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# Grit in Juvenile Delinquents: Educational Policy Implications

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**ABSTRACT**
Most studies on grit examined participants who were more successful than others and found grit was a significant factor. There was a gap in the literature for participants with extreme failure, first-time-detained juvenile delinquents, and the impact of grit. The purpose of the present study was an explanatory and exploratory study of grit and the interaction with other factors for first-time-detained juvenile delinquents. A sample of juvenile delinquents incarcerated for the first time in the United States was used. The results, using analyses of variances and correlational analysis, suggested grit in juvenile delinquents incarcerated correlated negatively with a mental illness screener and positively with higher social self-esteem. Examining grit at different levels revealed juvenile delinquents had other factors which impact grit. A discussion about the meaning of labeling theory followed from the results, and recommendations to improve educational outcomes in juvenile detention centers were given.

**Keywords:** *Grit, juvenile delinquency, labeling theory, special education, juvenile detention*.
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## INTRODUCTION

In 2017, over 43,000 were incarcerated in juvenile detention facilities per day, with over 1.5 million juveniles in a year [1,2]. Juvenile delinquents had higher prevalence ratesof significant emotional, learning, and social problems [3]. Research into effective interventions were mixed, both within school and out, produced few results and did not have long-lasting effects [4, 5]. The lack of efficacy of schooling in juvenile detention centers was well documented, with a lot of research and few meaningful results.

The prevalence of mental illness and poor academic outcomes hindered successful school completion for incarcerated juvenile delinquents, and a review of academic interventions indicated most interventions were neither driven by theory nor research based [6,7,8]. After incarceration, most juvenile delinquents struggled across the lifespan, with greatly increased odds of unemployment and lifelong mental illness [9]. Designing engaging and effective instruction for juvenile delinquents showed some promise, but the lack of research and long-term efficacy remained problematic.

The purpose of the study was an explanatory and exploratory analysis of the grit of first-time-detained juvenile delinquents. Studies suggested grit was a construct which influences and predicts success and self-control throughout life [10]. There was the hypothesis first-time-detained juvenile delinquents, with high failure rates in school and the community, should have less grit than similarly situated peers who were successful in school and were non-delinquent. The results could be useful in understanding juvenile delinquents and planning research-based interventions to improve outcomes. First, an overview of the literature described the state of research. Then the research methodology presented the analysis and results. A discussion and policy recommendations followed from the analysis.

### Overview Of The Literature

A key factor common among most juvenile delinquents was low educational achievement [11]. Using the results of the Marion County Youth Study, analysis suggested juvenile delinquents had poor reflected appraisals, and the effects lasted into adulthood [12]. Juvenile delinquents had higher rates of mental illness, such as psychosis and schizophrenia, than nondelinquent youths [13]. How juveniles viewed themselves, especially within a context of a troubled educational history, impacted practices in juvenile detention centers and influenced future criminal behavior.

Schooling was a challenge for juvenile delinquents, with most students academically behind, suspended and expelled at much higher rates, and dropping out of school much more prevalent [14]. After exiting secure detention, successful school completion rates remainedsignificantly lower than nonincarcerated juveniles [15,16]. What ensued for many juvenile delinquents were much higher rates of drug abuse, criminal activity, and unemployment [17,18,19].

Students with disabilities (SWD) and developmental delays were much more common in juvenile delinquents, especially among repeat offenders [20]. Involvement in the juvenile justice system for SWD was much higher than peers without disabilities, and the number of offenses and sentences were disparate [21]. Juvenile delinquents performed poorly in school compared to nondelinquent youths, with poor attendance, high grade retention, and frequent discipline problems predominating [22,23]. The recidivism rate for SWD remained higher post-release as well [24].

Juvenile detention centers had low graduation rates for students, from 12-24%, and there was a lack of focus on results or preparation for work as adults after release [25]. Coker [26] found prosociality, social self-esteem, and reading level predicted students' grades for first-time-detained juvenile delinquents using multiple regression analysis; grit, academic self-concept, and self-esteem were not statistically significant. Besides that study, no other research was located for noncognitive factors for first-time-detained juvenile delinquents. There was a gap in the literature for newly incarcerated juvenile delinquents.

**Grit**

"Grit predicts success in part by promoting self- control, thus allowing people to persist in repetitive, tedious, or frustrating behaviors that are necessary for success" [27]. Grit, as a construct, means perseverance and consistency of purpose toward a goal, and many findings suggest grit was related to academic achievement, later success in life, and may serve as a protective factor against substance abuse and deviancy [28]. Building grit in students and professionals hadbeen used to improve student performancein school, and many researchers looked to use grit as an intervention to improve academic outcomes for all students.

The use of interventions promoting higher grit was mixed; there had been improved academic achievements, but the effects fade and had not shown the same results in at-risk students [29,30]. Perseverance might be more important than grit, though the use of grit as an intervention remained questionable [31,29]. How grit manifested in newly incarcerated juvenile delinquents had not been researched.

Juvenile detention centers often lacked research-based, comprehensive behavioral plans, as strict punishments and lax discipline both produced poor results [32]. Students who entered juvenile detention centers with large academic deficits had poor outcomes after detention, which were exacerbated by the longer a juvenile was detained [33]. Research suggested grit might be a factor which could improve behavior and academic outcomes for students.

**METHODS**

An ex post facto study was used to explain and explore the relationship of grit with variables of age, gender, special education status, self-esteem, mental illness, and academic self-concept. The setting and sample, instruments used, and the data analysis plan are described. Descriptive statistics described the sample and variables, and t-tests, ANOVAs, and correlations gave comparisons of grit to other variables.

**Setting**

A small juvenile detention center in the United States in the Midwest was the setting. The facility held up to 26 juveniles who had been detained for a delinquent act by the local judicial authority. None of the juveniles had been adjudicated. All students stayed in single cells, and the average length of stay was 30 days. The facility had school 257 days a year, with only major holidays and weekends off.

**Sample**

The detention center collected data on newly detained juveniles within five days of being detained by the local judicial system. The method used to select the sample was convenience, which assumed the population and the sample would be the same [34]. Archival records from 2017-2019 were searched for students who completed the Grit-Short scale.Juvenile delinquents were students ranging in age from 14-17 who had been accused of a crime which as an adult would lead to secure detention. Students who met the criteria were included. In an archival study, the primary concern was confidentiality and anonymity. All names, descriptors, and personal information were removed before gaining access.

**Instrumentation**

Several instruments were used to compare Grit-Short (Grit-S) to demographic and noncognitive variables for first-time-detained juvenile delinquents. The Grit-S is an 8-question survey with adequate reliability and validity [35,36]. The Strengths and Difficulties Questionnaire (SDQ) is a 20-question scale which screens for mental illness, with subscores of emotional, conduct, hyperactivity, peer relations, and prosociality. The SDQ had adequate validity and reliability and was used nationally and internationally as a screening instrument [37,38,39]. The State Self-esteem Scale (SSES) measures

current self-esteem and has a total score and three subscores: performance, social, and appearance. The SSES had adequate validity and reliability, including with adolescents [40,41].

The mathematics and language arts academic self-concept (ASC) scalesmeasure academic self-concept in each subject on a 6-point scale with four questions. Marsh [42,43] found the scales had adequate reliability and validity. Finally, student completed the Test of Adult Basic Education (TABE) upon intake, which produced grade equivalencies in mathematics and reading; the TABE had adequate validity and reliability, though the test might be biased for newly incarcerated juveniles [44].

**Data Analysis**

The data were initially stored as a Microsoft Excel file. All Excel files were checked for missing or erroneous values by sorting, running minimum and maximum values, and visual inspection. All information was converted to a CSV file for use in JASP (Jeffreys's Amazing Statistics Program) (JASP Team (2020), JASP (Version 0.13) [Computer software]. The JASP procedures were followed to analyze the data [45]. Using JASP, a variety of statistical tests were run.

## RESULTS

The results start by describing the demographic characteristics of the sample. There is a descriptive statistics of the different instruments, and then grit is broken down by demographic and noncognitive factors. A correlation analysis shows the connections of grit to different factors.

**Demographic Characteristics**

There were 148 students who met the criteria for inclusion. The average age was 15.7 (*SD* = 1.11; range 14-17), with the following breakdown: 14 years (*N* = 29; 19.6%), 15 years (*N* = 31; 20.9%; 16 years (*N* = 41; 27.7%), and 17 years (*N* = 47; 31.8%). Gender broke down by 22 females (14.9%) and 126 males (85.1%). Concerning race, there were White (*N* = 81; 54.7%), Black (*N* = 61; 41.2%), and Hispanic (*N* = 1; 0.68%) students. The sample was predominantly male, slightly more White than Black juveniles, and most students were 16 or older.

Academically, the sample had 29 students in special education (19.6% of sample), broken down by learning disabilities (LD) with *N* = 5 (17.2%), other health impairment (OHI) with *N* = 5 (17.2%), and seriously emotionally disturbed (SED) with *N* = 19 (65.5%). When there were multiple disabilities, the primary disability as listed on the student's individualized education plan (IEP) was used. For non-special education, there were 87 regular education students (58.4% of sample), and 32 students with no records (21.6% of sample). The grade levels of students ranged from 7$^{th}$ grade to graduate, with an average of 9.96 (*SD* = 0.11), broken down by the following: 7$^{th}$ grade (*N* = 7; 4.7%), 8$^{th}$ grade (*N* = 9; 6.1%), 9$^{th}$ grade (*N* = 13; 8.8%), 10$^{th}$ grade (*N* = 38; 25.7%), 11$^{th}$ grade (*N* = 28; 18.9%), 12$^{th}$ grade (*N* = 15; 10.1%), and either high school or GED graduate (*N* = 6; 4.1%). The rate of SWD was higher compared to traditional schools, and most students were in 10$^{th}$ grade or above, with few middle school students.

Special education rates nationally, according to the National Center for Education Statistics [46] for the 2018-2019 school year, were 14% of the total school population. Of students served by special education nationally, 33% were learning disabled, 15% were other health impairment, and 5% were emotional disturbance. With a large part of the sample unknown if special education, the current sample had a much greater special education population than traditional school and had a much higher rate of students with emotional disturbances.

All students were native English speakers. Greater than >95% of the student population experienced problems in school, including dropping out, expulsion, or failure of high school courses precluding chances of graduation. The sample was mostly male, of high school age, and split between Black and White students. All students completed the Test of Adult Basic Education (TABE) upon entry. For reading, the average grade equivalency was 6.5 (*N* = 148; *SD* = 3.0) and a math grade equivalency of 7.1 (*N* = 148; *SD* 3.2).

**Descriptive Statistics of Instruments**

Students took the TABE upon entry, and within a day, the students completed the Grit-S, SDQ, mathematics and language arts ASC, and SSES. Table 1 shows the results.The SSES had subscores of performance self-esteem (PSE), social self-esteem (SSE), and appearance self-esteem (ASE). Students were in the 6$^{th}$ to 8$^{th}$ grade range, on average, for math and readingscores from the TABE, but the actual average grade level was almost 10$^{th}$ grade. The SDQ had a mean of 15.3 (*SD* = 5.5), indicating probably half of students were in the borderline to abnormal range. Self-esteem did not seem to be much different than published norms, and grit had an average of 3.39 (*SD* = 0.61).

**Table 1**

*Descriptive Statistics: Instruments*

| Statistics | TABE R | TABE M | SDQ | PSE | SSE | ASE | SSES | M-ASC | E-ASC | GRIT |
|---|---|---|---|---|---|---|---|---|---|---|

| Statistics | TABE R | TABE M | SDQ | PSE | SSE | ASE | SSES | M-ASC | E-ASC | GRIT |
|---|---|---|---|---|---|---|---|---|---|---|
| Valid | 148 | 148 | 145 | 148 | 148 | 148 | 148 | 146 | 146 | 148 |
| Missing | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Mean | 6.450 | 7.113 | 15.352 | 24.541 | 21.068 | 24.764 | 70.966 | 14.548 | 15.979 | 3.399 |
| Median | 5.700 | 6.950 | 15.000 | 25.000 | 21.000 | 25.000 | 71.000 | 15.000 | 16.000 | 3.380 |
| Std. Deviation | 2.967 | 3.169 | 5.458 | 5.379 | 4.651 | 5.812 | 12.463 | 4.009 | 5.304 | 0.614 |
| Variance | 8.804 | 10.043 | 29.785 | 28.930 | 21.628 | 33.774 | 155.325 | 16.070 | 28.131 | 0.377 |
| Minimum | 1.100 | 1.400 | 5.000 | 10.000 | 8.000 | 9.000 | 35.000 | 4.000 | 4.000 | 1.880 |
| Maximum | 12.900 | 12.900 | 30.000 | 35.000 | 29.000 | 35.000 | 96.000 | 24.000 | 25.000 | 5.000 |

*Note.* TABE R = Test of Adult Basic Education Reading; TABE M = Test of Adult Basic Education Mathematics; SDQ = Strengths and Difficulties Questionnaire; PSE = Performance Self-esteem; SSE = Social Self-esteem; ASE = Appearance Self-esteem; SSES = State Self-Esteem Scale; M-ASC = Math Academic Self-concept; E-ASC = English Academic Self-concept; Grit = Grit-Short Scale.

As shown in Table 1, students in juvenile detention had much in common with non-delinquents. Grit did not show much difference by age or disability. Grit scores were similar for students with and without disabilities: students in special education ($N$= 29, $M$ = 3.408, $SD$ = 0.53) and students without disabilities ($N$= 119, $M$ = 3.397, $SD$ = 0.64). To further explore grit, there were comparisons with other constructs of academic performance by age: math academic self-concept and English self-concept. Table 2 suggested grit was stable across the different subgroups for juvenile delinquents.

**Table 2**

*Descriptive Statistics: Grit, Math Academic Self-concept, and English Self-concept by Age*

| Statistics | Grit | | | | M-ASC | | | | E-ASC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 14 | 15 | 16 | 17 | 14 | 15 | 16 | 17 | 14 | 15 | 16 | 17 |
| Valid | 29 | 31 | 41 | 47 | 29 | 31 | 41 | 45 | 29 | 31 | 41 | 45 |
| Missing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Mean | 3.397 | 3.488 | 3.351 | 3.384 | 15.690 | 15.387 | 14.000 | 13.733 | 14.966 | 16.516 | 15.805 | 16.422 |
| Std. Deviation | 0.585 | 0.660 | 0.599 | 0.627 | 4.294 | 3.575 | 3.899 | 4.047 | 5.685 | 5.495 | 5.278 | 5.011 |

*Note.*Grit = Grit-Short scale; M-ASC = Math Academic Self-concept; E-ASC = English Academic Self-concept.

**Grit and Special Education**

The results of the Grit-S scale were compared to a known sample to see if the juvenile delinquents were significantly different. The known sample was from Lombardi et al. [36], which included a large sample (n = 5,039). Conducting a one sample t-test for students with disabilities, there was a significant difference between juvenile delinquents with disabilities ($M$ = 3.41) and non-delinquents students ($M$ = 3.152) with disabilities ($t$(28) = 2.6, $p$ = .014, Cohen's $d$ = 0.49). For juvenile delinquents without a disability ($M$ = 3.36) compared to non-delinquent students without disabilities ($M$ = 3.522), there was a significant difference ($t$(86) = -2.30, $p$ = .024, Cohen's $d$ = -0.25). Both samples were normal according to Shapiro-Wilk's Test of Normality, so a t-test assuming unequal variance was used. Juvenile delinquents with disabilities had higher grit than the comparison sample, and juvenile delinquents without disabilities had lower grit.

Unknown students were not included in the analysis, as several students did not have records indicating if a student had a disability. Schools often failed to respond to records requests. To compare all three groups, students with disabilities ($N$ = 29), students without disabilities (n = 87), and unknown students ($N$ = 32), a one-way ANOVA was run. Levene's Test of Equality of Variance was not significant. There was not a significant difference between each group [$F$(2, 145) = 0.46, $p$ = .63], suggesting the unknown groupwas not dissimilar to known groups and might not be predominantly students with disabilities.

**Race, Age, and Gender**

Grit was compared by race, age, and gender to see if demographic factors impacted scores. Two t-tests were conducted for race and gender. Both samples were normal using Shapiro-Wilk Test of Normality, so a t-test assuming unequal variance was run. For race, Black ($N$ = 61, $M$ = 3.49, $SD$ = 0.62) and White ($N$ = 81, M = 3.32, $SD$ = 0.60) students were compared, and the results were significantly different ($t$(145) = 1.57, $p$ = .0118, Cohen's $d$ = 0.26). Gender was separated by male ($N$ = 126, $M$ = 3.41, $SD$ = 0.62) and female ($N$ = 22, $M$ = 3.34, $SD$ = 0.61), and there was not a significant difference ($t$(146) = -0.51, $p$ = .61, Cohen's $d$ = -0.12).

For age, the categories were 14 years ($N$ = 29, $M$ = 3.40), 15 years ($N$ = 31, $M$ = 3.49), 16 years ($N$ = 41, $M$ = 3.35), and 17 years ($N$ = 47, $M$ = 3.38). Levene's Test of Equality of Variances was not significant. There was not a significant difference between any of the ages [$F(3, 144) = 0.31$, $p = .821$]. The conclusion was age and gender did not have any significant differences, but Black students had a statistically significant difference than White students.

**Correlation of Grit**

A correlation was run to compare grit to the SDQ, SSES, TABE reading, and TABE math. The Shapiro Test of Normality revealed there was not normal distribution, but scattergrams confirmed linearity. Spearman's correlation was chosen to conduct the analysis. As shown in Table 3, grit correlated negatively with the SDQ and positively with the SSES. The correlations with grade equivalency in reading and math on the TABE test were not significant.

**Table 3**

*Grit correlation with Strengths and Difficulties Questionnaire, State Self-esteem Scale, Test of Adult Basic Education-Reading, and Test of Adult Basic Education-Math*

| Variable | Statistic | Grit | SDQ | SSES | TABE R | TABE M |
|---|---|---|---|---|---|---|
| Grit | Spearman's rho | -- | | | | |
| | *p* value | -- | | | | |
| SDQ | Spearman's rho | 0.204 | -- | | | |
| | *p* value | 0.085 | -- | | | |
| SSES | Spearman's rho | 0.285* | 0.161 | -- | | |
| | *p* value | 0.015 | 0.176 | -- | | |
| TABE R | Spearman's rho | 0.293* | 0.414*** | 0.746*** | -- | |
| | *p* value | 0.012 | <.001 | <.001 | -- | |
| TABE M | Spearman's rho | 0.072 | 0.384*** | 0.039 | 0.241* | -- |
| | *p* value | 0.550 | <.001 | 0.743 | 0.041 | -- |

*Note.*Grit = Grit-Short Scale; SSES = Social Self-Esteem Scale; SDQ = Strengths & Difficulties Questionnaire; TABE R = Test of Adult Basic Education-Reading; TABE M = Test of Adult Basic Education-Math.
*$p$< .05, **$p$< .01, ***$p$< .001.

After finding grit correlated with the self-esteem, a correlation was conducted on variables which dealt with classroom factors and academic performance: performance self-esteem, social self-esteem, appearance self-esteem, math academic self-concept, and English academic self-concept. Spearman's correlation was chosen because of non-normality. As shown in Table 4, grit correlated with the PSE, the ASE, math academic self-concept, and English academic self-concept.

**Table 4**

*Grit correlation with Strengths and Difficulties Questionnaire, State Self-esteem Scale, Test of Adult Basic Education-Reading, and Test of Adult Basic Education-Math*

| Variable | Statistic | Grit | PSE | SSE | ASE | M-ASC | E-ASC |
|---|---|---|---|---|---|---|---|
| Grit | Spearman's rho | -- | | | | | |
| | *p* value | -- | | | | | |
| PSE | Spearman's rho | 0.403*** | -- | | | | |
| | *p* value | <.001 | -- | | | | |
| SSE | Spearman's rho | 0.078 | 0.522*** | -- | | | |
| | *p* value | 0.346 | <.011 | -- | | | |
| ASE | Spearman's rho | 0.211* | 0.547*** | 0.464*** | -- | | |
| | *p* value | 0.010 | <.001 | <.001 | -- | | |
| M-ASC | Spearman's rho | 0.263** | 0.371*** | 0.152 | 0.139 | -- | |
| | *p* value | 0.001 | <.001 | 0.067 | 0.094 | -- | |
| E-ASC | Spearman's rho | 0.293*** | 0.263*** | -0.061 | 0.168* | -0.110 | -- |
| | *p* value | <.001 | 0.001 | 0.465 | 0.043 | 0.186 | -- |

*Note.* Grit = Grit-Short Scale; SSES = Social Self-Esteem Scale; SDQ = Strengths & Difficulties Questionnaire; TABE R = Test of Adult Basic Education-Reading; TABE M = Test of Adult Basic Education-Math.
*$p$< .05, **$p$< .01, ***$p$< .001.

**Grit and Quartiles**

Grit was broken into quartiles to see if different levels of grits affected the variables. By using quartiles, grit could be examined from being low levels to high levels. Quartile 1 ($N$ = 46, $M$ = 2.71, $SD$ = 0.30), quartile 2 ($N$ = 30, $M$ = 3.26, $SD$ = 0.08), quartile 3 ($N$ = 40, $M$ = 3.65, $SD$ = 0.15), and quartile 4 ($N$ = 31, $M$ = 4.52, $SD$ = 0.28) were the break down. Ages were similar across all quartiles. Using the quartiles, ANOVAs were conducted to see if there was a statistical significance with the different variables.

For the SDQ[$F(3, 140) = 0.31$, $p$ = <.001], Tukey's HSD revealed a significant difference between quartile 1 ($M$ = 17.96, $SD$ = 5.53) and quartile 4 ($M$ = 12.23, $SD$ = 4.67), meaning quartile 1 students were, on average, in the abnormal range versus the normal range for quartile 4. The SSES [$F(3, 143) = 4.86$, $p$ = .003] revealed a significant difference between quartile 1 ($M$ = 65.94, $SD$ = 11.98) and quartile 3 ($M$ = 74.40, $SD$ = 10.83) and quartile 4 ($M$ = 74.77, $SD$ = 13.53), as confirmed by Tukey's HSD. On average, quartile 1 had significantly lower self-esteem.

The same pattern held for the PSE [$F(3, 143) = 8.47$, $p$ = <.001], ASE [$F(3, 143) = 2.83$, $p$ = .041], math academic self-concept [$F(3, 141) = 3.51$, $p$ = .017], and the English academic self-concept [$F(3, 141) = 4.87$, $p$ = .003]. The performance self-esteem showed quartile 1 ($M$ = 21.83, $SD$ = 5.07), quartile 3 ($M$ = 26.10, $SD$ = 4.61), and quartile 4 ($M$ = 27.07, $SD$ = 5.40) were significantly different. Appearance self-concept had a significant difference between quartile 1 ($M$ = 23.50, $SD$ = 5.72) and quartile 4 ($M$ = 27.16, $SD$ = 5.54). Math academic self-concept had a significant difference between quartile 1 ($M$ = 13.07, $SD$ = 4.20) and quartile 4 ($M$ = 15.65, $SD$ = 4.22). English academic self-concept revealed for quartile 1 ($M$ = 14.22, $SD$ = 5.25) a significance difference from quartile 4 ($M$ = 18.68, $SD$ = 4.92). Levene's test did not reveal any problems with equality of variance, and Tukey's HSD established the significance in the interactions. Social self-esteem and TABE reading and math did not have any significant differences.

A correlation of each quartile was run to see if significance varied. Due to problems with normality, Spearman's correlation was run; linearity was confirmed by visually checking scattergrams. There were a few significant findings. For quartile 1, there was significance with performance self-esteem ($r_s(145) = .44$, $p$ = .003) and math academic self-esteem ($r_s(145) = .51$, $p$ = <.001). Quartile 2 had one significant correlation, with social self-esteem ($r_s(145) = .42$, $p$ = .002). Quartiles 3 and 4 had no significant correlations.

**Discussion**

A sample of 148 juveniles, incarcerated for the first time, was investigated to explain grit and relationship to other factors. The ages ranged from 14 to 17, with the average age just under 16. Most students were males, and there were more White students than Black students. The number of students with disabilities comprised approximately one-fifth of the total. Overwhelmingly, most all students experienced failure in school prior to enter.

Though self-esteem and academic self-concept appeared comparable to non-delinquent students, the Strengths and Difficulties Questionnaire suggested the average student was either borderline or abnormal for mental illness. Correlation analysis suggested the higher the SDQ, suggesting mental illness, the lower the grit score. The findings were consistent with previous research; in a meta-analysis, psychopathy was found prevalent and associated with juvenile delinquency [47].

Grit did not vary much by age, gender, or special education within the sample, but Black students had higher grit than White students which was statistically significant. Compared to a large sample of SWD, the juvenile delinquents had a higher, statistically significant level of grit. Students without disabilities in the study, compared to the same large sample, had lower grit which was statistically significant. There were no directly comparable studies, but a finding of adult criminals found higher grit than a sample of non-criminals [48]; though the study was in India, the findings in this study were partly at odds.

For the entire sample, performance self-esteem, math academic self-concept, and English academic self-concept all correlated positively with grit. These findings were consistent with the construct of grit, as there was an overlap in all constructs. Taken as a whole, academic self-concept, performance self-esteem, and grit suggested these findings complement one another and speak directly to performance and classroom activities.

Looking beyond the group, grit was broken down by quartiles to see if different levels of grit showed significant differences in mental illness as measured by the SDQ, self-esteem as measured by the SSES, reading and math abilities as measured by the TABE, and academic self-concept. Using quartiles, the lowest quartile revealed a statistically significant relationship with performance self-esteem and math academic self-concept. Quartile 2 had a significant correlation with social self-esteem, and all the other quartiles had no significant correlation. A conclusion was low grit and high grit had a different impact on a student's perception of self.

Labeling theory states as students were labeled delinquent, a student's positive self-image and sense of self conform to the new label [49], and school punishment can change a juvenile's referent group and lessen academic achievement [50]. Adams [51] suggested social learning theory and labeling theory can be at odds between formal school labeling and how a delinquent viewed oneself compared to others. The results of grit for first-time-detained juvenile delinquents question the applicability of labeling theory, as students rejected the labels of schools, courts, and peers. There was another theory which might mediate the potential deleterious effects of persistent failure and the resultant negative labels.

Students often responded to failure by self-handicapping and become defensive [52,53], but first-time-juvenile delinquents, except for the lowest quartile, responded by maintaining a positive self-image and concept of ability in the face of external stimuli which should seriously refute such appraisals. Kavish, et al. [54] suggested students adapted to negative labels to lessen the problem of being seen as a failure in social, emotional, and academic situations. In other situations, people experiencing failure coped by rationalizing reasons for failure and seek self-enhancements and self-protection [55]. For first-time-detained juvenile delinquents, self-affirmation theory seemed to override the negativity of newly acquired labels as a protective mechanism.

There could be many reasons for self-affirmation and rejection of labels and a proper evaluation of a student's current conditions. First, change would mean one would disavow prior behavior and courses of action, and a juvenile would have to question and change the definition of self [56]. Second, a coping mechanism for many juveniles was to disconnect and ignore traumatic events, making the juveniles emotionally numb [57]. Third, juvenile delinquents, as a lot, had high rates of antisocial behavior and might not be empathetic to pick up on social cues [58]. Finally, most of the juveniles detained for the first time had lengthy criminal histories and school problems, but there might be a difference in labeling once someone was incarcerated for lengthier periods of time.

The conclusion was students with low grit were very different than students with average and high grit. There was the possibility some students had grit which could be so low as to be pathological. A paradox existed: Most students had lengthy histories of failure in life and school, yet most students did not have significantly lower grit than highly successful people with high grit. Instead of grit being a predictor of success, there was a disassociation between grit and success. As in medicine or psychology, one factor, such as grit, must be assessed from a multitude of factors, many of which might be much more important.

Students identified as needing special education services in learning disability and behavioral disability programs had academic self-concepts which was not reflective of academic achievement [59,60,61]. When students were not challenged, academic self-concept did not necessarily relate to academic achievement [62,63]. Like the problems with academic self-concept, possibly students in juvenile detention did not feel challenged, and the students did not appraise grit appropriately.

Low IQ and mental illness lessen cooperation and worsen decisions, and juvenile delinquents usually had low empathy and cognitive distortions [4,24,65]. The study suggested juvenile delinquents distort the level of grit in the face of persistent failure both in and out of school. Even being arrested and detained, for many juveniles, did not lessen one's heightened view of oneself. Another conclusion was there was not a homogeneity of grit or any other construct measured.

**Educational Implications**

Many schools believe there will be improvement if the curriculum instructed students to improve one's perseverance and consistency, told a student to be positive through praise at a high rate [66,67], and avoided calling the students smart in favor of saying the students can grow because the students believe in growth [68]. How could a student expect to appraise oneself correctly in the face of inconsistent feedback? How could there not be confusion, and the constant praise would reaffirm why not to change. All these interventions and promises happened in the face of extreme academic, behavioral, and social failures among juvenile delinquents. Professionals were trained to uplift students, stating everything was great. A mixed representation distorted the worldview, but the adult world was not as deceiving. Such practices fostered self-deception. There was a problem of grit as a means to an end. Current practices in school might contribute to inflated and unwarranted sense of grit. Simply believing teachers can change individual's psychological, social, and emotional self on a whim was disconnected from the broader issues facing each student.

From school to college to professional life, grit correlated and predicted success in the face of obstacles and setbacks [69], but the juvenile delinquents in the present study contradicted these findings. Grit might be more useful when considered with other traits, such as self-control and conscientiousness, as a way for students to improve self-regulation [70]. A previous multiple regression analysis of students' grades for first-time incarcerated juvenile delinquents also found grit did not correlate [26]. In this manner, grit might be similar to self-esteem, which a meta-analysis found had a

small, negative effect on crime [71]. As an intervention, grit cannot be recommended for education in juvenile detention as a standalone component.

Two factors, positive experiences and student engagement, led to better grades, reduced antisocial behavior, and lower recidivism in juvenile delinquents [57]. Juvenile delinquents often were apathetic, lacked empathy, and had poor prosocial skills, as emotional health and proper conduct might be more important than other factors, such as academic ability [72,73]. There was folly to believe one could simply raise one factor and change the trajectory of a child's development. Grit, like self-esteem, must be considered in the context of the whole child. School-based interventions must consider the whole child, as mental illness, especially conduct disorders, was much more prevalent among juvenile delinquents [74].

Juvenile delinquents were not a homogenous group, as grit and other factors varied as much within as between groups. Educators should be cautious about making assumptions, such as juvenile delinquents as agroup have low self-esteem or low grit. What scores mean on scales like the Grit-S were problematic, as there were no qualifications. Most studies, including this one, looked at students who were at extreme ends of the spectrum, though the present study looked at extreme failure as opposed to extreme success. Within the extremes, there was the danger of oversimplification to state one variable, as an isolated factor, acted without and through the mediation and moderation of other psychoeducational factors. Quartiles or other methods might help to explain what the extremes mean. Future research should look at what might be harmful or problematic on the Grit-S.

The recommendation of Gearhart and Tucker [75], to focus on individual factors, was supported by the conclusions of this study. Interventions often suffeedr from being disjointed and disconnected from the needs of the juveniles served [76]. Educators were not well positioned to tinker with personality and psychological factors of juvenile delinquents. What can be done will be to focus on building meaningful relationships and engaging, inviting educational opportunities [77], of which grit and other factors could be one of many components.Trauma needed considered as a risk factor, as social skills training, as traditionally envisioned, did not produce the desired effects [78,79].

School discipline and disruptions negatively affected students long after the event, with increased rates of arrests and probation levels [80]. Assisting students in obtaining a high school diploma, along with planning which wraps around the student's needs, family life, and programs, showed the most promise [81]. Juvenile detention education needs to focus on optimization of the outcomes of the end user. Schools in juvenile detention centers need to not only improve each student's academic ability, but staff members need to develop meaningful, positive relationships with juveniles Tinkering with one construct in isolation must morph into examining, within a team context, a student's entire social, emotional, and academic history.

## LIMITATIONS

There were limitations to the current study. The sample was from one juvenile detention center, so other locations and larger samples might derive different results. Each survey could not be inspected to possibly examine grit as two factors of perseverance and consistency of purpose. Nonetheless, the sample was of sufficient size and diversity to be comparable to the population of juvenile delinquents first-time incarcerated nationally.

## CONCLUSION

Cognitive processes alone did not explain desistance, as social experiences such asrelationships with parents and peers, were significant factors [82]. As Alvy [83] stated, there were no quick or simple fixes which can be imposed on schools to bring rapid improvement. School improvement efforts in juvenile detention centers often fell prey to fads which overpromised. The meaning of grit remained problematic; compared to doctors [84] and the current study, the difference was statistically different, but the meaning of a 0.16 difference (95% CI: 0.05-0.27) defied quantification within the confines of an educational program

Like self-esteem in juvenile delinquents [85], grit and other constructs cannot be broadly stereotyped and fixed with simple interventions, especially in the light of data which suggested juvenile delinquents were more like peers than different. Zisman and Ganzach [86] found grit to be insignificant compared to intelligence and much less than conscientiousness. A more holistic approach, considering all constructs as interconnected and individual specific interventions holds more promise. The move to a holistic approach and removing assumptions could reduce biases and unneeded interventions which do not serve the needs of the individual. Grit was but one factor which must be considered to improve outcomes of juvenile delinquents.

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