

In the Mind of an Athlete: A Meta-analysis of the role of perfectionism and anxiety in athletes

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Abstract

Researchers have argued as to whether perfectionism in a sports setting is maladaptive or beneficial for athletes. Research has shown that low to moderate levels of anxiety in sports performance can be healthy, but extreme levels of anxiety can lead to decreased athletic performance. The present research was designed to examine the relationship between perfectionism and anxiety among athletes by performing a meta-analysis. A total of 16 studies were compiled. The overall effect size for this relationship was $r=0.41$ ($k=27$). Additional analyses were conducted to explain the heterogeneity in this relationship. By examining the kind of measurement used, the level of mastery (professional versus non-professional), and perfectionism content (concern over mistakes versus personal standards), we were able to provide insight into this complex relationship. We found that the analysis of mastery was particularly important in explaining this relationship. Professional athletes had an r -value of .08, while amateur athletes had an r -value of 0.56. Thus, we can infer from these results that professional athletes are not as negatively influenced by perfectionism as are amateur athletes. This finding has implications for further research on athletes.

Introduction

Perfectionism plays an integral and powerful role in the minds of athletes. In the literature, there has been considerable debate as to whether perfectionism impacts athletes in a positive or negative way (Haase and Prapavessis 2004; Hall et al. 1998; Stoeber et al. 2007). This discrepancy has led to many different ways of defining and measuring perfectionism. In the literature, perfectionism is argued to have one of two forms, adaptive or maladaptive. Perfectionism can be adaptive in that individuals may set high personal standards, but are flexible when evaluating their own performance (Gotwals et al. 2012). Perfectionism can also be maladaptive in that individuals can be inflexible when they evaluate their own performance, generating negative self-thoughts following mistakes or failures that can generalize to areas outside of athletics. (Gotwals et al. 2007). Anxiety has largely been correlated with this negative form of perfectionism (Klein 2004; Koivula et al. 2002, Mor et al. 1995). While some amount of anxiety can be healthy and motivating, high levels of anxiety can be debilitating to performance. Research has illustrated that anxiety is comprised of three dimensions: cognitive, somatic, and self-confidence (Hall et al. 1998). The purpose of this meta-analysis is to compile all of the relevant literature on this topic to gain a better understanding of the relationship between perfectionism and anxiety in athletes from all different levels. A meta-analysis yields a quantitative index of the size of the association between variables to determine whether variability in the size of that relationship across the samples is associated with study characteristics in a predicted manner. To date, this is the only meta-analysis that examines these two variables applied in the athletic setting.

Methods

Psychinfo, Google Scholar, and ProQuest databases were searched with the terms "perfectionism anxiety athletes" to collect a body of research related to this topic. Articles were scanned to see if it specifically examined athletes and also included quantitative measures of perfectionism and anxiety. All descriptive parts of the article and r values were collected, with effect sizes computed as r values. The statistical significance of the effect size was tested by calculating a z score value. If there is significant heterogeneity in r across the studies, additional analyses were performed to determine if this variation was systematically associated with study characteristics.

The predictor variable was perfectionism, most often measured by the Multidimensional Perfectionism Scale (MPS), and the criterion variable was anxiety.

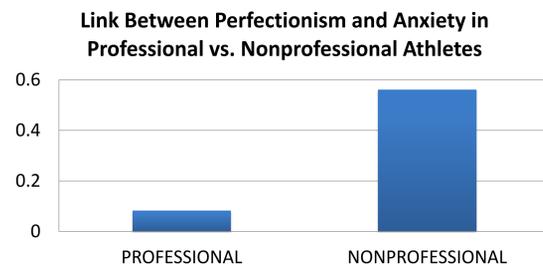
Results

Overall Effect Size

r .	0.409605
v .	0.000286
z score	24.20137
hetero	1314.098
k value	27

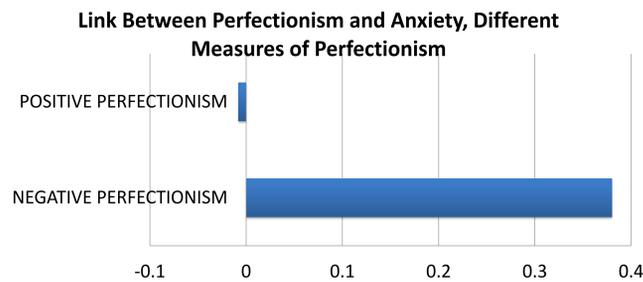
The overall effect size was $r = .409$, with a statistically significant z score of 24.201, $p < .001$. Cohen's (1977) guidelines were used to evaluate the size r value with values of $r = .10$ meaning a small effect, values of $r = .30$ indicating a moderate effect, and values of $r = .50$ indicating a large effect. Thus, our relationship is moderate according to Cohen's guidelines. The heterogeneity across the samples was 1314.098, $p < .001$.

Professionals versus Nonprofessionals



The effect size for nonprofessional or amateur athletes was $r = .561$, with a statistically significant z score of 27.427, $p < .001$. The heterogeneity across this sample ($k=20$) was 1020.34, $p < .001$. For professionals, the effect size was only $r = .082$, a nonsignificant effect size with a z score of 2.714. The heterogeneity across this sample of professionals ($k=7$) was 119.871.

Personal Standards Versus Concern Over Mistakes



The effect size for the negative form of perfectionism, concern over mistakes, and anxiety was $r = 0.388$, which was statistically significant with a z score of 11.679, $p < .001$. The heterogeneity of this sample was 9.887 ($k=7$). The effect size for the positive form of perfectionism, personal standards, and anxiety was $r = -.008$. The z score for this effect size was only -.196, which was not statistically significant. The heterogeneity of the sample dealing with concern about mistakes ($k=5$) was 11.366.

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Discussion

Through this meta-analysis, we have gained some valuable insight into the relationship between perfectionism and anxiety in athletics. We found a significant overall effect size for the relationship between perfectionism and anxiety, which has important implications for the psychology of understanding athletics and performance. In general, higher levels of perfectionism were associated with higher levels of anxiety in athletes. Additional analyses that were performed to explore potential sources of this heterogeneity found that professional athletes show no relationship between perfectionism and anxiety, but amateur athletes show a strong relationship between perfectionism and anxiety. This disparity in the relationship between perfectionism and anxiety as a function of level of mastery of a sport is something that needs to be examined in further studies. Our findings suggest that in order to get to the professional level in a particular sport, athletes may have developed a way to cope with or reduce their level of anxiety, even when they have perfectionistic thoughts. Examination of the relationship between negative perfectionism (i.e., concern about mistakes) and anxiety revealed a highly significant effect size, whereas we did not find a significant relationship between positive perfectionism (i.e., personal standards) and anxiety.

It is important to also acknowledge the limitations of this meta-analysis. With only 16 studies, the generalizability of these findings is somewhat limited. Thus, more research needs to be conducted in this area in order to obtain a larger sample size. It is recommended that meta-analyses have a sample size of 30 or more in order to be confident in the estimate of the effect size of any relationship. Although we were not able to achieve this threshold, we are optimistic that the obtained findings would be supported with a larger sample of studies.

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