MENTAL TOUGHNESS AND PRE-GAME MENTAL STATES IN ADOLESCENT FOOTBALL PLAYERS: THE MEDIATING ROLE OF ACHIEVEMENT GOALS

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Annotation
Mental toughness is highly valued in competitive sport as are perceptions of pre-competition competence and positive mental states. The mechanisms by which mental toughness may lead to enhanced pre-game mental states however, remains poorly understood. The purpose of this study therefore, was to examine whether achievement goals mediated the relationship between mental toughness and key performance mental states, namely, self-assurance and attentiveness. Participants were 112 adolescents competing in American football. Participants completed a mental toughness measure one week prior to the completion of achievement goals and mental states questionnaires, the latter two of which, were completed within 30 minutes of a competition. Results indicated that an ego orientation significantly mediated the relationship between mental toughness and self-assurance, total model effect R² = 33.16%, and between mental toughness and attentiveness, total model effect R²=32.32%. Thus, a higher ego focus (wanting to
Mental toughness has been identified as a key component to superior athletic performance [1, 2]. Achieving conceptual clarity on the definition of mental toughness has however been a difficult process, given the number of concepts associated with the construct, and the fact that it is potentially inherent to a greater or lesser extent in all performers. One characteristic to consistently emerge in empirical research on the topic is high confidence in one’s performance capabilities [2]. Not surprisingly, mental toughness has been associated with a range of positive outcomes and mental states such as self-assurance and a heightened ability to focus during competition [1, 2]. A wealth of evidence indicates the relevance of self-assurance beliefs and the ability to focus on task related cues in enhancing athletes’ competitive performances [1, 2].

In addition to the relevance of mental toughness and pre-game mental states for athletes’ competitive performances, it is evident that athletes' make appraisals about their upcoming competitions. One appraisal with demonstrated implications for competitive performance is an athlete’s assessment about his/her sport competence [3, 4]. Since the late 1970’s, competency thoughts have been investigated within the achievement goal frameworks [4, 7]. The most studied achievement goal framework is the dichotomous framework. In this framework, there are two orientations by which personal competency are judged [7]. Individuals endorsing a task orientation are primarily motivated by personal mastery or improvement. Because of their personal mastery orientation, these individuals reflect a self-referenced standard of personal achievement to gauge their personal competency for a desired behavior. In contrast, an ego oriented person strives to attain high normative standards of ability which is typically defined by winning or beating intended others. Ego-oriented individuals evaluate their success and failure (i.e., competence) on other-referenced standards.

Given the importance of specific pre-game mental states to performance, understanding the means by which such states can be cultivated is of clear importance. As indicated, mental toughness and athletes’ goal orientations may be two key antecedents. Prospective research examining these relationships in a real world situation is however needed, so that interventions can be logically formulated to facilitate the development of critical pre-game performance states (e.g., self-assurance and attentiveness). Thus, the purpose of the present prospective study was to examine whether achievement goals, task and ego, mediated the relationship between mental toughness and two essential competitive mental states, self-assurance and attentiveness.

METHODOLOGY

Participants were 112 junior to high school student athletes, with a mean age of 14.42+1.64, competing in middle school and high school sponsored American football. All participants were enrolled in the same school district in West Texas. School participation was enlisted by contacting the middle and high school. An appropriate IRB for children and parents was submitted and accepted for the study. The student-athletes were enrolled in the following grades levels: 7th (25.9%), 8th (19.6%), 9th (17.9%), 10th (19.6%), 11th (10.7%), and 12th (6.3%). They identified themselves as Caucasian (47.3%), Hispanic (33.9%), and African American (12.5%) with Native American, Asian American, and “Other” representing the final 6.2% of the sample. Concerning the measures taken, mental toughness was measured by the Psychological Performance Inventory (PPI) [5]. All PPI questions were answered using a 6-point scale ranging from 1 “Almost Always” to “Almost Never”. The PPI has a number of subscales that are characteristics of mental toughness. The confidence component of the scale was used in this study as it is the most consistently demonstrated characteristic of mentally tough athletes [1, 2]. Achievement goals were measured by the Perceptions of Success Questionnaire.
(PSOQ) [8]. When completing the questionnaire, the participants were asked to respond how “like” the statements (reflecting task- and ego-referenced criteria) is about them when participating in football. All questions were answered using a 5-point scale ranging from 1 “Strongly Disagree” to 5 “Strongly Agree”. Last, mental states of self-assurance (proud, strong, confident, and bold) and attentiveness (alert, attentive, concentrating, and determined) were measured using the Positive and Negative Affect Schedule-X [9]. All words were answered using a 5-point Likert scale ranging from 1 “Never” to 5 “Always”.

Once informed consent was obtained, each participant completed a demographic sheet as well as the PPI. Two weeks after the participants filled out the PPI, the participants completed the PSOQ 30 minutes and the PANAS-X 15 minutes prior to their respective competition. Hence, all measures were delivered separately so that the questionnaires were administered in a prospective fashion, one consistent with the order of the hypothesized model (see Figure 1).

DATA ANALYSES

Multiple mediation was tested using a bootstrapping technique via a SPSS macro [6]. The bootstrapping technique was used because it provides a suitable way in which to simultaneously test multiple mediators in a small sample. The analytic diagram in Figure 1 shows the estimated coefficients. The “a” coefficients represent the effects of mental toughness on the mediators, and the “b” coefficients represent the effects of the mediators on mental states while partialling out the effect of mental toughness. The “c” in Figure 1 is the total effect of mental toughness on the mental states, that is, the direct effect of mental toughness on the mental states. The indirect effects are represented by a1b1 (task goal orientation path) and a2b2 (ego goal orientation path). The total indirect effect is found by adding the sum of all the indirect effects. Bootstrapped ninety-five percent confidence intervals (95% CI) were used to evaluate the significance of both the total and indirect effects of mental toughness on attentiveness and self-assurance through task and ego goal orientations.

RESULTS AND THEIR DISCUSSION

Table 1 shows the intercorrelations among the study variables. Mental toughness correlated significantly with an ego-goal orientation, self-assurance, and attentiveness. The ego-goal orientation correlated significantly with self-assurance, attentiveness, and the task orientation. A task goal orientation was significantly correlated with self-assurance and attentiveness. As would be expected, the two mental states were significantly correlated.

Table 1

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Note: (*p < .01)
For all analyses, results showed that mental toughness had a positive relationship with both the task and ego goal orientations. In the mediation models however, mental toughness only had a direct effect on the ego goal. In testing the direct effects of the mediators on the specific mental states, the ego goal orientation was significant for both self-assurance and attentiveness. In examining the indirect effects of mental toughness on the mental states, mental toughness had a positive and significant indirect effect on self-assurance and attentiveness through the ego goal orientation pathway. This indirect effect was demonstrated by the fact that the 95% CI bootstrapped intervals did not contain 0. The relationships between mental toughness and self-assurance and attentiveness were partially mediated as the direct effect (c) of mental toughness to self-assurance and attentiveness were reduced (c'), but not to zero. The total amount of variation explained in the mental states by all model variables was significant. For self-assurance (see Figure 2), R2 was 33.16% with R2 adjusted being slightly lower at 31.30%. For attentiveness (see Figure 3), R2 was 32.32% with R2 adjusted being just slightly lower at 30.44%.

Figure 2. Results for the mediation model for self-assurance (*p < .01)

Figure 3. Results for the mediation model for attentiveness (*p < .01)

CONCLUSIONS

Mental toughness, self-assurance, and attentiveness are key mental states for performance in competitive sport [1, 2, 5]. Results indicated that a higher level of ego goal orientation or defining one’s competence by outcomes such as beating others is very beneficial to competitive performance. The ego goal orientation mediated the relationship between mental toughness and two key mental states. The findings are in contrast to the opinion that an ego orientation is associated with negative emotions such as anxiety as well as maladaptive sporting behaviors and thoughts [7]. The results align more with current thinking that approach balanced ego or performance goals are beneficial to sport performance [3]. In fact, the questions assessing the ego orientation in the PSOQ are all approach in nature such as “I want to beat others.” Certainly, the present study was very unique in obtaining goal orientations 30 minutes prior to an important competition. Future research should be aimed at manipulating and better understanding whether and how goal orientations mediate the mental toughness to pre-game mental states relationship to determine whether this relationship carries over to measured performance in competitions.

REFERENCES

ГЕНДЕРНЫЕ ПСИХИЧЕСКИЕ И ПОВЕДЕЧЕСКИЕ ОСОБЕННОСТИ ЖЕНЩИН И ИХ ПРОЯВЛЕНИЕ КАК РЕЗУЛЬТАТ ЗАНЯТИЙ РАЗЛИЧНЫМИ ВИДАМИ СПОРТА

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Аннотация
Влияние спорта высших достижений на качество жизни женщин-спортсменок, их социализацию, репродуктивное здоровье — это те вопросы, которые до сих пор вызывают неоднозначную оценку у многих учёных, тренеров, специалистов. Между тем проблема полового диморфизма при реализации спортивной тренировки значительно шире и имеет педагогические, социально-психологические, биологические аспекты, изучение и систематизация которых является актуальной теоретической и научной задачей, нуждающейся в углубленном и комплексном исследовании. Значимость для науки и практики полученных в настоящем исследовании результатов заключается в расширении и существенном углублении теоретико-методических положений спортивной подготовки женщин.

Ключевые слова: гендер, социальный пол, психические и поведенческие свойства женщин, половой диморфизм, маскулинность, феминность.