

## **Grit Explained 29.4% of the Variability in Mental Toughness of Student-athletes: Perseverance Was Primarily Responsible**

MADLINE TAYLOR<sup>1</sup>, HIROKI MATSUO<sup>2</sup>, GRANT B. MORGAN<sup>2</sup>, ZACHARIAS PAPADAKIS<sup>3</sup>, ALI BOOLANI<sup>4</sup>, & ANDREAS STAMATIS<sup>5</sup>, FACSM

<sup>1</sup>Psychology; SUNY Plattsburgh; Plattsburgh, NY

<sup>2</sup>Educational Psychology; Baylor University; Waco, TX

<sup>3</sup>Human Performance Laboratory, Barry University; Miami Shores, FL

<sup>4</sup>Physical Therapy, Clarkson University; Potsdam, NY

<sup>5</sup>Exercise and Nutrition Sciences; SUNY Plattsburgh; Plattsburgh, NY

---

*Category: Undergraduate*

*Advisor / Mentor: Stamatis, Andreas (astam004@plattsburgh.edu)*

### ABSTRACT

*Grit* is a dispositional concept applied to individuals pursuing a singular objective. *Mental toughness* (MT) is a state-like concept, crucial when pursuing multiple goals. Although frequently used interchangeably due to commonalities (purposefulness, perseverance), both these conceptually distinct Positive Psychology constructs have been positively associated with athletic performance indicators. **PURPOSE:** To examine the relationship between grit with MT in a sample of student-athletes. **METHODS:** The student-athletes ( $n = 39$ ; female = 29) reported playing one of many sports: football, basketball, golf, volleyball, rowing, acrobatics & tumbling, soccer, baseball, hockey, tennis, track & field, and softball. Grit levels were assessed through the Grit Scale (12 items; 5-point scale; Subscales: Perseverance and Passion). MT levels were assessed through the Mental Toughness Index (MTI) (8 items; 7-point scale; Unidimensional measure of eight key dimensions). Data were collected once (Spring '21). MTI's *item 4* ("I strive for continued success") measures *success mindset* (the desire to achieve success and the ability to act upon this motive), whose one of the supporting theories is grit. In order to examine the relationships between the two grit subfactors with MT, we used multiple regression with the subscale scores. We conducted an ordinal regression to explore the explanatory power of the grit subscales on MTI's item 4. **RESULTS:** Correlation between the two grit subscales:  $r = .327$ ,  $p = .011$ . The correlation between MT and perseverance was the strongest observed among the variables examined ( $r = .533$ ,  $p < .001$ ). Together, passion and perseverance explained 29.4% of the variability in MT, although perseverance was primarily responsible for the explained variability ( $\beta = .286$ ,  $p < .001$ ). For the ordinal regression model, the two grit subscales reproduced about 58% of the responses to the item in question. Again, perseverance was the variable responsible for the explanatory power of MT. **CONCLUSION:** Our results indicate that almost 30% of the MT and 60% of MTI's item 4's score variabilities are explained by grit (mainly by perseverance). Practitioners should evaluate the predictive value of perseverance (an enduring personal characteristic) to MT and MTI item 4 and design interventions aiming at the non-stable MT key dimensions accordingly.