Meta-analysis of the Correlation between Sport Achievement Goal Orientation and Sport Confidence in Korea

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ABSTRACT

OBJECTIVES The purpose of this study was to meta-analyze the correlation between sport achievement goal orientation and sport-confidence in Korea.

METHODS Academic databases (DBpia, KCI, NAL, RISS) were used to search for literature for the meta-analysis. Based on the selection criteria, 22 journal articles and 12 dissertations were selected. The R program was used to calculate publication bias and effect sizes.

Results The correlation coefficients of sport achievement goal orientation and sport-confidence variables showed no publication bias, and the meta-analysis was analyzed with a random effects model due to high heterogeneity. The meta-analysis of the correlations between task-orientation achievement goals and sport-confidence variables showed large effect sizes, and among ego-orientation achievement goals and sport-confidence variables, proving skills showed a large effect size. A meta-analysis of the correlation between ego-orientation achievement goals and physical/mental preparation, coach leadership, and social support found moderate effect sizes.

Conclusions Task-orientation achievement goals was more strongly associated with sport-confidence than ego-orientation achievement goals. However, setting goals that take into account both task-orientation and ego-orientation achievement goals may be more effective in improving sport-confidence.

Introduction

Along with achievement goal theory, sport-confidence and performance are important factors in understanding optimal exercise performance [1]. Achievement goals are the desire to develop, acquire, and demonstrate one's abilities in a particular situation and are synchronized in different ways depending on how a particular situation is perceived [2]. Athletes achieve different levels of achievement depending on their goals, and the goal orientation of an individual greatly influences their level of effort and motivation [3]. Achievement goal orientation is a very important factor because it has a significant impact on athletic performance through differences in cognition and behavior depending on the goals of the individual athlete [4]. Achievement goal orientation has been categorized into task-orientation achievement goals and ego-orientation achievement goals depending on how athletes interpret their competence in sports [5]. Task-goal oriented learners are concerned with evaluating their own mastery of a task and themselves, whereas ego-goal oriented learners are concerned with evaluating their abilities relative to others [6]. Achievement goal orientation is an individual's inherent tendency and is a necessary criterion for predicting suc-
ccessful sport performance [7]. Most sports participants possess both traits [6,8]. However, they are independent of each other because task-orientation achievement goals values the process of learning and experiencing achievement with the goal of mastery, while ego-orientation achievement goals focuses on performance and tends to be evaluated as superior to others, with an emphasis on winning [9].

Self-confidence refers to the trust, belief, and positive thinking about oneself that one can successfully tackle various athletic performance tasks without avoiding them, and is not a function of an individual’s capabilities, but rather a state of mind in the most common sense of being able to successfully accomplish something, i.e., a belief in success [1]. Sport-confidence is an important psychological variable that aids athletes in their performance [10] and is an important factor in achieving peak performance in competitive sporting activities [11]. Sport-confidence, which is related to achievement goal orientation, refers to the degree of confidence one has in one’s ability to successfully perform the skills one possesses when engaging in sporting activities [12]. Therefore, athletes with high self-confidence are more likely to be active in sport participation and achievement activities, view difficult tasks as challenging, and strive to achieve the goals they set [13]. Therefore, sport-confidence is considered to be an important psychological factor for successful sports activities along with achievement goal orientation [14].

Sport achievement goal orientation and sport-confidence seem to be closely related and positively influenced by sport performance, and studies in the sport field have shown that athletes’ achievement goal orientation predicts self-confidence [15,16]. It would be valuable to further analyze the relationship between sport achievement goal orientation and sport-confidence. Therefore, a meta-analysis will be conducted to synthesize the studies that have analyzed the correlation between sport achievement goal orientation and sport self-confidence. Meta-analysis is a method of systematic analysis using quantitative data to synthesize and understand multiple studies on the same topic [17]. It refers to an approach that statistically synthesizes the results of individual empirical studies and has the advantage of further organizing and generalizing knowledge in a specific field [18]. In particular, the results of statistical hypothesis testing, which constitutes the majority of quantitative studies, are significantly affected by sample size, and many researchers are facing criticism that arbitrary interpretation of significance is prevalent, so meta-analysis is attracting attention as a new research method that can overcome the shortcomings of individual studies [19]. Therefore, the purpose of this study is to conduct a meta-analysis of the correlation between sport achievement goal orientation and sport-confidence studied in Korea. The results of this study can provide a basis for the application of sports psychological skills training to improve athletic performance.

Methods

Data Search

The literature search covered academic articles and theses published in Korea until March 2024. The academic databases for the literature search were DBpia, Korea Citation Index (KCI), National Assembly Library (NAL), and Research Information Sharing Service (RISS). The literature search on the correlation between sport achievement goal orientation and sport-confidence was conducted by entering ‘achievement goal orientation and sport-confidence’ in each academic database.

Selection Criteria

For the meta-analysis of the correlation between sport achievement goal orientation and sport-confidence, the following selection criteria were set. First, we selected only studies that were conducted on Korean participants. Second, we selected articles that analyzed the correlation between sport achievement goal orientation variables (task-orientation achievement goals, ego-orientation achievement goals) and sport-confidence variables (physical/mental preparation, coach leadership, social support, and proving skills). Third, the correlation coefficient (r) and number of participants (n) between sport achievement goal orientation variables and sport-confidence variables were selected for meta-analysis. Fourth, journal articles were prioritized if they were published as dissertations. Fifth, the research design type of the literature was survey research. Sixth, we excluded articles that were not available in academic databases (online) or were private.

The Task and Ego Orientation in Sport Questionnaire (TEOSQ) was developed by Duda [20] using Nicholls’ theory [21]
and applied to the sport context, and the Sources of Sport Confidence Questionnaire (SSCQ) was developed by Vealey et al. [22] using the Korean version of the questionnaire.

Selection Process

For the meta-analysis, we searched each academic database and found 55 journal articles and 41 dissertations in DBpia, 48 journal articles in KCI, 48 journal articles and 35 dissertations in NAL, 61 journal articles and 76 dissertations in RISS. We excluded duplicates 143 journal articles and 76 dissertations and excluded 21 journal articles and 38 dissertations categorized by title and abstract. We further reviewed the remaining literature and excluded 13 articles with missing analysis variables, 32 with inconsistent analysis variables, 4 with duplicate publications, and 3 with unavailable full text. In the end, we selected 34 literatures, including 22 journal articles and 12 dissertations. The process of selecting literatures for analysis (PRISMA flow diagram; Moher et al., 2009) is shown in Figure 1.

Coding

We coded the authors, year of publication, type of publication, number of participants, and number of correlates analyzed <Table 1>. In order to conduct a meta-analysis, clear criteria for coding must be presented, and agreement and reliability among coders must be verified [23]. For this purpose, the final coding of the selected articles was performed by two PhDs in sport psychology, and one professor majoring in sport psychology was consulted in case of discrepancies during the coding process.

Statistical Analysis

Meta-analysis was performed using the R program (ver. 4.3.3). The correlation coefficient (r) and the number of participants (n) between the sport achievement goal orientation and sport-confidence variables were used to extract the effect size and converted to Fisher's Z value. Fisher’s Z-value is a standardized value that more closely follows a normal distribution, allowing for comparison of effect sizes between studies regardless of sample size [24]. To obtain more stable statistics for individual studies, inverse variance weights were used [25]. Meta-analysis is a process of weighting the effect sizes of individual studies to calculate the effect size of all studies, i.e., the average effect size, and explaining the meaning of the effect size by examining its significance. The interpretation of the correlation coefficient effect size is considered to be a small effect size of .10 or less, a moderate effect size of .25, and a large effect size of .40 or more [26].

Q and I² values were utilized to test the homogeneity and heterogeneity between the sport achievement goal orientation and sport-confidence variables in the analyzed literature. A larger Q value indicates a difference in effect size between studies [27], and an I² of 25% was considered to indicate low heterogeneity, 50% moderate heterogeneity, and 75% or more very high heterogeneity.
heterogeneity [28]. In addition, the heterogeneity was generally judged to be substantial if the ratio of the actual variance to the total variance ($I^2$) was greater than 50% and the significance of the homogeneity test was less than .01 [28]. If heterogeneity was considered high, a random-effects model was used, and if heterogeneity was considered low, a fixed-effects model was used. To test for publication bias, we conducted Egger’s regression analysis [29].

### Results

#### Publication Bias

Regression analysis was conducted to meta-analyze the relationship between sport achievement goal orientation variables and sport-confidence variables. The results showed that task-orientation achievement goals and physical/mental preparation had a bias of -.71 ($t=-.17$, $df=28$, $p=.87$), task-orientation achieve-
ment goals and coach leadership had a bias of 0.95 ($r=.27$, $df=27$, $p=.79$), task-orientation achievement goals and social support had a bias of -1.87 ($r=-.53$, $df=29$, $p=.60$), task-orientation achievement goals and proving skills had a bias of 2.72 ($r=.74$, $df=31$, $p=.46$), ego-orientation achievement goals and physical/mental preparation had a bias=-1.43 ($r=-.43$, $df=28$, $p=.65$), ego-orientation achievement goals and coach leadership had a bias=3.97 ($r=1.72$, $df=27$, $p=.10$), ego-orientation achievement goals and social support had a bias=-0.07 ($r=-.03$, $df=29$, $p=.98$), and ego-orientation achievement goals and proving skills had a bias=-0.33 ($r=-.13$, $df=31$, $p=.90$), all of which showed no publication bias.

### Effect Size

The results of the meta-analysis of the correlation between sport achievement goal orientation variables and sport-confidence variables are shown in Table 2. Task-orientation achievement goals and physical/mental preparation were analyzed with a random effects model due to high heterogeneity ($I^2=93.1\%$, $p<.10$). The effect size was 0.48 (95% CI=[0.42, 0.54]), which was significant ($z=13.75$, $p<.0001$). Task-orientation achievement goals and coach leadership were highly heterogeneous ($I^2=90.7\%$, $p<.10$) and were analyzed in a random effects model. The effect size was 0.40 (95% CI=[0.34, 0.46]), with a large effect size and a significant difference ($z=11.45$, $p<.0001$). Task-orientation achievement goals and social support were highly heterogeneous ($I^2=90.0\%$, $p<.10$) and were analyzed in a random effects model. The effect size was 0.44 (95% CI=[0.39, 0.50]), with a large effect size and a significant difference ($z=13.77$, $p<.0001$). Task-orientation achievement goals and proving skills were highly heterogeneous ($I^2=92.5\%$, $p<.10$) and were analyzed in a random effects model. The effect size was 0.43 (95% CI=[0.36, 0.48]), with a large effect size and a significant difference ($z=11.97$, $p<.0001$).

Ego-orientation achievement goals and physical/mental preparation were analyzed in a random effects model due to high heterogeneity ($I^2=86.8\%$, $p<.10$). The effect size was 0.34 (95% CI=[0.29, 0.39]), which is a moderate effect size, and the difference was significant ($z=13.14$, $p<.0001$). Ego-orientation achievement goals and coach leadership had a bias of -0.03 ($r=-.03$, $df=29$, $p=.98$), and ego-orientation achievement goals and social support were analyzed in a random effects model. The effect size was 0.38 (95% CI=[0.33, 0.42]), which is a moderate effect size, and the difference was significant ($z=15.11$, $p<.0001$). Ego-orientation achievement goals and social support were highly heterogeneous ($I^2=80.7\%$, $p<.10$) and were analyzed in a random effects model. The effect size was 0.45 (95% CI=[0.41, 0.49]), with a large effect size and a significant difference ($z=18.69$, $p<.0001$).

### Discussion

This study conducted a meta-analysis of the Korean literature to comprehensively analyze and identify the correlation between sports achievement goal orientation and sport-confidence. A total of 34 literatures, including 22 journal articles and 12 dissertations, were selected according to the selection criteria.
The meta-analysis analyzed the effect size between task-orientation achievement goals, which is a sub-variable of achievement goal orientation, and ego-orientation achievement goals, which is a sub-variable of sports self-confidence, and physical/mental preparation, coach leadership, social support, and proving skills. The results showed that all of them were positively correlated, with large effect sizes of 0.48 for task-orientation achievement goals and physical/mental preparation, 0.40 for task-orientation achievement goals and coach leadership, 0.44 for task-orientation achievement goals and social support, and 0.43 for task-orientation achievement goals and proving skills. Ego-orientation achievement goals and physical/mental preparation had a moderate effect size of 0.34, ego-orientation achievement goals and coach leadership had a moderate effect size of 0.38, ego-orientation achievement goals and social support had a moderate effect size of 0.34, and ego-orientation achievement goals and proving skills had a large effect size of 0.45.

Sport achievement goal orientation is reflected in athletes' confidence levels and successful performance in achievement situations [30], and several studies have shown that achievement goal orientation leads to differences in athletic performance behavior [21,31-33]. In particular, athletes' latent self-confidence is an important predictor of successful achievement [34], and the more competitive an athlete is, the more likely he or she is to perform well [35]. Furthermore, achievement goal orientation theory predicts that participants who perceive skill mastery or improvement according to their own standards as the activity goal (task-orientation achievement goals) will have more positive achievement behavior and cognitive patterns (performance, self-esteem, intrinsic motivation, persistence, etc.) than participants who perceive competition and winning as the activity goal (ego-orientation achievement goals) [20,36]. To prove this hypothesis, previous studies have examined the relationship and effects of individual differences in goal orientation (tendency) or situational goal structure (motivation) on synchronized behavioral and cognitive patterns, and most findings support the achievement goal orientation theory [37,38].

In this study, sport achievement goal orientation was found to have a positive effect on sport-confidence. Achievement goal orientation has been recognized as a prerequisite for setting clear and specific goals and making personal efforts to achieve them [39,40]. Previous studies have shown that high-performing athletes have higher sport-confidence and clearer goal setting [41,42], and the results of previous studies suggest that sport achievement goal orientation is highly correlated with sport-confidence. This can be explained in the same vein as the findings that perceived competence to demonstrate one's abilities in achievement-oriented sport situations affects self-confidence, and both task-orientation achievement goals and ego-orientation achievement goals are thought to be positively related to self-confidence because task-orientation achievement goals and ego-orientation achievement goals are both achievement-oriented [43], differing only in the sense of achievement according to standards.

Of the two, task-orientation achievement goals and ego-orientation achievement goals were found to be more correlated with sports confidence. In the case of task-orientation achievement goals, the standard of comparison is the self, so the degree of effort and improvement in competitive situations is clearly visible, and this leads to increased self-confidence, which is judged to manifest as good performance [44]. In addition, several studies have shown that task-orientation achievement goals positively affects the variables related to peak performance, which is the basis of athletes' performance, while self-goal orientation has a negative effect [45, 46]. Therefore, it is expected that setting task-orientation achievement goals rather than ego-orientation achievement goals for peak performance will help build self-confidence, which will positively affect performance.

Among the sub-variables of sport-confidence, both task-oriented and ego-oriented achievement goals showed large effect sizes for proving skills. One of the most important implications of achievement goal orientation theory, the perception of competence according to achievement goals, is important for the development of athletes' self-confidence in sporting situations [47]. Perceived competence, which is the desire to demonstrate one's abilities, is a major factor in enhancing athletes' self-confidence [22]. Therefore, achieving goals, whether they are task-oriented or self-oriented, will have a positive impact on self-confidence, which will help improve performance.

The results of this study can be used as a basis for recognizing the effectiveness and importance of dispositional goal setting in sports to increase sport-confidence which is crucial for ath-
letes to improve their performance.

Conclusions

This study conducted a meta-analysis of the correlation between sport achievement goal orientation and sport-confidence. The conclusions are as follows. First, sport achievement goal orientation and sport-confidence are positively related. Second, among the sub-variables of sport achievement goal orientation, task-orientation achievement goals were more related to sport-confidence than ego-orientation achievement goals. Third, among the sub-variables of sport-confidence, proving skills was highly correlated with both task-oriented and ego-oriented achievement goals. The results suggest that task-oriented achievement goals are more positive for building confidence. However, since ego-orientation achievement goals were also correlated, it may be more effective to consider both task-oriented and ego-oriented achievement goals when setting goals to improve sports confidence.

Conflicts of Interest

The authors declare no conflict of interests.

References

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