Promoting Social-Emotional Learning via Sports: A Preliminary Study of an Afterschool Program for Underserved Students

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Abstract

Following the COVID-19 pandemic, students' social-emotional learning (SEL) has become a critical concern, particularly for students in underserved populations who experienced limited access to educational services and support resources. Prior research suggests that school-based afterschool programs that integrate SEL, academic support, and structured physical activity may

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promote students' social-emotional development. This pilot study used a single-group pre- and post-test design to explore the feasibility and preliminary trends of an 8-week sports-based afterschool program. Grades 1-5 students from two Title I elementary schools (N = 21) in the United States completed this program and were assessed for grit, academic self-efficacy, sense of belonging, emotional regulation, and perceived academic performance. Results indicated that trends observed in the descriptive data suggested modest upward trends in grit and emotional regulation. The preliminary findings of this study highlight the logistical feasibility of sports-based afterschool programming as an accessible and prevention-oriented approach. As an exploratory effort, this study provides foundational evidence and critical guidance for future large-scale research aimed at supporting students' social-emotional development in underserved communities.

Keywords: physical activity interventions, social-emotional competence, under-resourced communities, youth development

The behavioral and socio-emotional health remains a concern in the aftermath of the COVID-19 pandemic, especially for students in under-resourced communities. During distance learning, perceived isolation, changing routines, and limited access to education-related support have significantly impacted students' social and emotional well-being (Hawrilenko et al., 2021; Liang et al., 2020). These difficulties have also influenced Nevada's schools, where issues related to chronic absenteeism and behavioral interruptions are persistently reported. This has led the state to prioritize improving students' social-emotional learning as a core initiative (NDE, 2024). At the same time, educators face challenges, including crowded classrooms and pressing demands to accelerate students' academic progress, while many students return to school with unmet social and emotional needs (Gamoran & Murnane, 2023). These post-pandemic difficulties are exacerbated by existing systemic inequities, including limited access to mental health, extracurricular, and after-school services (DeFosset et al., 2017). This has disproportionately affected students residing in under-resourced communities, which has widened opportunity gaps among underserved students (Gamoran & Murnane, 2023).

Besides behavioral and social-emotional health concerns, students' physical well-being has been adversely affected by a lack of consistent access to physical activity opportunities and safe recreational spaces during the pandemic (Alliott et al., 2024; Neville et al., 2022; Szeszulski et al., 2023). For some underserved students, their daily health-enhancing physical activity level is achieved through physical education in schools, before or after-school activities. Research has demonstrated that physical activity engagement benefits students' physical health, emotional regulation, mental well-being, and academic learning outcomes (Andermo et al., 2020; Sliwa et al., 2019; Zhang et al., 2025). Interventions that encompass structured sports and physical activities have also been positively linked to improved student outcomes such as learning behaviors, academic achievement, and character development (Fu et al., 2025; Johnston & Marttinen, 2023; Solberg et al., 2021). However, existing health and opportunity gaps are deepened for underserved students when these supports and resources are unavailable due to barriers such as cost or transportation. These findings underscore the importance of equitable access to physical activity opportunities in enhancing students' overall well-being (Centers for Disease Control and Prevention [CDC], 2025). However, our understanding of how sports-based programs function in post-COVID educational contexts marked by intensified social-emotional needs and constrained school resources remain limited.

Although the benefits of structured enrichment programs are evident, many underserved

students still lack access to these opportunities, which indicates a critical gap in current education services (Sjogren & Melton, 2021). After-school programs provide promising solutions, as research demonstrates that participating in these programs is associated with improved academic achievement, social-emotional skills, physical health, and overall resilience, particularly when programs integrate structured physical activity and supportive adult mentorship (de Oliveira Major et al., 2023; Frazier et al., 2021; Olive et al., 2020). For underserved students, after-school programs play a critical role in providing an essential context for positive adult mentorship, peer interaction, and supportive environments that extend educational services and enriching experiences beyond the school day (Cureton, 2023; Dai, 2019). However, limited research has examined how such integrated models operate in high-need, post-pandemic contexts, and how they contribute to both academic enhancement and social-emotional recovery.

The pandemic-related disruptions described above, heightened social isolation, reduced structured activity, and exacerbated inequities in access to supportive resources underscored an urgent increase in general social-emotional needs. The current study draws upon frameworks from social-emotional learning (SEL) and positive youth development (PYD) to propose an integrated conceptual perspective. While SEL emphasizes competencies such as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making; PYD highlights the role of supportive contexts and skill-building opportunities in fostering five Cs: Competence, Confidence, Connection, Character, and Caring (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2020; Lerner et al., 2005). Among these broad competences, the study prioritizes emotional regulation, grit, and sense of belonging.

These constructs are conceptually linked to structured sports participation, which requires managing emotions in competitive or cooperative settings, persisting through physical performance challenges, and building connections in team environments (Eime et al., 2013; Holt et al., 2017). Evidence from school-based social and emotional learning interventions suggests that structured, skill-focused programming can significantly enhance social-emotional competencies and related behavioral outcomes (Taylor et al., 2017). Given that students in under-resourced communities experienced heightened social-emotional disruptions during COVID-19, examining these dimensions within a structured, sport-based afterschool context may clarify the potential of accessible physical activity programming as a prevention-oriented support strategy.

Current programs, including community-based sports with PYD themed, literacy-integrated components, and interdisciplinary approaches that embed physical activity have revealed promising

outcomes for promoting youth social, emotional, behavioral, and other developmental competencies (Bengtsson et al., 2025). However, underserved populations remain under-researched, a pilot study is a necessary step to test intervention fit and measurement sensitivity. Given the aforementioned evidence, the current exploratory pilot study aims to describe the logistical implementation of a sports-based after-school program for underserved students and examine preliminary trends in academic and social-emotional outcomes. Furthermore, the study illustrates the potential for school-community partnerships to expand access to educational services and provides a foundational framework for future large-scale research in underrepresented school contexts.

METHODS

Research Design

This study employed a single-group pretest-posttest design to evaluate the effectiveness of an 8-week after-school program integrating sports, SEL, and academic support on underserved students. Data were collected at baseline (pretest) and after the completion of the program (post-test) using surveys. The single-group design examined students participating in the program to assess changes in academic and social-emotional learning outcomes from pre- to post-intervention.

A single-group design was selected due to ethical and practical considerations. The program was implemented as a service initiative targeting students enrolled in schools with limited access to structured sports opportunities and identified as needing additional academic and social-emotional support. Given the program's supportive purpose, withholding participation to create a control group was not feasible or ethically justified. Furthermore, because this study represented a preliminary evaluation conducted during real-world program implementation, logistical constraints (e.g., limited enrollment capacity and staffing resources) prevented random assignment or the development of a matched comparison group. Although this design limits causal inference, it allows for the examination of within-student change over time and provides exploratory evidence of associations between participation and outcomes. Accordingly, findings should be interpreted cautiously and within the methodological constraints of the single-group design and small sample size.

Participants

The study utilized purposeful criterion sampling. The participants were 1st- to 5th-grade students recruited from two Title I (i.e., A Title I school refers to a U.S. public school that receives federal

funding under Title I, Part A of the Elementary and Secondary Education Act [ESEA], now reauthorized as the Every Student Succeeds Act [ESSA].) elementary schools in the school district. A total of 30 students were recruited, with 15 students from each participating school. Based on the enrollment data regarding the schools, the participants were predominantly residing in low-income households and were a minority. Specifically, approximately 96% of the students were qualified for free or reduced lunch, and nearly 75% of participants were Hispanic and African American/Black.

Settings

The study was conducted at two Title I elementary school sites within the school district in a large and rapidly expanding metropolitan region in the Southwestern United States. The selection of a Title I school indicated that a majority of students served came from low-income households and faced elevated education risk. Conducting this research in the Title 1 schools ensured the program reached the target population of underserved students. The after-school program integrating sports, social-emotional learning, and academic support sessions took place directly at school, utilizing existing school facilities and staff, which increased program accessibility and sustainability.

Measures

Grit: Q1-Q4 (4 items), examines how well students can persevere through setbacks to achieve important long-term goals. Each item was scored from 0 to 4, and the 4 items were summed to derive a possible range of 0-16 units. The internal consistency (Cronbach's alpha) for the Grit scale is $\alpha = 0.659$, which is modest and marginal relative to the conventional thresholds (e.g., $\alpha \geq 0.7$) (Lattke et al., 2022). Students' persistence in challenging tasks reflects aspects of self-management and competence emphasized in SEL and PYD frameworks (CASEL, 2020; Lerner et al., 2005).

Sense of belonging: Q10-Q13 (4 items), examines how much students feel that they are valued members of the school community. Each item was scored from 0 to 4, and the 4 items were summed to derive a possible range of 0-16 units. The internal consistency of the sense of belonging scale achieved $\alpha = 0.806$ (Lattke et al., 2022). Sense of belonging aligns with SEL relationship skills and PYD connection (CASEL, 2020; Lerner et al., 2005).

Emotional regulation: Q14-Q18 (5 items), examine how well students regulate their emotions. Each item was scored from 0 to 4, and the 5 items were summed to derive a possible range of 0 -20 units. The internal consistency of the emotional regulation showed $\alpha = 0.84$. (Panorama Education, n.d.). Emotional regulation reflects SEL self-management competencies (CASEL, 2020).

Academic self-efficacy: Q5-Q9 (5 items), examine how much students believe they can succeed in achieving academic outcomes. Each item was scored from 0 to 4, and the 5 items were summed to derive a possible range of 0-20 units. The self-efficacy scale demonstrated good internal consistency, with $\alpha = 0.821$ (Lattke et al., 2022).

Self-reported academic performance: Q19-Q21 (3 items), examines how well students perceive their academic performance. Each item was scored from 0 to 4, and the 3 items were summed to derive a possible range of 0 -12 units (Murano et al., 2021).

Program Description/Intervention

The 8-week school-based afterschool program integrated multiple components, structured sports, academic support, and social-emotional learning lessons. A total of 3 sessions were delivered to participants per week, with each session lasting for 2 hours.

Academic support/social-emotional learning: Before each sports practice, participants received 30 minutes of academic support and 30 minutes of social-emotional learning lessons, for a total of one hour. The academic support may include homework help assisted by tutors (e.g., university preservice teachers) and coaches, or students reading self-selected materials. For social-emotional learning lessons, coaches taught a core social-emotional learning lesson weekly. These themes included self-affirmation and vision, S.M.A.R.T. goal setting, stress and anger management, positive relationships building, responsible decision-making, self-management, positive self-talk, and conflict resolution.

Sports component: The program offers a sports league format across different seasons (e.g., basketball, track, flag football, soccer). The sports activity implemented in this study was soccer. Participants attended two practice sessions and one game or scrimmage day per week. Each practice lasted for one hour which included components of warm-up, soccer drills, and scrimmages. Students completed the academic support and social-emotional learning tasks before they participated in the sports session. Coaches reinforced the content of social-emotional learning lessons during the sports practices and games.

Character education development: This component supplemented the social-emotional learning and emphasized the important role of sports play in cultivating positive developmental competencies/skills. The one-time event per season occurred during the Character Development and Awards Night to celebrate participants' successful completion of the program. The event featured professional athletes from local sports teams and community leaders who serve as positive role

models while offering motivational lectures on character education.

Data Analysis

Data analysis proceeded in several stages, utilizing a conservative and exploratory approach aligned with the study's preliminary nature. Analysis began with descriptive statistics to characterize the sample, followed by inferential tests to evaluate pre- and post-intervention changes, and correlational analyses to assess associations among variables.

To evaluate intervention effects, we employed both paired-samples *t*-tests and Wilcoxon signed-rank tests, this strategy was specifically selected to address the inherent constraints of the small sample size and the potential non-normal distribution of behavioral data (Fagerland, 2012). Consistent with recommended thresholds for intervention fidelity, participants were required to attend at least 70% of sessions to be included in the analysis, corresponding to a minimum of 17 completed sessions (Schulz et al., 2010).

Paired-samples *t*-tests were used to examine pre-post changes across all primary outcome measures (e.g., grit, self-efficacy, sense of belonging, emotional regulation, and academic performance), as this method is appropriate for detecting differences in related samples when assumptions of normality are met (Kim, 2015). Given the relatively small sample size ($n = 21$) and the likelihood of non-normal distributions in behavioral data (Micceri, 1989), these analyses were supplemented with Wilcoxon signed-rank tests, a non-parametric alternative that does not require normally distributed data and is well-suited for small samples. The combined use of parametric and non-parametric tests reflects contemporary recommendations for methodological triangulation to enhance the robustness of findings when statistical assumptions may be violated. To further mitigate the limitations of the sample size and strengthen the inferential rigor of this preliminary work, bootstrapped confidence intervals were computed for key effect size estimates (Hesterberg, 2015). Bootstrapping is particularly advantageous in small samples, as it does not rely on distributional assumptions and provides more stable parameter estimates. Finally, correlation analyses were conducted to examine associations among post-intervention variables.

Research Procedure

Data collection: The study received Institutional Review Board approval from a large public, minority-serving university in the Southwest U.S., ensuring all procedures complied with ethical research standards. Parental consent and child assent were obtained before participation. Data were

collected at two points: baseline and post-intervention. Surveys were administered electronically using Qualtrics and completed on iPads, with paper-and-pencil options available for participants who preferred them. Researchers read questions aloud for participants with limited reading proficiency.

Program implementation: The 8-week program integrated physical activity, academic support, and social-emotional learning lessons, was implemented and evaluated by a team consisting of non-profit organization staff, school personnel, and students and faculty members from a university. At each school site, a teacher certified in sports coaching served as the lead coach. Students from the university's physical education and health program partnered with the nonprofit organization and local schools to assist lead coaches in designing coaching plans and supporting practice sessions. Program fidelity was maintained by delivering identical coaching plans and social-emotional learning lessons to the two groups.

RESULTS

The program was delivered to 30 participants, with 15 for each Title 1 educational institution. Participants' data were included in the analysis if they attended 17 or more (70%) of the 24 scheduled sessions (Schulz et al., 2010). A total of 21 participants completed the pre and post-assessments, institution A accounted for 61.90% (n = 13) of the sample, and institution B, representing the remaining 38.10% (n = 8). Gender composition was uneven with 85.71% (n = 18) identified as male and 14.29% (n = 3) as gender female. The participants were racially diverse, with Black or African American students constituting the largest group (38.10%, n = 8), followed by Hispanic or Latino students (28.57%, n = 6). Native Hawaiian or Other Pacific Islander and participants identifying as "Other" each represented 9.52% (n = 2), while American Indian or Alaskan Native, Asian, and White students each accounted for 4.76% (n = 1) (Table 1). More than half of the participants were enrolled in grade 5 (52.38%, n = 11), followed by grade 3 (28.57%, n = 6), whereas grades 1, 2, and 4 were less represented (4.76%, 4.76%, and 9.52%, respectively).

– Insert Table 1 around here –

Across all outcomes measured including grit, academic self-efficacy, sense of belonging, emotional regulation, and self-reported academic performance, no significant changes were found between pre- and post-comparisons, though several measures displayed positive trends. Specifically, grit scores demonstrated modest increases across most items, but none reached statistical significance (Table 2). Similarly, emotional regulation measures showed no significant differences

from pre- to post-intervention; however, slight increases across most emotional regulation indicators were discovered. The results suggested a subtle positive trend despite small effect sizes (Table 4). Academic self-efficacy, sense of belonging, and academic indicators, including math, reading, and overall academic self-rating scores, did not show statistically significant differences across time.

To evaluate the impact of the intervention on participants' grit levels, a series of paired-samples t-tests and Wilcoxon signed-rank tests were conducted. These analyses compared pre- and post-intervention scores across all grit measures: Grit1 through Grit4, and the overall Grit Score (GritS). While the results did not reveal statistically significant changes in any of the grit measures following the intervention, a trend towards improvement was observed (Table 2). Specifically, for Grit1, t(20) = -0.530, p = .602, d = -0.116; for Grit2, t(20) = 0.134, p = .895, d = 0.029; for Grit3, t(20) = -0.914, p = .372, d = -0.199; for Grit4, t(20) = -0.795, p = .436, d = -0.173; and for GritS, t(20) = -0.908, p = .375, d = -0.198. The Wilcoxon signed-rank tests validated these findings. Notably, the mean scores for Grit1, Grit3, Grit4, and GritS showed modest increases at the post-intervention assessment, although these increases did not reach statistical significance. Effect sizes, as indicated by Cohen's d for t-tests and matched rank biserial correlation for Wilcoxon tests, ranged from minimal to small across all measures. These results suggest that while the intervention did not produce statistically significant changes in participants' grit levels, there was a general trend towards improvement. The small sample size (n = 21) may have limited the power to detect subtle effects (Table 3).

–Insert Table 2 around here–

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Similarly, paired-samples *t*-tests and Wilcoxon signed-rank tests were employed across five emotion measures (Emotion1-Emotion5) and the overall Emotion Score (EmotionS). Similar to the grit findings, none of the comparisons reached statistical significance, and effect sizes were small (ds = .07–.14). The Wilcoxon analyses supported these results, indicating no statistically significant differences pre-and post-intervention (all *ps* > .59) (Table 5). Nonetheless, descriptive data revealed a modest positive trend across most emotion regulation indicators. Mean scores for Emotion2, Emotion3, Emotion4, Emotion5, and EmotionS increased slightly from pre- to post-intervention, suggesting subtle improvements in emotional regulation functioning, even though these changes were small relative to the variability in scores (Table 4). In combination, these patterns suggest a general trend toward improved emotional regulation outcomes. As with the grit measures, the limited sample size (n = 21) may have reduced the statistical power to detect small but potentially meaningful effects.

–Insert Table 4 around here–

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DISCUSSION

The purpose of the study was to investigate the impact of an after-school sports program on underserved students' self-reported academic performance, academic self-efficacy and social-emotional competencies, including grit, sense of belonging, and emotional regulation. Across all outcomes, no statistically significant pre-post changes were observed. While the scores for grit and emotional regulation demonstrated upward movement, these changes should be interpreted cautiously as descriptive and exploratory rather than evidence of program efficacy. These preliminary observations provide an initial foundation for considering the theoretical mechanisms within the sports-based interventions and warrant further investigation using more rigorous designs.

The observed trends in grit and emotional regulation aligns with the integrated frameworks of PYD and SEL (CASEL, 2020; Lerner et al., 2005). Both frameworks argue that developmental changes occur through sustained and intentional interactions within supportive contexts (Holt et al., 2017; Taylor et al., 2017). Consistent with both frameworks, structured, adult-supervised sport environments may promote persistence and emotional control through repeated exposure to challenge, feedback, and goal-directed activity. Sport participation inherently involves disciplined practice, delayed gratification, and adaptive responses to failure, which conceptually align with the development of grit (Olive et al., 2021). Prior research has suggested that sustained participation in structured movement programs is associated with higher levels of perseverance and goal commitment (Rutberg et al., 2020). These findings help contextualize the current descriptive trends within a broader conceptual framework that grit-related behaviors may emerge gradually through repeated cycles of challenge and mastery experiences.

Similarly, systematic reviews have found that physical activity interventions can enhance emotional self-regulation among youth (Rodrigues et al., 2025). Theoretically, sport contexts require participants to manage frustration, navigate setbacks, and regulate behavior under competitive pressure, thereby providing repeated opportunities to practice regulatory skills within structured, adult-supported environments (Holt et al., 2017). However, emotional regulation growth is most evident when emotionally challenging experiences are paired with structured debriefing and guided reflection (Gould & Carson, 2008; Newman et al., 2021). Without such support, improvements may

be situational rather than translating into measurable dispositional change (Pierce et al., 2017). Moreover, emotional regulation is shaped by broader ecological factors beyond a single program setting (Eime et al., 2013). The absence of significant effects in the current study may reflect insufficient program duration, a lack of explicit reflection to facilitate intentional skill transfer, or the influence of broader ecological stressors.

Although the current study did not yield statistically significant results, the minor increases in the descriptive trends in grit and emotional regulation are consistent with theoretical perspectives suggesting that structured and sustained practice can influence psychological outcomes (Duckworth & Eskreis-Winkler, 2013). The descriptive increases observed here suggest that future research should use larger sample sizes and longitudinal designs to determine whether these trends represent a meaningful developmental trajectory.

The non-significant findings for academic self-efficacy, sense of belonging, and self-reported academic performance also warrant careful consideration. These outcomes may be less sensitive to short-term intervention effects or self-report measurement, particularly in small samples, which limits the likelihood of observing change over implementation periods. These constructs may also be influenced by broader school, home, and social experiences beyond a single afterschool program. Moreover, academic learning is cumulative, and improvements in students' self-perceptions or performance may take an extended time to occur. Thus, the program duration may not have been adequate to yield measurable changes in these outcomes.

Limitations

Several limitations should be considered when interpreting the findings of this preliminary study. First, the research was conducted at only two school sites, which limits the generalizability of the results. The final sample size was small, which reduced statistical power. As the pilot effort focused on feasibility, the observed program effects should be interpreted with caution, as they were unlikely to reach conventional levels of statistical significance. While advanced statistical techniques, including bootstrapping and dual parametric/non-parametric tests, were employed to enhance the reliability of the analysis within a small cohort, these methods were intended to mitigate the constraints of the sample size rather than to support broad causal inference. Hence, the findings should be viewed as indicative of potential trends rather than definitive evidence of program impact.

Second, because the study utilized a single-group pretest-posttest design, the findings are subject to potential threats to internal validity, including maturation, history, and testing effects.

Without a comparison group, it is not possible to attribute observed changes solely to program participation. Future research should employ randomized controlled trials or quasi-experimental designs with matched comparison groups to strengthen causal effects and further assess the program's impact.

Third, the intervention duration and number of assessment points may also have limited the ability to capture sustained or delayed effects, particularly for relatively stable traits such as grit and emotional regulation (Duckworth et al., 2007; Gross, 1998). In addition, outcomes were assessed exclusively through self-report measures, which may be challenging for younger participants (Grades 1-5) to fully comprehend and may be influenced by social desirability biases, potentially limiting the accuracy of the data. Furthermore, the internal consistency of the Grit scale ($\alpha = 0.659$) was slightly below conventional thresholds. Future research may benefit from supplementary or alternative measures to strengthen reliability and more rigorously evaluate program effects. Future studies would benefit from longer program periods, multiple assessment points, and the integration of teacher, parent, or coach perspectives to provide a more comprehensive assessment of program impact. Additionally, incorporating qualitative data, such as student interviews, teacher observations, or field notes, could provide deeper insight into student growth and complement the quantitative findings.

Finally, sample composition further limits the interpretation of the findings. Female participants were underrepresented, which limits the ability to compare differences regarding gender-related effects. Additionally, implementing the program in Title I schools enhances its applicability to underserved populations; however, systemic challenges faced by participants may have constrained program effects (DeFosset et al., 2017). Future research should build on this preliminary foundation by utilizing larger, more diverse samples and multi-source assessments to provide a more comprehensive view of behavioral change.

Strengths and Implications for Future Research

Although limitations exist, the study offers several noteworthy contributions. First, the program was implemented in the under-resourced school settings, which ensures that program outcomes reflect authentic experiences in schools serving underserved students. Second, the use of brief and developmentally appropriate measures validates feasible data collection within the research context. Methodologically, the utilization of parametric and non-parametric analyses, along with bootstrapped confidence intervals, increased the rigor and reliability of the results.

These strengths provide a foundation for future research and contribute meaningful preliminary evidence to the growing literature on physical activity-based afterschool programs. The program also contributes to increased access to structured sport in under-resourced schools and exemplifies how coordinated school-community partnerships can deliver quality after-school services for underserved students. The collaboration highlights its potential to help overcome common challenges that prevent students from engaging in sports, such as cost, travel, and limited local facilities.

Conclusion

This exploratory pilot study provides a preliminary examination of an afterschool sports program on underserved students' social-emotional competencies and self-reported academic performance. The modest descriptive trends in grit and emotional regulation offer an optimistic signal for future program development. The study serves as a feasibility roadmap, providing empirical insights from underrepresented school contexts and demonstrating how coordinated school-community partnerships can expand access to structured sports for underserved students. Future research employing larger and more diverse samples, longer implementation period, and more sensitive measures is warranted to determine if these preliminary trends can be translated into significant developmental improvements. Ultimately, this work establishes feasibility of this multi-domain afterschool model and provides a practical foundation for future researchers to scale these interventions and systematically evaluate their long-term impact on underserved youth.

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Table 1
Frequencies for Race

Race	Frequency	Percent	Valid Percent	Cumulative Percent
American Indian	1	4.762	4.762	4.762
Asian	1	4.762	4.762	9.524
Black or African American	8	38.095	38.095	47.619
Hispanic or Latino	6	28.571	28.571	76.190
Pacific Islander	2	9.524	9.524	85.714
White	1	4.762	4.762	90.476
Others	2	9.524	9.524	100.000
Missing	0	0.000		
Total	21	100.000		

Table 2
Descriptives of Grit Measure Outcomes

	N	Mean	SD	SE	Coefficient of variation
Grit1	21	2.952	1.322	0.288	0.448
Grit1post	21	3.095	1.091	0.238	0.353
Grit2	21	3.476	1.123	0.245	0.323
Grit2post	21	3.429	1.248	0.272	0.364
Grit3	21	2.857	1.236	0.270	0.433
Grit3post	21	3.238	1.480	0.323	0.457
Grit4	21	3.095	1.091	0.238	0.353
Grit4post	21	3.381	1.396	0.305	0.413
GritS	21	12.381	2.941	0.642	0.238
CritSpost	21	13.143	3.851	0.840	0.293

Table 3
Results of Comparison of Grit

Time 1	Time 2	Test	Statistic	z	df	p	Effect Size	SE Effect Size
Grit1	Grit1post	Student	-0.530		20	0.602	-0.116	0.221
		Wilcoxon	41.500	-0.691		0.491	-0.210	0.294
Grit2	Grit2post	Student	0.134		20	0.895	0.029	0.299
		Wilcoxon	56.000	0.220		0.848	0.067	0.294
Grit3	Grit3post	Student	-0.914		20	0.372	-0.199	0.309
		Wilcoxon	49.000	-0.982		0.332	-0.279	0.277
Grit4	Grit4post	Student	-0.795		20	0.436	-0.173	0.288
		Wilcoxon	41.500	-0.691		0.504	-0.210	0.294
GritS	GritSpost	Student	-0.908		20	0.375	-0.198	0.245
		Wilcoxon	68.000	-1.087		0.283	-0.284	0.256

Note. For the t-test, the effect size is given by Cohen's *d*. For the Wilcoxon test, the effect size is given by the matched rank biserial correlation.

Table 4
Descriptives of Emotional Regulation Measure Outcomes

	N	Mean	SD	SE	Coefficient of variation
Emotion1	21	3.095	1.446	0.316	0.467
Emotion1post	21	2.905	1.300	0.284	0.448
Emotion2	21	3.048	1.359	0.297	0.446
Emotion2post	21	3.238	1.513	0.330	0.467
Emotion3	21	3.000	0.949	0.207	0.316
Emotion3post	21	3.190	1.436	0.313	0.450
Emotion4	21	3.238	1.480	0.323	0.457
Emotion4post	21	3.381	1.465	0.320	0.433
Emotion5	21	3.048	1.244	0.271	0.408
Emotion5post	21	3.238	1.375	0.300	0.425
EmotionS	21	15.429	4.479	0.977	0.290
EmotionSPost	21	15.952	4.842	1.057	0.304

Table 5
Results of Comparison of Emotional Regulation

Time 1	Time 2	Test	Statistic	z	df	p	Effect Size	SE Effect Size
Emotion1	Emotion1post	Student	0.568	0.511	20	0.576	0.124	0.244
		Wilcoxon	69.000			0.620	0.150	0.285
Emotion2	Emotion2post	Student	-0.623	-0.559	20	0.540	-0.136	0.213
		Wilcoxon	37.500			0.589	-0.176	0.305
Emotion3	Emotion3post	Student	-0.556	-0.544	20	0.584	-0.121	0.280
		Wilcoxon	65.000			0.590	-0.150	0.269
Emotion4	Emotion4post	Student	-0.315	-0.501	20	0.756	-0.069	0.309
		Wilcoxon	74.000			0.627	-0.135	0.262
Emotion5	Emotion5post	Student	-0.507	-0.511	20	0.618	-0.111	0.287
		Wilcoxon	51.000			0.620	-0.150	0.285
EmotionS	EmotionSpost	Student	-0.467	-0.240	20	0.646	-0.102	0.241
		Wilcoxon	80.000	0.511		0.827	-0.064	0.262

Note. For the t-test, effect size is given by Cohen's *d*. For the Wilcoxon test, effect size is given by the matched rank biserial correlation.