TACSM Abstract

Interaction Between Self-Compassion and Blood Protein Levels in Predicting Mental Toughness

ALEX J. BARBER[1], TOMAS CHAPMAN-LOPEZ[2], RICARDO TORRES[2], JEFFREY FORSSE[2], & ANDREAS STAMATIS[3,4], FACSM

[1]Exercise and Nutrition Sciences; SUNY Plattsburgh; Plattsburgh, NY
[2]Integrated Laboratory of Exercise, Nutrition, and Renal Vascular Research, Health Human Performance and Recreation; Baylor University; Waco, TX
[3]Health & Sport Sciences; University of Louisville; Louisville, KY
[4]Sports Medicine; University of Louisville Health; Louisville, KY

Category: Undergraduate

Advisor / Mentor: Stamatis, Andreas (andreas.stamatis@louisville.edu)

ABSTRACT

Mental toughness (MT) is a multifaceted psychological construct associated with mental well-being. MT is potentially influenced by a range of psychological and physiological factors. Previous studies have independently examined the roles of *self-compassion* (SC) and blood protein levels in mental well-being, emphasizing the significance of both psychological and physiological determinants. However, these investigations have not explored the collective influence of SC and blood protein levels on MT. **PURPOSE**: To elucidate the mechanisms through which SC and 'Protein, Total' interact to influence MT. **METHODS**: Data were collected via a complete metabolic panel, the Metal Toughness Index, and the Self-compassion Scale. A linear regression model with interaction terms was applied to a dataset involving diverse participants (n = 50, Males = 31, White = 32; M_{age} = 44.72, SD = 14.91; M_{BMI} = 27.43, SD = 4.68). The model incorporated SC, 'Protein, Total', and their interaction term. The model's effectiveness was assessed by its R^2 value using Python. Additionally, bootstrapping was employed to generate confidence intervals for the model's coefficients, enhancing the statistical robustness of the findings. **RESULTS**: The model demonstrated a significant R^2 value of 0.797, indicating robust explanatory power for MT variance. The coefficients were SC: 8.494, 'Protein, Total': 2.532, and the interaction term: -0.811. Confidence intervals obtained via bootstrapping further substantiated these results ([-3.18, 10.45] for SC, [-1.54, 3.53] for 'Protein, Total', and [-1.10, 0.76] for the interaction term). The interaction analysis revealed that —while both high SC and 'Protein, Total' are individually associated with increased MT— their interaction term suggests a reduced influence of SC on MT with higher protein levels. **CONCLUSION**: The study underscores a complex interplay between psychological and physiological components in influencing MT. It highlights the need for an integrated approach in MT research and interventions, considering both mental and physical markers. The negative interaction term indicates that the interrelationship between SC and blood protein levels may be an important consideration in understanding and enhancing MT.