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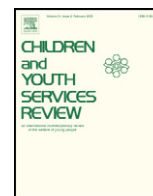
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Reconnecting Youth: Promoting emotional competence and social support to improve academic achievement

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ABSTRACT

Previous research indicates that students who drop out of high school are at risk for a number of negative outcomes. Both ecological and individual risk factors contribute to students' propensity for dropout. This study examined the effectiveness of a targeted dropout prevention program at improving academic achievement and investigated whether improved social support and emotional competencies partially mediated the association between intervention participation and student outcomes. A sample of 110 middle and high school students (55 intervention participants and 55 students in a matched control group) completed surveys investigating their social-emotional assets and schools provided academic data for participants. Structural equation modeling revealed that students who participated in the program had higher academic achievement compared to the control group. Prior levels of academic achievement moderated the effectiveness of the program with students with low initial levels of academic achievement benefiting more. Emotional competencies and social support did not mediate the relation between participation and achievement. The intervention was related to improved academic achievement among participants; however, the means by which it was effective was unclear. Given the evidence that the program was more effective for some students than others, targeting interventions to meet specific needs of students may be advantageous.

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1. Introduction

High school dropout is a major problem in the United States. In 2012, the national status dropout rate - the percentage of 16- through 24-year-olds who were not enrolled in school and had not earned a high school credential - was 7%, and the percentage of students graduating high school in four years was 81% (U.S. Department of Education, 2014). Dropout rates are concerning because lack of high school completion is associated with unemployment (Rotermund, 2007), low-income levels (Rumberger & Rotermund, 2008), substance use (Esch et al., 2014), delinquency (Chavez, Oetting, & Swaim, 1994), and internalizing disorders (Esch et al., 2014). Controlling for prior risk factors, research also indicates that individuals who drop out of high school are at increased risk for sickness and disability (De Ridder et al., 2013). Given the negative impact of high school dropout on the developmental trajectories of adolescents, early identification of and intervention with students at risk for dropout is essential.

This study adopts the theoretical lens of Rumberger and Rotermund (2012) who developed a conceptual model of school dropout that explains student dropout as a byproduct of interactions between various environmental contexts and individual characteristics. Rumberger and Rotermund (2012) integrated theories of dropout with Bronfenbrenner's bioecological model. Bronfenbrenner's bioecological model stresses the importance of environmental systems, such as schools, families, and neighborhoods, in the development of individuals while also acknowledging the role of individual characteristics in influencing the way youths interact with the world and modify their environmental contexts (Bronfenbrenner & Morris, 2006). Similarly, Rumberger and Rotermund (2012) theorized that there are four types of individual factors that influence student dropout: background factors (i.e., demographics, health, prior educational performance, and past experiences); attitudes (i.e., goals, values, and self-perceptions); behaviors (i.e., engagement, coursework, deviance, peers, and employment); and performance (i.e., achievement, persistence, and attainment). They also highlighted the importance of three types of contextual influences: families, schools, and communities. They argued that all of these domains are interrelated, and students with risk factors in one domain are likely to have risk factors in other domains as well. Students with a large number of risk factors are at an increased risk of high school dropout.

Empirical research supports the saliency of the individual and environmental factors discussed by Rumberger and Rotermund. In a recent review of the literature on school dropout, De Witte, Cabus, Thyssen, Groot, and van den Brink (2013) found evidence that numerous family

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and school factors have protective effects on the likelihood of students dropping out of high school, including two-parent, biological families; warm, supportive families; schools with ample resources; schools with positive climates; and experienced, supportive, high-quality teachers. Empirical studies consistently show that having positive social connections with teachers and peers at school is linked with a lower propensity for dropout (Doren, Murray, & Gau, 2014; Reschly & Christenson, 2006). In addition, community influences also impact a student's propensity for dropout. For example, previous research has documented that there are higher dropout rates in poor neighborhoods (Harding, 2003; Rendón, 2014) and in neighborhoods with high rates of violence (Burdick-Will et al., 2011; Harding, 2010).

Research has also identified a plethora of individual characteristics associated with increased risk of high school dropout, including using controlled substances at young ages (Esch et al., 2014), associating with deviant friends (Vitaro, Laracque, Janosz, & Tremblay, 2001), and disengaging in class or at school (Reschly & Christenson, 2006). In one study, using latent profile analysis Orpinas, Raczynski, Peters, Coleman, and Bandalos (2014) found teachers' ratings of students' externalizing problems, internalizing problems, and social skills predicted later school dropout. Students who belonged to groups characterized by social skills deficits or high levels of internalizing and externalizing problems were more likely to drop out than their peers. One of the best measures of students' trajectories towards high school dropout is their current level of academic performance. Research suggests one of the strongest and most reliable predictors of high school dropout is poor academic achievement (Bowers, 2010). Thus, changes in academic achievement can be used as an indicator of whether a student is on a trajectory towards dropout or school completion. As such, academic achievement is being used as the outcome of interest in the current study since it is an accurate predictor of a student's likelihood of dropping out and it can be measured before students drop out while they are still in school and, therefore, still available for school-based interventions.

1.1. Interventions to prevent high school dropout

Given the serious repercussions of high school dropout, a number of programs have been developed to promote high school completion. These programs vary widely and range from mentorship programs to academic tutoring; research has not determined which types of programs are most effective. Prevatt and Kelly (2003) reviewed dropout prevention programs, and although they found that academically oriented or multifaceted programs were the most promising, they concluded that there was a lack of consistent or persuasive evidence to support any given program. More research is needed to establish which dropout prevention programs are most effective and what factors explain the success of these programs.

Reconnecting Youth (RY) is a dropout prevention program with promising research support that seeks to decrease substance use, increase school performance, and decrease emotional distress through skills training and social support (Eggert, Thompson, Herting, & Randell, 2001). Program developers hypothesize that by providing youth with a social support network and a place to learn decision-making, emotional regulation, and self-monitoring skills, youth will refocus efforts into school (Eggert et al., 2001). Thus, the two main goals of RY are to increase the amount of support that students experience in school and to help students build skills in emotion competence. In doing so, RY is theorized to prevent school dropout by helping students build both individual assets (i.e., emotional competence and self-regulation) and ecological assets (i.e., social support network) associated with school completion thereby addressing both the individual and environmental influences on dropout proposed by Rumberger and Rotermund (2012).

While there have been no studies to date that directly measure the impact of RY on school dropout, preliminary research using quasi-experimental designs conducted by the program developers indicate

that RY is effective at reducing drug use (Eggert, Seyl, & Nicholas, 1990; Eggert, Thompson, Herting, & Nicholas, 1994); school deviance (Eggert et al., 1994); and depression and suicidal risk behaviors (Eggert et al., 1994; Thompson, Eggert, & Herting, 2000) in students from the Northwest. They also found evidence that RY improved student attendance and grade point averages (GPAs) relative to controls (Eggert et al., 1990). However, two more recent randomized control trials evaluating RY in large urban school districts in the Southwest and Pacific Coast failed to replicate these findings. Compared to controls, participants in RY experienced greater decreases in: GPA, conventional peer bonding, and school connectedness; additionally, RY participants' substance use increased more than controls (Cho, Hallfors, & Sanchez, 2005; Sanchez et al., 2007). These findings suggest that RY might have iatrogenic effects for some students, indicating a dire need for more research examining the effects of RY. Despite the negative outcomes found in these more recent studies, RY is listed as an evidence-based intervention on SAMSHA's National Registry of Evidence-Based Programs and Practices website. It continues to be implemented in schools across the county and internationally, and several states have acknowledged RY as an evidence-based program, recommending it to school districts and providing funding and training to support its adoption (SAMSHA, 2009). Given its widespread usage, it is important that more research is conducted to determine whether RY should continue to be promoted as an evidence-based program.

This study seeks to reconcile some of the contradictory evidence found in the literature by examining whether the differences in the effectiveness of RY found by previous researchers can be attributed to the sample populations. Specifically, this study examines whether RY is differentially effective for students based on their prior achievement performance. Given that RY was initially designed as an intervention for students with poor school performance, it is possible that RY may be harmful for students who do not demonstrate a clear academic need by exposing them to deviant peer influences. Previous research has failed to examine the possible interaction between student characteristics and the effectiveness of RY as an intervention.

1.2. This study

This study seeks to: (a) address contradictory findings in the literature regarding the effectiveness of RY on students' academic achievement and (b) investigate the means by which RY produces positive student outcomes. Additionally, this study seeks to address whether the benefits of participating in RY are moderated by individual characteristics. Given that some of students are in middle school when they participate in RY, it would be impossible to determine RY's impact on dropout rates for at least five years; thus, academic achievement was chosen as a more proximal outcome that is a reliable indicator of a student's propensity to drop out. The study aims to answer the following research questions:

1. Do students who participate in RY improve in academic achievement more than peers from a matched control group?
2. Do increased ecological and individual assets (i.e., social support and emotional competence) mediate the relation between participation in RY and improved academic achievement?
3. Is the influence of RY moderated by prior levels of academic achievement?

It was hypothesized that RY participants, unlike their counterparts in the matched control group, would improve in academic achievement. Moreover, these gains were hypothesized to be partially mediated by improvements in students' emotional competence and social support as these assets were theorized to be relevant ecological and individual predictors of achievement trajectories based on prior research findings (De Witte et al., 2013; Doren et al., 2014; Mega, Ronconi, & De Beni, 2014). Given that this program was initially designed for individuals

with low levels of academic achievement, it was hypothesized that those students would benefit most from RY.

2. Materials and methods

2.1. Program description

RY consists of a semester-long class with goals of improving academic achievement, reducing substance use, and improving mood management. The program was developed based on strain, social learning, and control theories, which posit that social relationships have a major impact on individuals' behavior (Eggert et al., 2001). Thus, RY seeks to develop a positive social network for students while at the same time teaching them life skills. RY classes are composed of 10–12 students. The curriculum contains five units with a total of 79 lessons. The initial unit introduces students to the RY model; the next four units are on self-esteem, decision-making, personal control, and interpersonal decision-making. Each lesson follows a basic structure with 60% of the class devoted to skill-building, 20% to monitoring progress, and 20% to student support and group development.

2.2. Research protocol

A quasi-experimental design was used, employing pretest values of outcome measures to control for preexisting differences between groups since random assignment was not possible due to scheduling constraints. Students eligible for the program based on academic criteria (lowest 25% of class in attendance or achievement) were invited to participate. Students who chose to participate were assigned to RY classes by their guidance counselors. For RY participants, letters explaining the purpose of the research were sent home to parents at the beginning of the intervention. Students from the control group were recruited from the same district; parents of all students enrolled in 5th, 7th, 9th, and 11th grades were sent a letter at the beginning of the school year explaining the purpose of the research. Schools provided demographic information as well as attendance and achievement data from the 2013–14 and 2014–15 academic school years on all participating students. Students from the control group took the SEHS-S in the Fall of 2014 and Spring of 2015 as a pre-test and post-test measures of social and emotional assets. RY participants took the SEHS-S at the beginning and end of the class. All data were tracked by district student identification numbers.

Program implementation fidelity is critical to demonstrate the effectiveness of interventions (Wilson & Tanner-Smith, 2013). Teachers kept a daily log of lessons and researchers counted how many were taught. On average, RY instructors taught 89% of lessons with a range of 81% to 94%, meeting adherence criteria (Sanchez et al., 2007). Three independent evaluators also conducted structured classroom observations to measure the quality of the delivery of the program. Using a series of Likert five-point scales (0 = *not observed* to 5 = *truly exceptional*) two elements of quality were assessed: skills delivery and group development. A score of three indicated adequate quality. Mean scores for both skills delivery and group development were above a three for all classes. The first author, all RY evaluators, and all RY teachers underwent 25 h of training on the key aspects of the RY program and elements necessary for proper implementation.

2.3. Sample

Participants included 110 youth (55 RY participants and 55 youth in the matched control group) attending a single school district in Southern California. The school district is a relatively small district ($n = 2239$) composed of primarily Hispanic (75%) and White (22%) students. Participants attended the district middle school, the primary district high school, or the district alternative high school. RY participants were identified through their schools as being at risk for high school

dropout based on low GPA (GPA in the bottom 25% of grade) or poor attendance (top 25% in terms of truancy for their grade level). Students who had no post-measures for academic achievement or social and emotional competencies were removed from the dataset. Of the 79 students who participated in RY during the 2014–15 school year either during the fall semester or the spring semester, 71 returned parental consent to participate, and 55 (77%) completed measures at both time points. About 15% of the RY participants were enrolled in middle school, and the other 85% were enrolled in high school. There were more males ($n = 36$; 65.5%) than females ($n = 19$; 34.5%). The majority of the sample was Latino/a ($n = 42$; 76.4%). Other racial and ethnic groups represented include White ($n = 10$; 18.2%), American Indian ($n = 2$; 3.6%), and African American ($n = 1$; 1.8%). Students' ages ranged from 12 to 17 years ($M = 16.0$ years).

The matched control group was selected from the remaining 7th, 9th, and 11th grade students from the same school district ($n = 603$) using propensity scores based on students' prior levels of academic achievement and attendance. Of the 689 7th, 9th, and 11th grade students in the district, 603 (87.5%) returned the consent forms, and 552 (92%) completed measures at both time points. Propensity scores were calculated using pre-measures of GPA and attendance. Using nearest neighbor matching without replacement, students from RY were matched to students from the control group who were enrolled in the same type of school (i.e., middle school or high school) and whose propensity scores were closest to the participants (Austin, 2011). This left a sample of 55 control group participants matched to the 55 intervention participants. The resulting control group had similar demographics to the intervention group (see Table 1). About 85% of students in the control group were enrolled in high school. Approximately 62% of the sample was male ($n = 34$), and the other 38% ($n = 21$) was female. Students were primarily Latinos/as ($n = 43$; 78.2%); some students were White ($n = 10$; 18.2%) or American Indian ($n = 2$; 3.6%). Students' ages ranged from 12 to 17 years ($M = 15.5$). Initial measures of GPA were similar for RY and control group participants ($M = 1.72$ and 1.73, respectively), suggesting that the control group was accurately matched to RY participants based on prior achievement. Pre-existing group differences in gender, race/ethnicity, age, and GPA were not statistically significant ($p > 0.05$).

2.4. Materials

2.4.1. Academic achievement

Students' academic achievement was measured using their grade point averages (GPAs). Schools provided researchers with students' GPAs from the 2013–2014 academic year as a measure of their pre-intervention academic achievement, and from the Spring semester of the 2014–15 academic year as measures of students' post-intervention academic achievement. Although GPA is not a perfect measure of academic achievement as standards for determining grades vary across different schools and teachers, it is a widely used measure of academic achievement, and it provides an overview of the progress a student is

Table 1
RY participants versus control group ($N = 110$).

	RY participants	Controls
N	55	55
M age	16	15.5
% female	34.5	38
% HS	85	85
Race/ethnicity		
% Latino/a	76.4	78.2
% White	18.2	18.2
% American Indian	3.6	3.6
% African American	1.8	0
M GPA	1.72	1.73

making towards graduation. Moreover, previous studies have found that GPA is a significant and useful predictor of dropout (Bowers, 2010).

2.4.2. Social and emotional assets

Social support and emotional competence – the individual and ecological resources theorized to mediate the relation between RY participation and academic achievement – were measured using the Social and Emotional Health Survey – Secondary (SEHS-S; Furlong, You, Renshaw, Smith, & O'Malley, 2014). The SEHS-S measures 12 individual assets, which form four first-order core positive mental health domains, two of which were employed in this study: *belief-in-others*, which is composed of a student's perceptions of their social support, namely their school support, peer support, and family coherence; and *emotional competence*, which includes emotion regulation, self-control, and empathy. Each of these domains is comprised of three items on the survey, measured with a four-point Likert scale ($1 = not\ at\ all\ true$ to $4 = very\ much\ true$). In this study, the alpha coefficient for the *belief-in-others* scale was 0.90, and the alpha coefficient for the *emotional competence* scale was 0.83. Previous research indicates the SEHS has good discriminant validity with hyperactivity, internalizing problems, substance use, and school problems and good concurrent validity with academic achievement, subjective well-being, and perceptions of school safety (Furlong, You, Renshaw, Smith, & O'Malley, 2014; You et al., 2013). Moreover, confirmatory factor analyses, invariance analyses, and latent means testing all support the SEHS across genders and sociocultural groups (Furlong et al., 2014; You, Furlong, Felix, & O'Malley, 2015).

2.5. Data analysis

2.5.1. Data cleaning

Data were examined for normality and outliers; no substantial violations of normality emerged. There were fairly large amounts of missing data with approximately 29% of students missing SEHS-S pre-test data, 42% missing SESH-S post-test data, and 36% of students missing post-intervention GPA data. No clear patterns of missingness emerged; students with complete data resembled students with missing data in demographics and prior achievement data, suggesting that data were missing at random. Following recommendations provided by Little, Jorgensen, Lang, and Moore (2014), full-information likelihood was used to handle missing data. A dummy variable was created to identify students who participated in RY (0 = control group, 1 = RY participant). Scale scores for the SEHS-S were computed by summing item responses for each scale. Using SPSS 22, bivariate correlations of variables were studied to evaluate the strength and direction of correlations between variables.

2.5.2. Structure equation modeling

Two mediation path models were estimated in M*plus* 7.0 (Muthén & Muthén, 1998–2012) to test if participation in RY resulted in improved academic achievement and whether those improvements could be explained by increases in emotional competence (emotion regulation, self-control, and empathy skills) and sense of social support (as measured by the *belief-in-others* substance on the SEHS-S). To test the third question, whether RY was more predictive of academic achievement for students with low levels of prior academic achievement, a moderation pathway was also estimated in the second model. Bootstrapping with 5000 iterations was used to test the indirect influences of RY on academic achievement. Bootstrapping is a recommended method for testing meditational effects because it has greater statistical power to control for Type I error than Baron and Kenny's (1986) three-step regression method or the Sobel (1982) method (Cheung & Lau, 2008; Preacher & Hayes, 2004). Based on Monte Carlo simulations conducted by Thoemmes, MacKinnon, and Reiser (2010), a sample size of 110 has enough power to detect effects in a structural equation model with two mediating variables given a medium effect size.

To evaluate model fit, chi square, root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker Lewis index (TLI), and standardized root mean square residual (SRMR) were used. Hu and Bentler's (1999) guidelines of cutoff values of 0.95 for TLI and CFI, 0.08 for SRMR, and 0.06 for RMSEA were adopted to determine whether models had good fit. To examine a mediating role, bootstrap confidence intervals were examined. A confidence interval that does not include zero indicates there is a 95% chance that the mediating pathway is significant.

3. Results

3.1. Bivariate correlations

An examination of bivariate correlations revealed that pre-measures of academic achievement, emotional competence, and social support were significantly correlated with their respective outcome measures ($p < 0.01$). The outcome measure of social support was also correlated with the outcome measure of academic achievement ($p < 0.05$). Table 2 displays correlations of variables as well as means and standard deviations.

3.2. Structural equation modeling

Structural equation modeling examined the impact of participation in RY on academic achievement and whether this relation was mediated by students' social support and emotional competence (see Fig. 1). The second hypothesized model included an additional moderation effect of previous levels of academic achievement (see Fig. 2). Both models regressed outcome measures on initial measures to control for preexisting differences between groups.

Model 2 had better fit than Model 1. For Model 1, only the chi square test and the SRMR provided good support for the model: χ^2 (7) = 10.11, $p > 0.05$, RMSEA = 0.08 (0.00–0.19), CFI = 0.93, TLI = 0.85, SRMR = 0.06. Model 1 accounted for 57.0% of the variance in final GPA, 82.0% of the variance in social support, and 76.8% of the variance in emotional competence. Model 2 had better fit: χ^2 (9) = 11.43, $p > 0.05$, RMSEA = 0.07 (0.00–0.16), CFI = 0.95, TLI = 0.90, SRMR = 0.06. Although the χ^2 value for Model 2 was not statistically significantly better than the χ^2 value in Model 1 ($p = 0.52$), Model 2 was selected as the better fitting model since only the TLI and the RMSEA values were outside the good fit range, and they fell in the adequate fit range (Hu & Bentler, 1999). The final model accounted for 53.6% of the variance in final GPA, 82.3% of the variance in social support, and 76.8% of the variance in emotional competence. Fig. 3 shows the final model with all statistically significant standardized coefficients for direct paths. Correlations between exogenous variables were excluded from the figures. Table 3 presents the mediation paths, the bootstrap estimates, and the 95% bias-corrected confidence intervals.

Table 2
Bivariate correlations between variables ($N = 110$).

	1	2	3	4	5	6
1. GPA (pre)	–					
2. GPA (post)	0.52***	–				
3. Emotional competence (pre)	0.22	0.17	–			
4. Emotional competence (post)	0.23	−0.05	0.47***	–		
5. Social support (pre)	0.08	0.22	0.34**	0.15	–	
6. Social support (post)	0.26	0.39*	0.21	0.33*	0.46***	–
M	1.73	1.91	8.91	8.81	9.01	9.33
SD	0.78	0.98	4.56	3.43	5.56	5.32

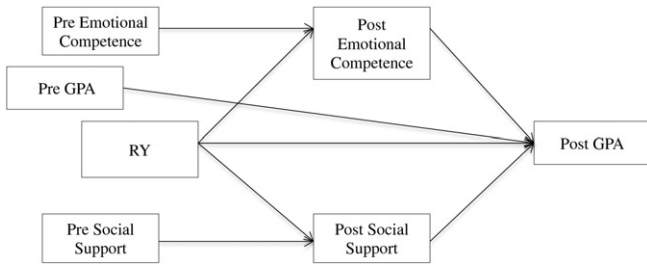* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Fig. 1. Path analysis for simple mediation model with social support and emotional competence partially mediating the impact of Reconnecting Youth on GPA.

3.2.1. Direct paths

All pre-measures were positively associated with their respective post-measures, specifically, GPA ($\beta = 1.04$, $p < 0.01$), social support ($\beta = 0.40$, $p = 0.01$), and emotional competence ($\beta = 0.50$, $p < 0.01$). Students who participated in RY had higher GPAs ($\beta = 0.82$, $p = 0.03$) but lower levels of emotional competence ($\beta = -0.27$, $p = 0.04$) at the end of the intervention than students in the control group. Participation in RY was not statistically significantly associated with later levels of social support ($\beta = -0.10$, $p = 0.43$). Students who ultimately had higher levels of social support also had higher outcome GPAs than their peers ($\beta = 0.37$, $p = 0.02$). Outcome levels of emotional competence, on the other hand, were not associated with outcome GPA ($\beta = -0.16$, $p = 0.40$).

3.2.2. Indirect mediation paths

Mediation pathways were tested to see if the positive association between participation in RY and academic achievement was explained by students' reported levels of emotional competence or social support at the end of the intervention. The indirect pathways from RY to academic achievement ($\beta = 0.08$, BC 95% CI = -0.14, 0.46) and social support ($\beta = -0.07$, BC 95% CI = -0.43, 0.18) were insignificant (see Table 3). Thus, the data did not support the partial mediation hypotheses.

3.2.3. Moderation paths

Prior levels of academic achievement moderated the association between RY and later academic achievement ($\beta = -0.97$, $p = 0.03$). The relation between RY and later academic achievement was larger for students with lower initial levels of academic achievement.

4. Discussion

Overall, results indicated that participation in RY was associated with higher levels of GPA, corroborating evidence that RY aids students in reversing trajectories of declining academic achievement. However, this study failed to explain the mechanisms by which RY might support academic achievement; improvements in GPA were not mediated by improvements in emotional competence (i.e., emotion regulation, self-
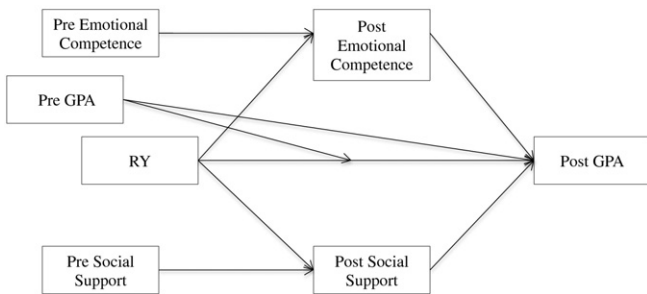

Fig. 2. Path analysis for mediation model with social support and emotional competence partially mediating the impact of RY on GPA and previous levels of academic achievement moderating the impact of RY on GPA.
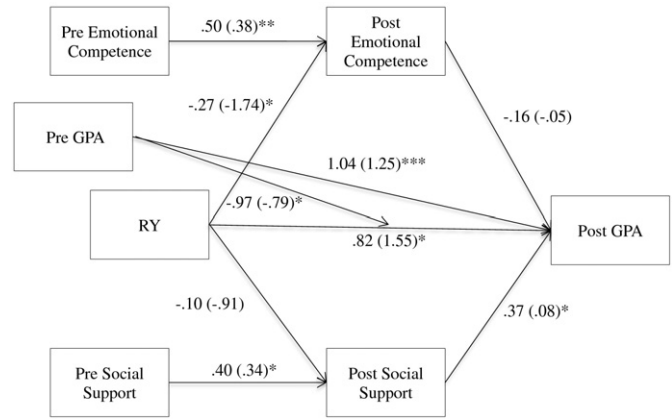

Fig. 3. Path analysis for final mediation model with standardized (and unstandardized) parameter estimates. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

control, and empathy) or social support (i.e., students' perceptions of school support, peer support, and family coherence).

Regarding social support, a major goal of Reconnecting Youth is to boost students' connections to peers and staff at school. Promoting school connectedness is theorized to improve students' academic engagement and achievement and our findings supported the theory that students' social support is associated with academic achievement. However, Reconnecting Youth participation did not explain this association.

Regarding emotional competence, RY's curriculum explicitly teaches students emotion regulation techniques and self-control strategies. Thus, participation in RY was hypothesized to lead to increases in emotional competence yet RY participants reported a decrease in levels of emotional competence. Perhaps students gained a better understanding of emotional competence and subsequently more self-awareness about their own deficits in these areas. It is also possible that this negative outcome can be explained by the iatrogenic effects of grouping youth from high-risk backgrounds together. Dishion, McCord, and Poulin (1999), for example, explored "deviancy training" that can occur when adolescents from high-risk backgrounds are grouped together for interventions. They found that peer-group interventions increased adolescent problem behavior and adolescents from high-risk backgrounds were particularly vulnerable to this effect. It is possible that emotional competency skills would be better taught in individual settings or with prosocial peers.

Another possible explanation for the lack of positive changes observed in emotional competence and social support through participation in RY is that the intervention is not broad enough. According to Rumberger and Rotermund's (2012) framework of school dropout, student dropout is the result of interactions between different environmental influences and individual characteristics. Individual factors (i.e., background factors, attitudes, behaviors, and performance), families, schools, and communities all influence a student's propensity to dropout. RY attempts to create protective factors across both individual

Table 3
Standardized bootstrap estimates for indirect mediation pathways from RY to GPA.

Effect	Standardized indirect effect β	BC 95% CI	
		CI lower	CI upper
Total effect	0.82*	−0.66	3.42
Total indirect	0.01	−0.38	0.45
Specific indirect			
RY, emotional competence, GPA	0.04	−0.14	0.46
RY, belief in others, GPA	−0.04	−0.43	0.18

Note. BC 95% CI = bias-corrected 95% confidence intervals.
* $p < 05$.

and environmental contexts by providing students with social support networks at school and helping students build emotional and self-regulatory skills. However, RY is restricted in its scope and does not expand to the family and community spheres, which could limit its effectiveness.

Participation in RY did not predict later levels of academic achievement uniformly for all students. Participants with lower initial GPAs improved more than participants with higher initial GPAs. RY, then, appears to be differentially effective at promoting academic achievement for different types of students. Previous research indicates there is no best approach to dropout prevention; rather, a variety of approaches have been found to have positive impacts on students' educational trajectories (Wilson & Tanner-Smith, 2013). Thus, instead of looking for a one-size-fits-all approach to dropout prevention, there should be a focus on targeting interventions to address individual students' specific risk factors. While students with academic deficits may benefit most from academic tutoring, other students would likely benefit from mentoring or family interventions. While it is more time-consuming and labor intensive to individualize interventions based on students' specific risk factors, this time of approach is more likely to be successful as it directly addresses students' needs.

Previous research has identified a number of different trajectories to high school dropout. For example, using latent class analysis with data from the Educational Longitudinal Study, Bowers and Sprout (2012) found three types of dropouts that they labeled "Quiet," "Jaded," and "Involved." Quiet students had low levels of academic achievement but were otherwise similar to graduates. Jaded students disliked school, had high levels of disciplinary problems, had low academic achievement, and had low levels of engagement in school. Involved students were actively engaged in extracurricular activities but had low levels of achievement and were frequently in trouble. RY, which seeks to build school connectedness, might be more likely to help Jaded students who dislike school and have low levels of engagement compared to Involved students who already appear to have positive school connectedness. Quiet students may be best served by purely academic interventions. Other researchers have conducted similar studies (Fortin, Marcotte, Potvin, Royer, & Joly, 2006; Janosz, Le Blanc, Boulerice, & Tremblay, 2000). These studies of high school dropout typologies provide evidence that high school dropouts are not a uniform group, and there are important intragroup differences among students who drop out who may require different types of interventions to succeed in school.

4.1. Limitations

Although this study provides some support for RY as an intervention to improve academic achievement in students at risk for dropout, there were limitations including not directly measuring dropout, lack of experimental design, and small sample from one school district. In addition, other variables that were not measured – such as attendance or school disciplinary incidents – may have influenced the results and may help explain the unanticipated findings. The primary limitation, however, was high levels of attrition. Participants were chosen because they had low rates of attendance; however, this meant that these students were often not present on days when data collection was occurring. Future researchers working with students with historically low attendance rates should take additional precautions to collect follow-up data.

4.2. Conclusions

This study provides corroborating support for the use of RY to improve academic achievement in students at risk for school dropout. Results support the need to differentiate prevention programs for subtypes of youth at risk for dropout. Given the extremely negative health consequences of high school dropout–including substance use,

illness, and disability–it is crucial to identify not only which programs that can help address risk factors for dropout and help all students achieve high school graduation but also to determine why programs work for which students.

5. Human subjects approval statement

The University of California, Santa Barbara's Institutional Review Board approved the procedures and measures used in this study.

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