

Personality Predictors of Athletic Performance in Collegiate Athletes

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Overview

Dissertation Defense

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Introduction

Statement of Problem

- Sports and athletics are part of culture and daily life around the world
- Abundance of research on personality and performance
 - Challenges in methodology
 - Mixed findings
 - Decline in research
 - Significant gaps
- Research on this topic has important implications
 - Identify athletes more likely to be successful long-term
 - Recruiting and player selection
 - Funding decisions
 - Applied Sports Psychology Interventions

Literature Review

Personality Research

- Stable predictor of behavior over time
- Predictive of academic and occupational performance
- Distinguish athletes from non-athletes, type of sport, level of play, position, and performance outcomes
- Limitations in personality and performance research: use of different measures, validity of outcome measures, varying research designs, small homogeneous samples, and lack of control over confounding variables

Literature Review

Personality Traits

- **Emotional Stability (C)**
 - Adapt and cope with changes in the environment
 - Remain calm instead of responding with an intense emotional reaction
 - Opposite of Neuroticism
- **Rule-Consciousness (G)**
 - Aware of and conforming to societal rules, laws, and principles
 - Self-control
 - Related to Conscientiousness
- **Tough-Mindedness (TM)**
 - Practical, reserved, grounded, and traditional
 - Cognitively based and less emotionally expressive
 - Present moment
 - Opposite of Openness

Literature Review

Personality and Athletic Performance

- Emotional Stability/Neuroticism, Rule-Consciousness/Conscientiousness, and Tough-Mindedness have been found to be related to and predictive of athletic performance
 - Variety of samples (age, gender, sport, level of play)
 - Over time (season, year, career)
 - Various athletic performance outcomes (coach ratings, game statistics, career progression, group into categories, ad hoc)
- Hypothesized personality traits have associations with other psychological constructs (i.e. Mood, coping styles, self-efficacy, mental toughness, motivation, perfectionism, and flow)

Research Questions and Hypotheses

- **Research Question 1:** What is the relation between Emotional Stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) and athletic performance outcomes?
- **Hypothesis 1:** Athletes with high levels of Emotional Stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) will have higher athletic performance scores on all coach ratings, excluding athletic ability, and percentage of games started in a season
- **Research Question 2:** Can Emotional Stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) predict athletic performance outcomes?
- **Hypothesis 2:** Emotional stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) will significantly predict the composite coach rating of athletic performance and percent of games started, when athletic ability is statistically controlled

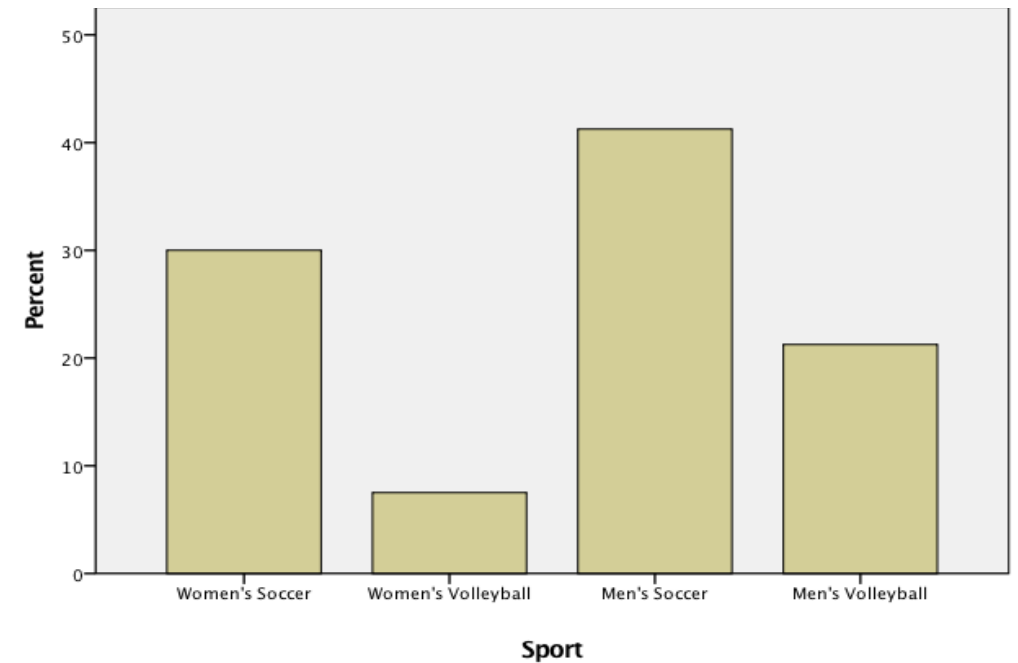
Methodology

Methodology

Participants

- Student-Athletes
 - $n = 80$ athletes; Ages 18+
 - Power analysis: $n > 37$
 - 4 different team sports (men's and women's soccer, men's and women's volleyball)
 - Small, private, NCAA Division III university in California
- Coaches
 - 2 coaches from each of the 4 teams ($n = 8$)

Figure 1.
Student-Athletes by Sport



Methodology

Measures

- Personality Measure
 - **16 Personality Factor Model (6th Edition)**
 - Newest edition
 - Previous reliability and validity with college and other elite athlete populations
 - 185 multiple choice questions; 5-point likert scale
- Performance Measures
 - **Coach Rating Scale**
 - Adapted from Piedmont et al., 1999
 - Five performance relevant domains (Coachability, Game performance, Athletic Ability, Team-playerness, Work ethic)
 - **Percentage of Games Started in a Season**
 - Number of games started and comparisons of starters and non-starters has been previously used in several studies involving elite team sport athletes
 - Used in same sport studies

Methodology

Procedure

- Beginning of athletic season:
 - Presented study to coaches
 - Recruited voluntary student-athlete participants
 - Student-athlete participants completed questionnaire (informed consent, demographics, link to 16PF) online through Qualtrics in a group setting
 - Participants given unique participant number at onset of study to ensure confidentiality
- End of athletic season:
 - Two coaches from each team completed coach rating scale online through Qualtrics for each player on team
 - Percentage of games started calculated for each player
 - Personality and performance outcomes matched based on participant number

Results

Results

Data Analysis

- Coach rating scale averages and composite score
- Interrater reliability of coach ratings calculated via Cohen's kappa
 - k values ranged from -0.04 to 0.20, weak across all coach rating domains
- Percentage of games started
- Research Question 1 - Correlation Matrix
 - Associations between Emotional Stability, Rule-Consciousness, and Tough-Mindedness and all performance outcomes (coachability, athletic ability, game performance, team playerness, work ethic, composite rating, and percent of games started)
 - Intercorrelations between all coach ratings and % games started (Convergent validity between performance measures)
- Research Question 2 - Hierarchical Regression Analysis
 - Two separate: composite coach rating and percent games started as dependent variables
 - Control for athletic ability by entering as first step, followed by Emotional Stability, Rule-Consciousness, and Tough-Mindedness

Results

Research Question 1

- Emotional Stability
 - Significant positive relationships with:
 - Coachability ($r(80) = .24, p < 0.05$)
 - Athletic ability ($r(80) = .23, p < 0.05$)
 - Composite of coach ratings ($r(80) = .24, p < 0.05$)
 - Approached significance with:
 - Game performance ($r(80) = .19, p = .091$),
 - Team playerness ($r(80) = .22, p = 0.055$)
 - Work ethic ($r(80) = .20, p = 0.069$)
- Rule-Consciousness and Tough-Mindedness did not display any significant correlations with athletic performance outcomes
- No significant correlations were found between personality and percentage of games started

Table 3.

Correlations Between 16 PF Personality Factors and Athletic Performance Outcomes

	Personality Factors		
Performance Outcomes	Emotional Stability (C score)	Rule-Consciousness (G score)	Tough-Mindedness (TM score)
% Games Started	.11	.004	-.02
Coachability	.24*	-.16	-.004
Athletic Ability	.23*	-.07	.12
Game Performance	.19	-.11	.05
Team Playerness	.22	-.13	-.07
Work Ethic	.20	-.15	.05
Composite	.24*	-.16	.01

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Results

Research Question 2

- Hierarchical regression 1 – Percentage of games started
 - Athletic ability explained 23.0% of the variance in the percent of games started, which was statistically significant, $F(1, 78) = 23.33, p < .001$.
 - When the personality factors were added to the hierarchical regression, the amount of explanatory variance increased slightly to 23.8% and this increase was not statistically significant, $\Delta F(3, 75) = 0.26, p = .85$
- Hierarchical regression 2 – Composite coach ratings
 - Athletic ability explained 58.0% of the variance in composite coach ratings, which was statistically significant, $F(1, 78) = 107.72, p < .001$.
 - When the personality factors were added to the hierarchical regression, the amount of explanatory variance increased slightly to 60.0% and this increase was not statistically significant, $\Delta F(3, 75) = 1.22, p = .31$

Results

Post-Hoc Analysis

- Research Question 1
 - Rule-Consciousness showed significant negative correlations with coachability ($r(80) = -.28, p < 0.05$), work ethic ($r(80) = -.29, p < 0.05$), and the Composite of coach ratings ($r(80) = -.249, p < 0.05$).
 - Emotional Stability displayed significant positive correlation with athletic ability ($r(80) = .25, p < 0.05$) and approached significance with team playerness ($r(80) = .21, p = .065$)
 - Tough-Mindedness displayed significant positive correlation with athletic ability ($r(80) = .22, p < 0.05$) and approached significance with game performance ($r(80) = .22, p = .052$).
- Research Question 2
 - Athletic ability explained 17.7% of the variance in athletic performance and was statistically significant, $F(1, 78) = 16.80, p < .001$
 - When the personality factors were added to the hierarchical regression, the amount of explanatory variance increased slightly to 19.7%, but this increase was not statistically significant, $\Delta F(3, 75) = 0.60, p = .62$

Table 6.

Correlations Between 16 PF Personality Factors and Head Coach Only Ratings

	Personality Factors		
Coach Ratings	Emotional Stability (C score)	Rule-Consciousness (G score)	Tough-Mindedness (TM score)
Coachability	.14	-.28*	.01
Athletic Ability	.25*	-.14	.22*
Game Performance	.19	-.13	.22
Team Playerness	.21	-.17	-.04
Work Ethic	.13	-.29*	.19
Composite	.20	-.25*	.11

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Discussion

Review of Results

- **Hypothesis 1:** Athletes with high levels of Emotional Stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) will have higher athletic performance scores on all coach ratings, excluding athletic ability, and percentage of games started in a season - **Partially supported**
 - Emotional Stability significant correlated to coachability, athletic ability, and composite coach rating, approached significance with other coach rating scale domains
 - Supported by research
 - Tough-mindedness did not display significant correlations with athletic performance outcomes
 - Not supported by research
 - Rule-consciousness in post-hoc significantly correlated with coachability, work ethic, and the composite of coach ratings
 - Not supported by research
 - Personality traits had significant correlations with athletic ability
 - Not supported by research
 - No personality traits were significantly related to percentage of games started
- **Hypothesis 2:** Emotional stability (C), Rule-Consciousness (G), and Tough-Mindedness (TM) will significantly predict the composite coach rating of athletic performance and percent of games started, when athletic ability statistically controlled - **Not supported**
 - Athletic ability significantly predicted athletic performance outcomes
 - Supported by research
 - Addition of selected personality traits did not significant enhance prediction of athletic performance outcomes
 - Not supported by research

Discussion

Limitations

- Measures
 - Newly updated personality measure
 - Threatened validity of athletic performance measures
 - Potential biases in responses
 - Poor interrater reliability
 - Lack of control over confounding variables
- Correlational design
- Sample
 - Relatively small sample
 - Lacked cultural diversity
 - Two sports
 - NCAA Division III

Discussion

Ethical Considerations

- Obtained IRB approval (8.01)
- Confidentiality (9.11)
- Multiple Relationships (3.05)
- Incentives (8.06)
- Informed consent (8.02)
 - Exclude participants under 18 (3.10)
- Measurement bias (9.06)
- Results (8.10, 8.14)
 - 16PF contract

Discussion

Implications

- Contribute to current literature base
- Recruiting and Funding
 - Include as part of the selection process
 - Distribution of financial resources (i.e. scholarships, contracts) and long-term investment into players
 - Develop a complete understanding of athletes
 - Awareness of personality dynamics and potential clashes within a team
 - Feasibility
 - Ethical concerns
- Athlete Intervention
 - Field of applied sports psychology
 - Performance enhancement, counseling, consultation, and psychological testing
 - Psychological skills interventions can be taught and applied to athletes to address areas of deficits

Discussion

Future Directions

- “Should research on the topic of personality and athletic performance be abandoned?”
- Validation of personality and performance measures with athletes
- Replication studies
- Larger, diverse samples
- Studying personality traits within each sport rather than across sports
 - Specialized traits for each sport
 - Sport specific measures
- Personality traits relation with athletic behaviors (i.e. pre-game routine, coping strategies, attention processes, leadership, responding to setbacks, and burnout)
- Other psychological constructs (i.e. coping styles, self-efficacy) relation with performance
- Applied sports psychology
 - Experimental studies exploring impact of sport psychology interventions (i.e. performance enhancement, skills training) on athletic performance

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Thank you!