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Perfectionism and Training Performance:

The Mediating Role of Other-Approach Goals

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Abstract

Recent research found perfectionistic strivings to predict performance in a novel basketball task among novice basketball players. The current study builds on this research by examining whether this is also the case for performance in a familiar basketball training task among experienced basketball players, and whether achievement goals mediated any observed relationships. Perfectionistic strivings, perfectionistic concerns, and 3 × 2 achievement goals were assessed prior to basketball training performance in 90 basketball players (mean age 20.9 years). Regression analyses showed that perfectionistic strivings predicted better performance. Furthermore, mediation analyses showed that other-approach goals (e.g., beliefs that one should and can outperform others) accounted for this relationship. The findings suggest that perfectionistic strivings may predict better performance in both novel and familiar athletic contexts. In addition, beliefs about the importance and ability to outperform others may explain this relationship.

Keywords: perfectionistic strivings; perfectionistic concerns; achievement goals; training performance; basketball

Introduction

A main objective for psychologists studying achievement contexts is to determine factors that predict performance. In the context of sport, training performance is particularly important. This is because it relates to both physical (e.g., motor skills) and psychological (e.g., confidence) factors that can ultimately determine better or worse in-competition performance. The aim of this study was to examine the role that perfectionism plays in training performance. We built on previous research by focusing on training performance of basketball players and testing whether achievement goals were a mediating, or explanatory, factor.

Perfectionism

Perfectionism is a personality characteristic that includes setting exceedingly high standards of performance and tendencies for overly critical evaluations of one's behaviour (Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionism is multidimensional, meaning that it includes a number of different features that are studied collectively to understand its effects. Factor analytic studies provide support for two main higher-order dimensions: *perfectionistic strivings* and *perfectionistic concerns*. Perfectionistic strivings capture exceedingly high personal standards and a self-oriented striving for perfection. Perfectionistic concerns capture concerns about making mistakes, feelings of discrepancy between one's standards and performance, and negative reactions to imperfection (Stoeber & Otto, 2006).

Recent reviews of research in sport suggest that whereas the two dimensions of perfectionism are positively correlated, they often show different, sometimes opposite, patterns of relationships with various processes and behaviours (see Hill & Madigan, 2017). Perfectionistic concerns are consistently correlated with negative processes and behaviours (e.g., burnout). Conversely, perfectionistic strivings appear more ambivalent in that they are correlated with negative processes and behaviours (e.g., negative affect) but also positive

processes and behaviours (e.g., enjoyment). Once the overlap with perfectionistic concerns is statistically controlled, perfectionistic strivings often show stronger positive relationships with positive processes and outcomes (Hill, Mallinson-Howard, & Jowett, in press). Due to these complexities, it is important to differentiate between the two dimensions when examining their relationships with variables in sport.

Perfectionism and Performance

Perfectionism and performance have long been intertwined (e.g., Missildine, 1963). Although clinical theorists emphasize the link between perfectionism and psychopathology, the psychological costs were often discussed in context of possible performance benefits. These theorists highlight features such as meticulousness (Missidine, 1963), persistence (Hollender, 1965), and the need to demonstrate superiority (Adler, 1956) as key factors in this regard. Indeed, Burns (1980) lists effort and the possible production of fine work as an advantage of perfectionism (conceivably, the only advantage). Consequently, while the relationship between perfectionism and performance is likely to be extremely complex, it may include the possibility of some performance benefits, some of the time.

More recently, researchers have posited that perfectionism may be important for performance in sport (e.g., Gould, Dieffenbach, & Moffett, 2002). It is perfectionistic strivings, not perfectionistic concerns that have been the primary focus of theoretical and empirical work in this regard. This is intuitive as perfectionistic strivings encapsulate most of the personal goal-directed elements of perfectionism. When one considers the proximal processes that energise, direct, and regulate achievement behaviour, perfectionistic strivings is also the most likely to provide impetus for better performance. This includes the possibility of contributing to more desirable pre-performance cognitive appraisals (e.g., challenge), affective states (e.g., excitement), and reasons for participation (e.g., intrinsic motivation; for a review of this area, see Hill et al., in press).

Researchers have conducted numerous empirical studies to examine the relationship between perfectionism and performance in different domains (Stoeber, 2012). However, so far only five studies have investigated this relationship in sport (Anshel & Mansouri, 2005; Hill, Stoeber, Brown, & Appleton, 2014; Stoeber, Uphill, & Hotham, 2009, Studies 1 and 2; Stoll, Lau, & Stoeber, 2008). Four of these studies examined individual performance, and one study examined team performance. Of the four studies examining individual performance, three provided support for the possible positive relationship between perfectionistic strivings and performance. By contrast, all four studies showed that perfectionistic concerns were unrelated to sports performance.

In context of the current study, the work of Stoll and colleagues (2008) is the most relevant. This is because their study was the first to use training as a context when examining the role of perfectionism. In a sample of sport students, Stoll and colleagues examined the relationship between perfectionism and performance in a novel basketball training task. In keeping with the possibility that perfectionistic strivings has the potential to contribute to better athletic performance, they found that perfectionistic strivings were related to higher overall training task performance. This was the case both before and after controlling for the overlap with perfectionistic concerns.

The current study extends this previous work by examining whether the relationships found in novel basketball performers extend to familiar training tasks in experienced performers. This is important because experienced athletes have been shown to differ consistently from novices regarding a variety of cognitive and behavioral aspects of training performance (e.g., Swann, Moran, & Piggot, 2015). This may extend to how personality characteristics influence performance outcomes (Ullén, Hambrick, & Mosing, 2016). Moreover, it is also not clear whether dimensions of perfectionism are more important during skill development stages, novel tasks, or learning, and are less important when athletes have

established and long-standing competencies. In other words, whether the effects of perfectionism are superseded by factors such as greater experience and competence.

Perfectionism, Achievement Goals, and Sport Performance

In regard to explanatory factors that account for the perfectionism–performance relationship, there is evidence that the achievement goals athletes pursue are potentially important. According to achievement goal theory, the quality of achievement-related behaviour is shaped by the way success is construed (definition) and by the way capabilities are judged (valence; Nicholls, 1984). The 2 × 2 model (Conroy, Elliot, & Hofer, 2003) distinguishes between four achievement goals: performance-approach, mastery-approach, performance-avoidance, and mastery-avoidance. Performance-approach goals represent a definition of success via the demonstration of normative competence (e.g., striving to do better than others and belief that one is able to do so) and mastery-approach goals represent a definition of success via the demonstration of personal competence (e.g., striving to master a task and belief that one is able to do so). In contrast, performance-avoidance goals represent a definition of success via avoiding demonstrating normative incompetence (e.g., striving to avoid doing worse than others) and mastery-avoidance goals represent a definition of success via avoiding personal incompetence (e.g., striving to avoid doing worse than one has done previously; Conroy et al., 2003).

Conceptually, both dimensions of perfectionism are likely to be related to achievement goals. The relationships can be understood in terms of how the sense of internal pressure to be perfect (perfectionistic strivings) and external pressure to be perfect (perfectionistic concerns) is likely to manifest in terms of beliefs about success and failure. We argue that both internal and external pressures will likely manifest in the belief that one should always demonstrate one’s ability relative to past personal performance, as well as in comparison to others. The main difference however will be whether these beliefs will be accompanied by

approach and/or avoidance tendencies. In this regard, perfectionistic strivings are more likely to include approach tendencies than avoidance tendencies, and the reverse is true for perfectionistic concerns. This is because perfectionistic concerns carry a sense of helplessness that stems from the lack of controllability over important goals, as well as an especially strong aversion to mistakes and failure. By contrast, though one would also expect some aversion to mistakes and failure for perfectionistic strivings, this dimension includes a greater sense of agency that may translate into perceptions of ability and approach behaviors.

Stoeber, Damian, and Madigan (2018) recently reviewed twenty-two studies that examined perfectionism and 2 × 2 achievement goals. When perfectionistic strivings and perfectionistic concerns were considered without controlling for their relationship, the majority of studies (k = 16) showed that both dimensions of perfectionism positively correlated with all achievement goals. Once the overlap between the dimensions of perfectionism was controlled, however, a different pattern of relationships emerged which was largely reflective of our suggestions of perfectionistic strivings being more related to approach than avoidance goals, and perfectionistic concerns showing the reverse. Specifically, only perfectionistic strivings showed a positive correlation with mastery-approach goals and only perfectionistic concerns showed a positive correlation with performance-avoidance and mastery-avoidance goals. Both dimensions of perfectionism showed a positive correlation with performance-approach goals but the correlation was larger in the case of perfectionistic strivings.

Research in sport examining the link between perfectionism, 2 × 2 achievement goals, and performance has supported the importance and possible mediating role of achievement goals. Of note, Stoeber, Uphill, and Hotham (2009) examined these relationships in two prospective studies with experienced triathletes. In Study 1, perfectionism, achievement goals, and race performance were measured. In Study 2, the same variables were measured

over two races. In both studies, it was found that the contrast between performance-approach and performance-avoidance goals (i.e., performance-approach minus performance-avoidance) mediated the relationship between perfectionistic strivings and better triathlon performance.

Recently the 2 × 2 model has been extended to a 3 × 2 model of achievement goals (Elliot, Murayama, & Pekrun, 2011; Mascret, Elliot, & Cury, 2015). In addition to performance goals (referred to as *other* goals in the 3 × 2 model), this model further differentiates whether individuals' mastery goals focus on the *task* (to improve task performance) or the *self* (to improve one's personal performance). The model maintains the 2 × 2 models' approach–avoidance distinction. Thus, the 3 × 2 model differentiates task-approach, task-avoidance, self-approach, self-avoidance, other-approach, and other-avoidance goals. This model may therefore explain more variance and account for a broader set of phenomena than the 2 × 2 model (see Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014). To date, only one study has examined the relationship between perfectionism and the 3 × 2 model. Madigan, Stoeber, and Passfield (2017) found that perfectionistic strivings showed positive relationships with task-approach, self-approach, and other-approach goals whereas perfectionistic concerns showed positive relationships with task-avoidance, self-avoidance, and other-avoidance goals. However, no study has yet examined whether any 3 × 2 achievement goals mediate the relationship between perfectionism and performance.

The Present Study

The aim of the present study was to build directly on previous research examining perfectionism and training performance. In doing so, we extended this research by (a) examining the relationships in experienced basketball players and (b) examining the mediational role of 3 × 2 achievement goals. In line with previous theory and research, we hypothesised perfectionistic strivings to predict better training performance. Moreover, based

on research showing that performance/other goals serve as a mediator of the perfectionism–performance relationship (e.g., Stoeber et al., 2009), we hypothesised that both other-approach and other-avoidance goals may serve as mediators in the present study.

Method

Participants

A sample of 90 athletes (73 male, 17 female) was recruited to participate in the present study. All athletes were experienced basketball players who were regularly involved in training and competition; their mean age was 20.9 years (*SD* = 4.0); they had played basketball for an average of 8.2 years (*SD* = 3.4); and they trained on average 8.9 hours per week (*SD* = 6.0).

Procedure

The second and fourth author's university ethics committee approved the study. Informed consent was obtained from all participants. During training, athletes first completed the measure of perfectionism and then the measure of achievement goals. Athletes then completed the basketball performance task. To reflect how this training task would normally be conducted, participants attempted the task individually while the other participants watched (Stoll et al., 2008).

Measures

Perfectionism. To measure perfectionism, we followed a multi-measure approach (Stoeber & Madigan, 2016) and used four subscales from two multidimensional measures of perfectionism in sport: the Sport Multidimensional Perfectionism Scale (SMPS; Dunn et al., 2006) and the Multidimensional Inventory of Perfectionism in Sport (MIPS; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007). To measure perfectionistic strivings, we used two indicators: the 7-item SMPS subscale capturing personal standards (e.g. "I have extremely high goals for myself in my sport") and the 5-item MIPS subscale capturing striving for

perfection (“I strive to be as perfect as possible”), and then standardised the scale scores before combining them to a measure of perfectionistic strivings (cf. Madigan, Stoeber, & Passfield, 2015). To measure perfectionistic concerns, we also used two indicators: the 8-item SMPS subscale capturing concern over mistakes (“People will probably think less of me if I make mistakes in competition”) and the 5-item MIPS subscale capturing negative reactions to imperfection (“I feel extremely stressed if everything does not go perfectly”), and again standardised the scale scores before combining them to a measure of perfectionistic concerns. The four subscales have demonstrated reliability and validity in previous studies (e.g., Madigan, 2016). Moreover, both are reliable and valid indicators of perfectionistic strivings and perfectionistic concerns (e.g., Stoeber & Madigan, 2016). Participants were asked to indicate to what degree each statement characterised their attitudes in their sport responding on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Achievement goals. To measure achievement goals, we used the 3 × 2 Achievement Goal Questionnaire for Sport (Mascret et al., 2015) which is comprised of 18 items with three each capturing task-approach (e.g., “to perform well”), task-avoidance (“to avoid performing badly”), self-approach (“to do better than what I usually do”), self-avoidance (“to avoid having worse results than I had previously”), other-approach (“to do better than others”), and other-avoidance goals (“to avoid doing worse than others”). The questionnaire has demonstrated reliability and validity in previous studies (e.g., Mascret et al., 2015). Participants responded to all items on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Performance. To measure training performance, we adapted the task used by Stoll et al. (2008) asking participants to perform free throws (i.e., unopposed shots at the basketball hoop from behind the free throw line). Participants performed 10 series of two shots with a 30-second rest period between each set to simulate the sport-specific conditions of a normal basketball-training task. Performance scoring followed Stoll et al. (2008): three points for

scoring without the ball touching the rim, two points for scoring with the ball touching the rim, one point for having the ball hit the rim but not score, and zero points for a shot that missed and did not touch the rim. With this, participants could achieve a total score from 0 to 60 points.

Data Screening

We first inspected the data for missing values. Because very few item responses were missing (i = 14), missing responses were replaced with the mean of the item responses of the corresponding scale (ipsatised item replacement; Graham, Cumsille, & Elek-Fisk, 2003). Next, we computed Cronbach's alphas for the questionnaire scores, which were all satisfactory (see Table 1). Following recommendations by Tabachnick and Fidell (2014), we screened our data for multivariate outliers. Three participants showed a Mahalanobis distance larger than the critical value of χ^2 (9) = 27.88, $p < .001$ and were excluded, so the final sample size was N = 87 (71 male, 16 female).

Results

Descriptive Statistics and Correlations

First, we inspected the bivariate correlations (see Table 1). Perfectionistic strivings showed small-to-medium positive correlations with all achievement goals. [1] Perfectionistic concerns showed small-to-medium positive correlations with self-avoidance, other-approach, and other-avoidance goals, but nonsignificant positive correlations with task-approach, task-avoidance, and self-approach goals. Perfectionistic strivings and other-approach goals showed small-to-medium positive correlations with performance. However, perfectionistic concerns and the remaining achievement goals showed nonsignificant positive correlations

[1]Following Cohen (1992), we regarded correlations with absolute values of .10, .30, and .50 as small, medium, and large.

with performance.

Regression and Mediation Analyses

Next, we conducted three regression analyses to examine how perfectionism predicted performance (Model 1), how the 3 × 2 achievement goals predicted performance (Model 2), and how the combination of perfectionism and 3 × 2 achievement goals predicted performance (Model 3). For Model 1, we entered perfectionistic strivings and perfectionistic concerns simultaneously into the regression (see Table 2). Results showed that the model explained 10% of the variance in performance. As expected, perfectionistic strivings positively predicted performance, whereas perfectionistic concerns did not. For Model 2, we entered all achievement goals simultaneously into the regression (see again Table 2). Results showed that the model explained 12% of the variance in performance. Only other-approach goals emerged as a significant positive predictor of performance. For Model 3, we entered only the significant predictors from Model 1 and 2 (cf. Tabachnick & Fiddell, 2014). In Step 1, we entered perfectionistic strivings. In Step 2, we entered other-approach goals (see again Table 2). Results showed that the model explained 13% of the variance in performance. Moreover, when other-approach goals were added to the model, the effect of perfectionistic strivings was reduced in size and became nonsignificant indicating mediation (Baron & Kenny, 1986). Taken together, these findings provide provisional support for a mediational effect suggesting an indirect effect of perfectionistic strivings on performance via other-approach goals (i.e., perfectionistic strivings → other-approach goals → performance). These findings are summarised in Figure 1. To test whether other-approach goals did mediate the relationship between perfectionistic strivings and performance, we examined the size and significance of the indirect effect using PROCESS (Hayes, 2013) running the mediational model with 5,000 bootstraps. If the 95% confidence interval (CI) does not contain zero, the test can be considered significant at the $p < .05$ level (Preacher & Hayes, 2008). In line with

our expectations, results confirmed that the mediation effect was significant (indirect effect = 0.12 [95% CI = 0.02, 0.26]).

Discussion

The aims of the present study were to examine the relationship between perfectionism and training performance in experienced basketball players and to examine whether 3 × 2 achievement goals mediated this relationship. As hypothesised, the study found that perfectionistic strivings was a significant positive predictor of performance, whereas perfectionistic concerns was not. Further, the perfectionistic strivings–performance relationship was mediated by other-approach goals (e.g., beliefs that one should and can outperform others).

Perfectionism and Performance

To date, this is only the sixth study to examine the relationship between perfectionism and performance in sport. In congruence with much of this previous work, including Stoll et al.'s (2008), perfectionistic strivings were related to better training performance. This was the case both before (i.e., bivariate correlations) and after (i.e., multiple regression) controlling for the overlap with perfectionistic concerns. As such, the study provides evidence that athletes higher in perfectionistic strivings may outperform athletes with lower levels of perfectionistic strivings in certain circumstances. In regards to contextualising these findings more broadly in sport, perfectionistic strivings have been identified as ambivalent in some regards, problematic in others, but also to hold the potential for better athletic performance (Hill et al., in press). These findings are therefore broadly consistent with what is currently known about perfectionistic strivings in sport.

Contrary to perfectionistic strivings, perfectionistic concerns were unrelated to performance. This finding is common within research on perfectionism and performance in sport, again including Stoll et al.'s (2008), and consistent with the notion that perfectionistic

strivings may be more relevant to performance. That is not to say perfectionistic concerns are necessarily irrelevant to performance. There is evidence that perfectionistic concerns may show a negative relation to performance in other contexts which suggests that there may also be circumstances when this is the case in sport (e.g., Stoeber, 2012). In addition, as noted by others, it is quite possible that perfectionistic concerns are negatively related to performance indirectly, via variables such as fear of failure, worry, and anxiety (cf. Hall, Hill, & Appleton, 2012). Indeed, based on the various debilitating outcomes associated with perfectionistic concerns, it is difficult not to envisage that they would in some way hamper performance.

Importantly, the present findings suggest that perfectionism may not only be important for performance in individuals for whom the task is novel but also for individuals familiar with the task and experienced in their sport. Whereas there are known differences between novel and experienced performers in an array of characteristics (Swann et al., 2015), the psychological processes underpinning better performance may be similar regardless of experience. Of note here, many of the achievement-related behaviours associated with perfectionistic strivings such as the propensity for goal setting and high levels of effort will be beneficial for performance in most settings and for most people (e.g., Van Yperen, Blaga, & Postmes, 2014). As such, while performance might not be comparable between novices and more experienced performers, when these behaviours are exhibited they will likely result in better relative performance regardless of task novelty.

The Mediating Role of Achievement Goals

We also sought to examine whether the 3 × 2 achievement goals mediated the perfectionism–performance relationship. Based on our findings, how athletes construe achievement and their ability is a proximal process through which perfectionistic strivings exerts their influence. Specifically, athletes high in perfectionistic strivings pursue other-approach goals to a higher degree, and the belief that one should, and can, outperform others

drives their better performance. In a similar fashion, previous empirical work found achievement goals to serve a mediating role between perfectionistic strivings and race performance in experienced triathletes (Stoeber et al., 2009). This mediating pathway may therefore have the potential to explain how perfectionistic strivings relate to better performance across athletic contexts.

Despite this important finding, overall the present findings provide mixed support for the utility of the 3 × 2 achievement goal framework within training performance. Even though the 3 × 2 model differentiates task- and self-goals, it was still a goal that the model shares with the 2 × 2 model (i.e., other/performance-approach goals) that was the most important for training performance. While research in other contexts attests to the usefulness of these additional goals (Stoeber et al., 2015), in context of the specific relationship examined here, they may have limited explanatory value. As both achievement goal models have measures with a similar number of items per goal, the more parsimonious 2 × 2 model may be preferable when examining perfectionism and training performance. In proposing the model, Mascret and colleagues (2017) themselves recognised this possibility. They also advocated that the choice of model, and specific scale or subscale, should be dependent on the research question. We concur with Mascret et al. in this regard too.

Limitations and Other Future Directions

The present study had several limitations. First, as far as possible, we standardised the task between individuals. However, we were not able to control for individual differences in the manner in which the athletes prepared for performance. Preshot routines, for example, can be an effective coping strategy in stressful situations (Gooding & Gardner, 2009). Therefore, the influence of these types of preparatory strategies on the current findings are unknown. Second, the study examined adult athletes and a basic training task. Given the importance of perfectionism in junior athletes and the wide and varied types of training performance that

can be measured, future studies should examine if the findings generalise to junior athletes and other tasks. Third, although performance in a social context is representative of in-competition performance, the fact that participants in the present study watched one another's attempts may have played a part in determining which goals were pursued. This may be important in terms of priming the pursuit of other-approach goals (i.e., energising participants to demonstrate competence by outperforming others). Whether the particular relationships observed here are dependent on the presence of observers will also need to be examined in future research. Fourth, perfectionism was measured in a specific way in the present study, as the two factors are conceptualised as broad, higher-order dimensions (Stoeber & Madigan, 2016), and future research should examine if the findings replicate using different measures of perfectionism. Finally, although our design included multiple tasks (i.e., shots), these were embedded within a single session. Thus, our findings reflect a short snapshot of the perfectionism–training performance relationship, so future research should adopt fully prospective designs where performance is measured repeatedly over a prolonged period (e.g., a season). This will allow us to better determine how perfectionism influences performance over time.

Conclusion

The present study contributes to our understanding of the complex relationship between multidimensional perfectionism and performance. The study suggests that perfectionism is important for training tasks performed by athletes in their sport. Moreover, beliefs about the importance and ability to outperform others explains this relationship.

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Table 1. *Descriptive Statistics, Bivariate Correlations, and Cronbach's Alphas*

Variable	1	2	3	4	5	6	7	8	9
Perfectionism									
1. Perfectionistic strivings									
2. Perfectionistic concerns	.63***								
Achievement goals									
3. Task-approach	.43***	.19							
4. Task-avoidance	.27*	.19	.64***						
5. Self-approach	.28*	.13	.73***	.63***					
6. Self-avoidance	.28*	.24*	.52***	.76***	.71***				
7. Other-approach	.47***	.36**	.44***	.43***	.47***	.48***			
8. Other-avoidance	.38***	.43***	.40***	.60***	.49***	.57***	.80***		
Performance									
9. Total score	.29**	.10	.10	.03	.09	.05	.32**	.22	
M	0.01	0.02	6.07	5.51	6.07	5.66	5.28	5.08	38.37
SD	0.88	0.94	1.17	1.35	1.12	1.36	1.53	1.61	7.14
Cronbach's alpha	.70	.85	.91	.86	.91	.90	.94	.96	n/a

Note. $N = 87$. Perfectionistic strivings and perfectionistic concerns are composites of standardized scores (see Method for details). Achievement goals scores were computed by averaging responses across items (means item scores). n/a = not applicable. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. *Summary of Multiple Regression Analyses Predicting Performance*

Criterion: Performance		ΔR^2	β
Model 1: Perfectionism		.097*	
Perfectionistic strivings			.38**
Perfectionistic concerns			–.13
Model 2: Achievement goals		.121*	
Task-approach			.02
Task-avoidance			–.06
Self-approach			.02
Self-avoidance			–.11
Other-approach			.41*
Other-avoidance			–.03
Model 3: Mediation analysis (see Figure 1)			
Step 1:	Perfectionistic strivings	.086*	.29**
Step 2:	Perfectionistic strivings	.044*	.18
	Other-approach		.24*

Note. $N = 87$. β = standardised regression weight.

*$p < .05$. **$p < .01$.

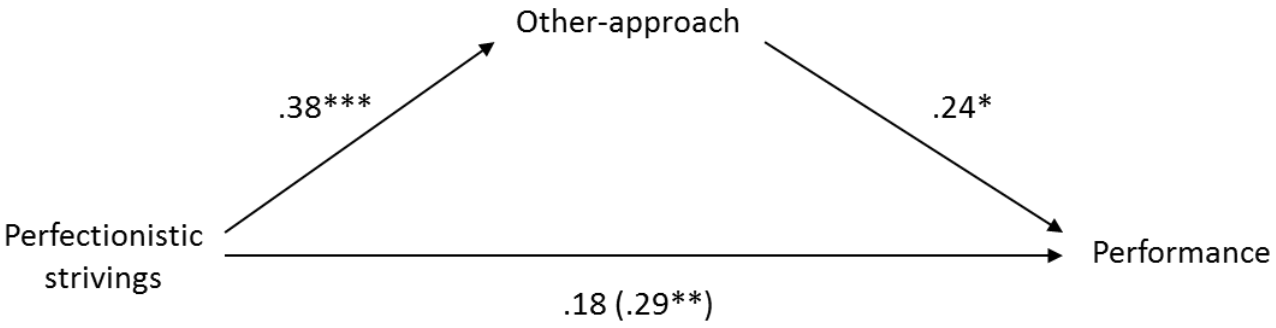

Figure 1. Other-approach goals mediate the relationship between perfectionistic strivings and performance (standardized regression coefficients; *$p < .05$, **$p < .01$, ***$p < .001$).