative behavior and actions (Anderson-Butcher et al., 2013).

Analysis

Missing data patterns were explored before data analysis. All model variables demonstrated at least 96% of values present. Logistic regression models for testing missing data patterns were conducted, and all variables yielded null results except externalizing behavior and gender. For every one-unit increase in negative externalizing behaviors, there was a 43% decrease in the odds of participants responding to college and career readiness questions ($OR = 0.57$, $SE = 0.11$, $z = -2.83$, $p = 0.01$, $95\% CI = 0.39, 0.84$), and respondents who self-identified as male demonstrated a 66% decrease in odds of responding to college and career readiness questions ($OR = 0.34$, $SE = 0.12$, $z = -3.17$, $p = 0.001$, $95\% CI = 0.17, 0.66$). These variables were included in the study model, and each contained less than 3% missing data. However, data could not be considered missing at random based on significant predictors of missingness, and both significant predictors of missingness were included and controlled within the model. Therefore, complete information maximum likelihood estimation was employed (Schafer & Graham, 2002). This approach uses all available data to generate parameter and standard error estimates while accounting for missing data (McArdle, 2013).

Controlling for the remaining CAYCI-SES variables, a path analysis was conducted using Mplus 8 statistical software (Muthén & Muthén, 1998-2017). This analysis shows causal mechanisms through which independent variables produce direct and indirect effects on dependent variables. In the current study, I sought to investigate the direct impact of peer relationships on rural adolescents' internalized and externalized behaviors, academic motivation, and college/career readiness. Further, this study examines the indirect effects of peer relationships on academic motivation and college and career readiness, as mediated by internalizing and externalizing behavior. The current data was clustered, as often found in educational and psychological research. This means that the individual students examined were grouped (i.e., clustered) within the schools in which data was collected. The CLUSTER command was used to account for the nested data structure to adhere to the assumption of data independence. Further, intraclass correlation coefficients (ICCs) were computed to determine the dependence among group observations (Shrout & Fleiss, 1979). The ICC suggested that only 2% of the variance in college and career readiness ($ICC = 0.02$, $SE = 0.01$, $p < 0.001$, $95\%CI = 0.01, 0.04$) and only 4% of the variance in academic motivation ($ICC = 0.04$, $SE = 0.01$, $p < 0.001$, $95\%CI = 0.03, 0.07$), after adjusting for all model covariates, can be explained by school level (e.g., middle school, high school). Scholars have suggested that ICC values below 0.5

indicate poor reliability (Koo & Li, 2016; Kul et al., 2014). Thus, a two-level model where data is disaggregated by school level is not supported.

Before data analysis, model assumptions were examined. Linearity was examined using Pearson correlations between all continuous independent variables and the dependent variables of academic motivation and college and career readiness, with all correlations ranging from .27 to .61 and significant at 0.001, suggesting that the assumption of linearity was met. Further, previous scholarship indicates a distinct connection between adolescent academic motivation and college and career readiness (Brown & Lent, 2019; Conley, 2012; Conley & French, 2014) as well as internalized and externalized behaviors (Scanlon et al., 2020; Wentzel & Muenks, 2016), which may manifest differently in the context of unique personal and contextual school experiences of rural adolescents. Therefore, this study also identified the correlation between rural adolescent academic motivation and college and career readiness (.22, $p < .001$) and the correlation between internalized and externalized behaviors (.23, $p < .001$) in the proposed model. Normality was examined among all continuous variables with skew and kurtosis values for all variables falling below absolute values of 2 (skew) and 7 (kurtosis), indicating appropriate normality. Further, no issues of multicollinearity were present for study variables (variance inflation factor [VIF] < 2 ; O'Brien, 2007).

Results

The means, standard deviations, and ranges of study variables are presented in Table 2.

Table 2

Mean, standard deviation, and range for study variables.

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Peer relationships	3.83	0.77	1-5
Internalizing behavior	3.74	1.01	1-5
Externalizing behavior	4.23	0.63	1-5
Academic motivation	3.65	0.76	1-5
College/career readiness	3.96	0.85	1-5

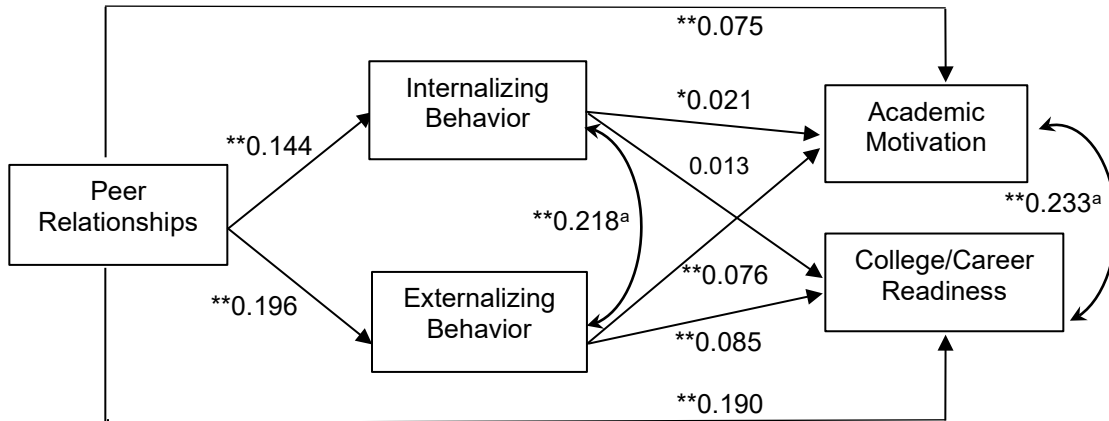
Note. $N = 8,541$.

Appropriate model fit was evaluated using the chi-squared (χ^2) misfit statistic, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA; Hayduk et al., 2007; Hu & Bentler, 1999). Model fit statistics for the multilevel path model suggested a good fit for the data ($\chi^2=15.31$, $df=2$, $p = .0005$; RMSEA = 0.03; CFI = 0.99; TLI = 0.94; SRMR = 0.02). Controlling for all other variables in the model, results indicated numerous significant relationships. Figure 2 estimates the direct effects of peer relationships, internalizing behavior, and externalizing behavior on academic motivation and college and career readiness. Also shown is the association

between the indirect effect variables of internalizing and externalizing behavior, which were found to be significant.

Figure 2

Path analysis model showing causal mechanisms, direct and indirect effects.



Note. Standardized direct effects are shown ($N = 8,541$). ^a = significant correlation. * $p < 0.05$, ** $p < 0.001$.

Table 3 shows all available direct effects found within the analysis.

Table 3

The direct effects of each construct are demonstrated within the path analysis model.

	β	SE	p	95% CI	
				LL	UL
Internalizing Behavior					
Peer relationships	0.144	0.017	0.000**	0.112	0.177
Externalizing Behavior					
Peer relationships	0.196	0.018	0.000**	0.161	0.231
Academic Motivation					
Peer relationships	0.075	0.013	0.000**	0.049	0.100
Internalizing behavior	0.021	0.010	0.029*	0.002	0.040
Externalizing behavior	0.076	0.011	0.000**	0.055	0.097
College/Career Readiness					
Peer relationships	0.190	0.018	0.000**	0.156	0.225
Internalizing behavior	0.013	0.014	0.354	-0.014	0.040
Externalizing behavior	0.085	0.015	0.000**	0.055	0.115

Note. IV = independent variable. DV = dependent variable. * $p < 0.05$, ** $p < 0.001$.

Direct Effects

Rural adolescent peer relationships were directly and significantly associated with academic motivation ($\beta = 0.196$, $SE = 0.018$, $p < 0.001$, $95\%CI = 0.161, 0.231$). Adolescent internalizing behavior ($\beta = 0.021$, $SE = 0.010$, $p = 0.029$, $95\%CI = 0.002, 0.040$) and externalizing behavior ($\beta = 0.076$, $SE = 0.011$, $p < 0.001$, $95\%CI = 0.055, 0.097$) were also found to have a significant direct association with academic motivation. Rural adolescent peer relationships were also directly and significantly associated with college and career readiness ($\beta = 0.190$, $SE = 0.018$, $p < 0.001$, $95\%CI = 0.156, 0.225$). Adolescent externalizing behavior was also found to have a significant direct association with college and career readiness ($\beta = 0.085$, $SE = 0.015$, $p < 0.001$, $95\%CI = 0.055, 0.115$). Of note, internalizing behavior and college and career readiness were found to have a nonsignificant association.

Indirect Effects

Results further indicate a significant indirect association between peer relationships and academic motivation *through* both internalizing behavior ($\beta = 0.003$, $SE = 0.001$, $p = 0.031$, $95\% CI = .000, .006$) and externalizing behavior ($\beta = 0.015$, $SE = 0.003$, $p = 0.000$, $95\%CI = .010, .020$). This suggested that an increased peer relationship score was associated with higher levels of academic motivation through increased scores of internalized and externalized behaviors. Adolescent externalizing behavior was also found to have a significant indirect association with college and career readiness ($\beta = 0.017$, $SE = 0.003$, $p = 0.000$, $95\%CI = .010, .023$). This suggests that adolescent peer relationships influence their feelings of preparedness for life beyond secondary school as seen through increasing positive externalizing behavior. The indirect relationship between internalizing behavior and college and career readiness was not statistically significant.

Discussion

This study investigated rural adolescent peer relationships and their subsequent impact on academic motivation and college and career readiness. Further, the mediating role of internalized and externalized behavior in conjunction with peer relationships was examined to understand better the mechanism or path that the influence of peer relationships takes to shape adolescent motivation and postsecondary preparation. Studies exploring the role of peer relationships, their impact on internalized and externalized behaviors, and their collective subsequent shaping of postsecondary motivation and readiness remain scant. In line with previous research (Byun et al., 2012; Li et al., 2011; Wentzel, 2017), peer relationships were positively associated with adolescent educational attainment as seen by improved perceptions of academic motivation and college and career readiness. The current study provides further insight into the critical role of adolescents' internalized and externalized behaviors in mediating the influence of peer relationships to shape rural adolescents' postsecondary aspirations and attainment.

Specifically, hypothesis one addressed the association between rural adolescent peer relationships and their academic motivation. Findings suggest that positive adolescent peer relationships were found to have a significant and direct association with academic motivation. This insight adds to growing evidence of the benefits and influence that stem from like-minded, positive, prosocial networks (Van Ryzin & Roseth, 2018). Molloy and colleagues (2011) suggest that adolescent academic motivation comprises several constructs, including academic engagement and self-concept. These constructs manifest as perceptions of competence about others, active participation, and applied effort (Bagwell & Bukowski, 2018; Molloy et al., 2011). The significant association between peer relationships and academic motivation corroborates the connection between peer relationships and adolescent perceptions of self-concept and postsecondary self-efficacy.

Strong peer relationships were also found to have a significant and direct association with college and career readiness. Previous scholarship noted that the strength of peer connections and relationships influenced educational aspirations, rural adolescent careers, and academic decision-making (Howley, 2006; Irvin et al., 2011; Masland & Lease, 2016). Peer relationships have been further identified as a significant contributor to adolescent socialization, academic self-concept, and academic effort exhibited through peer interactions (Molloy et al., 2011). This evidence is further reflected in the current study findings about participants' self-efficacy, goals, and decision-making related to trajectories beyond high school (Lent & Brown, 2019).

Peer relationships were found to be directly and positively associated with internalizing and externalizing behaviors. This demonstrates that greater peer support and trust contribute to more positive emotional states and prosocial behavior (Buck-McFadyen et al., 2019; Scanlon et al., 2020). Existing research supports the idea that adolescent internalized and externalized behaviors are buoyed by strong, supportive peer networks, connection, and information sharing (Choukas-Bradley et al., 2015; Van Ryzin & Roseth, 2018). The strength of the relationship demonstrated in this study's findings provides further evidence of the buffering and protective factors from positive peer associations (Hofmann & Muller, 2018; Larson & Tran, 2014). Thus, the consecutive, significant associations between adolescent peer relationships, internalized and externalized behavior, and subsequent postsecondary motivation and readiness demonstrate the path or mechanism by which social connections shape rural adolescent trajectories. This finding is critical to rural schools and educators, who will likely face limited access to healthcare services, mental health programming, and resources to support their students' social and emotional well-being (Perkins et al., 2021). As such, intentional focus on the elements of rural learning environments, such as school climates and peer engagement policies, that rural schools and educators can shape without increased resources must be prioritized to contribute to rural adolescent postsecondary success.

Hypothesis four in this study predicted the association between rural adolescent peer relationships, academic motivation, and college and career readiness mediated by internalizing and externalizing behavior. In reference to academic motivation, results indicated that strong, supportive connections with peers significantly impact adolescents' externalized behavior, subsequently impacting their academic motivation and feelings of preparedness for college or career. These findings support scholarship noting the critical role of adolescent behavioral health, particularly regarding academic outcomes, growth mindsets, and planning for the future (Frank, 2020; Hoffman et al., 2017). In addition, the results might be understood as evidence that trusting and supportive peer relationships during adolescence foster positive prosocial behaviors and actions oriented toward postsecondary success (Fu et al., 2021; Hale et al., 2015). Increasing constructive behavior and action (i.e., completing work, supporting peers, exhibiting good behavior) contributes to positive attitudes toward school and learning experiences, subsequently supporting perceptions of academic motivation, achievement, and college and career readiness (Wagner & Ruch, 2015). Rural adolescent peer relationships significantly impacted college and career readiness perceptions through externalized behaviors, often identified as tangible student actions, including physical altercations, truancy, or homework completion (Knight & Duncheon, 2020). This evidence signifies the importance of healthy school culture and climates that center on positive relationships and prosocial behavior (e.g., sharing, supporting, helping), particularly in the development of adolescent postsecondary goals, motivation, and preparation (Memmott-Elison et al., 2020; Moilanen et al., 2010).

Lastly, the current study identified peer relationships significantly impacting academic motivation through internalized behavior. However, results show that despite lower levels of perceived negative internalized feelings, the impact on rural adolescent college and career readiness remained non-significant. These results are divergent from previous scholarship that found the experience of positive and negative internalized behaviors are associated with adolescent engagement and subsequent aspirations and achievement (McLeod et al., 2012; Pascoe et al., 2020; Vuolo et al., 2014). This may result from other factors unmeasured in the study, such as self-regulation, understood to be how individuals manage their emotions, think constructively, and regulate or direct their behavior (Martin & McLellan, 2008). An adolescent's self-regulating ability can support resilience, goal setting, and academic preparation, potentially mitigating the impact of limited peer relationships or negative internalized and externalized behaviors (Dias & Cadime, 2017). These results demonstrate the need for further investigation into elements of rurality, such as socialization and the development of rural adolescent mattering (Schmidt et al., 2020), that may shape how rural students manage internalized behaviors and establish expectations for postsecondary attainment.

The current study supports scholarship that notes the critical role of social and emotional health among rural adolescents. Rural educators may look to these findings to

inform the development of postsecondary preparation programming that emphasizes academic rigor and the development of prosocial relationships between peers. How a school fosters a positive learning environment and a sense of identity or belonging may influence the nature and strength of existing peer connections and social supports (Aldridge et al., 2018). This, in turn, impacts mental and behavioral health outcomes (Evans et al., 2016). By centering prosocial and supportive relationships in a school's culture, barriers to healthy peer connections, such as bullying, victimization, and delinquency, may be reduced (Fu et al., 2021), subsequently increasing positive social, emotional, and academic outcomes. Drawing from positive social norms and values that often exist within rural communities, schools and educators may be able to shift existing energy and resources toward social and emotional health support. This might look like an increased focus on civic engagement opportunities for all students within a school (Luengo Kancri et al., 2020; Wray-Lake et al., 2019), development of near-peer student mentoring programs (Destin et al., 2018), or greater attention to family–school–community partnerships within rural communities that have been identified as contributing to youth academic and behavioral success (Sheridan et al., 2017).

Limitations

This study is not without limitations. One limitation stems from the cross-sectional nature of the study sample. The data analyzed represents a snapshot in time for participants and is not representative of the fluctuating nature of peer relationships, behavioral health, or academic and career aspirations. Future studies should longitudinally examine the association between peer relationships, internalized and externalized behaviors, and educational attainment to provide insights into the ongoing impact of adolescent peer relationships and how they shape social and emotional health in contexts later in life. Second, despite a large sample size, data collected for this study was from a single geographic region in the Midwest of the United States. Therefore, this data may not be representative of all rural American adolescents. Future research should seek to incorporate greater geographic and racial/ethnic diversity to provide a more accurate depiction of the role peer relationships have on the educational attainment of rural adolescents and investigate random subsamples of rural youth to assess the applicability of the model and significant results within samples of varying effect size.

Conclusion

This study's primary aim was to investigate rural adolescent peer relationships, their impact on externalized and internalized behaviors, and the subsequent impact on academic motivation and college and career readiness. Through a greater understanding of these factors, rural adolescents' perception of their self-efficacy and ability to succeed in any postsecondary pathway can be positively impacted. Through targeted support and intervention, informed by this study's identified mechanism of influence, educators, caregivers, and school mental health professionals can contribute to enhanced academic

and developmental outcomes for rural adolescents. As such, rural schools and educators should work to capitalize on the unique attributes of their communities and school structures to develop safe and equitable learning environments that foster positive, supportive, prosocial peer relationships.

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