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Effects of Situational Costs and Benefits on Projected Doping Likelihood

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Abstract

Objectives: Our primary aim was to compare the influence of a range of situational factors (costs and benefits) on projected doping likelihood in hypothetical situations. A secondary aim was to examine whether doping likelihood was influenced by personal social cognitive factors implicated in the regulation of ethical behavior by Bandura's (1991) theory of moral thought and action and Aquino and Reed's (2002) model of moral identity.

Design: Using a cross-sectional design, projected doping likelihood was assessed indirectly via hypothetical scenarios.

Method: Athletes indicated the likelihood of doping by another athlete in hypothetical situations and completed measures of moral identity, doping self-regulatory efficacy, and doping moral disengagement.

Results: Projected doping likelihood varied considerably among the hypothetical situations. Athletes consistently judged that doping by an imaginary athlete was least likely when there was an increased risk of death and high chances of being caught, banned, and fined. In contrast, doping was judged as most likely when associated with career advancement, encouragement from the athlete's entourage, large financial gains, and low chances of being caught, banned and fined. In situations where doping had costs for the athlete, moral identity was directly related to the likelihood of doping, whereas in situations where doping accrued benefits to the athlete, moral identity was indirectly related to doping likelihood via increased doping self-regulatory efficacy and decreased doping moral disengagement.

Conclusions: The current findings show that projected doping likelihood is influenced by situational and personal factors.

Keywords: self-regulation; moral identity; moral disengagement; self-regulatory efficacy

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The use of banned substances and methods, also known as doping, by athletes to enhance their performance is a growing concern in sport (Mazanov, 2017). Efforts to understand the psychology of doping draw heavily on the social cognitive traditions of psychology, and consider the costs and benefits associated with situational factors that influence both intention and action (e.g., Donovan, Egger, Kapernick, & Mendoza, 2002; Strelan & Boeckmann, 2003). In the present research, we extended the standard situational costs and benefits approach by examining the role of personal morality constructs on athletes' projected likelihood of doping in hypothetical situations.

Doping in Hypothetical Situations

Research on doping has relied primarily on self-report measures. However, direct questioning is unreliable for a number of reasons, including self-presentation bias and career-related concerns following a self-confessed doping violation (Petroczi, 2016). Accordingly, researchers have considered alternatives to direct questions about the use of doping substances. Among the indirect methods used to investigate doping (Petroczi, 2016), hypothetical scenarios or vignettes have been identified as having potential for understanding doping (Kavussanu, 2017; Ring & Kavussanu, 2017; Strelan & Boeckmann, 2006). One such approach is to ask athletes to project their answers about doping by indicating how they think another athlete – who has a similar profile to them in terms of gender, age, experience, and competitive level – might act. In the current study, we adopted the inferred behavior approach, employed by Huybers and Mazanov (2012), to assess doping likelihood indirectly in a range of hypothetical situations.

Having first conducted focus groups with athletes and coaches to identify factors implicated in decisions about doping (Mazanov & Huybers, 2010; Mazanov, Huybers, & Connor, 2010), Huybers and Mazanov (2012) told athletes about a hypothetical athlete, who

was considering using a banned drug, and then presented them with eight pairs of choice situations. Each of these compound situations described different combinations of four categories (and various subcategories) of situational factors, identified by the focus groups, that could influence doping. These were: (a) situation and motivation (i.e., performance outcome, money amount, money contingency); (b) about the drug (source of influence, source of information, health side effects); (c) deterrence system (detection at the event, detection in the future, prosecution from a test, prosecution from other evidence); and (d) consequences if prosecuted (financial, non-financial).

After reading each pair of multi-factorial situations (for an example see Huybers & Mazanov, 2012, p. 334), participants were asked to indicate in which of the two situations they thought that the hypothetical athlete was more likely to use the banned drug. This is a feature of the forced-choice paradigm, which captures relative preference about doping rather than absolute intention to dope. Thus, doping was assessed indirectly using the inferred (projected) behavior approach to try and capture athletes' own preferences about the sensitive moral issue of doping in sport. This approach assumes the operation of a false-consensus effect, whereby athletes tend to believe that other athletes are similar to them, and thus project their own thoughts onto the hypothetical athlete. Huybers and Mazanov (2012) identified situational factors that may be considered when athletes are forced to decide whether to use a performance-enhancing substance, with some factors facilitating doping (e.g., recovery from injury, high rewards, coach advice) and other factors hindering doping (e.g., risk of dying, fines, shame). In the current study, we refer to the former as the "benefits of doping" and to the latter as "the costs of doping".

Social Cognitive Theory and Doping

Qualitative work has revealed that athletes identify morality as a key variable that influences their decision to dope (e.g., Engelberg, Moston, & Skinner, 2015; Kirby, Moran &

Guerin, 2011). This has led to increased interest in the role played by moral variables in the psychology of doping (see Kavussanu, 2016, 2017). The social cognitive theory of moral thought and action (Bandura, 1991) provides a useful theoretical framework that can aid our understanding of doping (Kavussanu, 2016; Lucidi et al., 2008; Zelli et al., 2016). The theory contends that moral standards regulate behavior, but also recognizes that people do not always act in accordance with their moral standards (Bandura, 1991, 1999, 2002). They are able to do so by disengaging moral self-sanctions (i.e., guilt, shame) from reprehensible behavior by enacting a thought process – termed moral disengagement – that allows individuals with the same moral standards to act differently in the same situation (Bandura, 1991). Mechanisms of moral disengagement have been identified in relation to doping, with many studies linking moral disengagement with increased intention or likelihood of doping in sport (e.g., Engelberg et al., 2015; Hodge, Hargreaves, Gerrard, & Lonsdale, 2013; Kavussanu et al., 2016; Lucidi et al., 2004; 2008; Mallia et al., 2016; Ring & Kavussanu, 2017).

The social cognitive theory of moral thought and action (Bandura, 1991) also posits that self-regulatory efficacy, which is the perceived capability to exercise influence over barriers and impediments, thought processes, emotional states, and patterns of behavior (Bandura, 1997), can influence a person's actions. As such, athletes' self-regulatory efficacy about their capacity to resist doping – in situations such as those depicted by Huybers and Mazanov (2012) – can be expected to deter doping. Indeed, studies have provided consistent support linking doping self-regulatory efficacy (e.g., Barkoukis et al., 2013; Lazuras et al., 2010; 2015; Lucidi et al., 2008; Mallia et al., 2016; Ring & Kavussanu, 2017) with doping intentions.

In line with Bandura's (1991) theory of moral thought and action, we expected that doping moral disengagement would facilitate the use of banned performance enhancing substances, whereas doping self-regulatory efficacy would sway athletes from using such

substances. Self-regulatory efficacy has been found to predict transgressive behavior, including cheating, both directly and indirectly via moral disengagement in schoolchildren (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Farnese, Tramontano, Fida, & Paciello, 2011) and adolescent athletes (d'Arripe-Longueville, Corrion, Scoffier, Roussel, & Chalabaev, 2010). In a recent study of young adult college athletes, the relationship between doping self-regulatory efficacy and doping likelihood was mediated by moral disengagement, providing evidence for the existence of this indirect pathway in the context of doping (Ring & Kavussanu, 2017). In an extension and replication of past research, the current study sought to evaluate these direct and indirect pathways in the context of projected doping in hypothetical situations associated with costs and benefits for the athlete.

Moral Identity and Doping

Aquino and Reed (2002) developed a model of moral identity based on the social cognitive model of moral behavior (Bandura, 1991) and the cognitive-developmental model of moral development (Kohlberg, 1984). Moral identity, which has been defined as the cognitive schema people hold about their moral character (Aquino & Reed, 2002), is a strong source of moral motivation (Aquino, Freeman, Reed, Lim, & Felps, 2009; Blasi, 1984). Importantly, moral identity has been associated with ethical behavior in a variety of contexts (e.g., Aquino et al., 2009; Aquino & Reed, 2002; Hertz & Krettenauer, 2016), including sport (e.g., Kavussanu, Stanger, & Boardley, 2013; Kavussanu, Stanger, & Ring, 2015; Kavussanu, Willoughby, & Ring, 2012). For instance, athletes whose moral identity was brought to the working self-concept via a priming procedure, indicated greater likelihood to engage in antisocial behavior in a hypothetical sport situation compared to a control group (Kavussanu et al., 2015).

In the context of doping, moral identity has been negatively related to moral disengagement, and there is evidence for a link between moral disengagement and doping

likelihood (Kavussanu et al., 2016). Moreover, a recent study has reported that the influence of moral values on aggressiveness in athletes was serially mediated via self-regulatory efficacy and moral disengagement (Albouza, d'Arripe-Longueville, & Corrion, 2017). However, to date no study has examined the existence of a direct pathway between moral identity and doping likelihood under cost and benefit situations, as well as the operation of indirect pathways via self-regulatory efficacy and/or moral disengagement.

The Present Study

In this study, we sought to understand the role of situational and personal factors on doping likelihood. Our purposes were twofold. First, we determined the importance of single situational factors on the likelihood of using banned substances. Based on previous research (Huybers & Mazanov, 2012), we hypothesized that doping likelihood would be greater under benefit situations than under cost situations. Second, we examined the extent to which personal factors, identified by Bandura's (1991) theory of moral thought and action and Aquino and Reed's (2002) model of moral identity, would be associated with projected doping likelihood. We hypothesized that moral identity would negatively predict projected doping in hypothetical situations, and that self-regulatory efficacy and moral disengagement would mediate this relationship.

Method

Participants

Participants were 210 (132 males) athletes competing in individual (n = 79, 38%) and team (n = 131, 62%) sports for colleges (n = 109, 52%) and clubs (n = 101, 48%) in the UK. At the time of data collection, the athletes ranged in age from 18 to 55 years and had competed in their respective sport for an average of 9.61 (SD = 6.06) years. The highest ever standard at which they had competed in their sport was club (33%), county / regional (53%), national (7%), and international (7%).

Measures

Doping likelihood. Projected doping likelihood was measured using materials adapted from Huybers and Mazanov (2012). The name of the hypothetical athlete was changed from Kim to Jo, a unisex name or nickname in the UK, where the study was conducted. Participants were first presented with a general description of Jo's situation:

> "Jo, a hypothetical athlete who has never used a banned performance-enhancing substance before, is due to compete in an event of critical importance to Jo's career. Jo is seriously considering using a banned substance but has not made a final decision. To help make that decision, Jo has listed several situational factors. We are asking you to tell us what you think Jo might decide to do based on this information."

Participants were provided with further information about Jo, to help put them in Jo's position, and thereby reduce hypothetical and social desirability biases:

> "Here we are asking about a hypothetical athlete called Jo, who plays your sport at your level and is at your stage of career. Jo has never used banned performance enhancing substances before, and is about to compete in an event of critical importance to Jo's career. Jo is a hypothetical athlete; any resemblance to a real athlete is purely coincidental."

Participants were then presented with 23 hypothetical situations (see Appendix), and indicated how likely it is that Jo would use the banned substance in each situation on a 7-point scale, anchored by 1 (*not at all likely*) and 7 (*very likely*). In line with Huybers and Mazanov (2012), the situations were grouped into four categories (and nine subcategories): (a) situation and motivation (i.e., performance outcome, financial gain); (b) about the drug (source of influence, health side effects); (c) deterrence system (detection at the event, detection in the future, prosecution from the test); and (d) consequences if prosecuted (financial loss, non-financial). The situations were selected from the 50 attributes reported

by Huybers and Mazanov (2012), with preference given to those with the largest and most significant model estimation coefficients.

Moral identity. The internalization dimension of the moral identity scale (Aquino & Reed, 2002) was used to measure moral identity. Athletes were presented with nine moral traits (e.g., fair, hardworking, honest) and responded to statements concerning these traits (e.g., "It would make me feel good to be a person who has these characteristics") on a Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). This scale has shown very good internal consistency (α = .83; Aquino & Reed, 2002). The mean of all five statement ratings was computed as a measure of moral identity and the scores showed very good internal consistency (α = .83).

Self-regulatory efficacy. An abbreviated sport-specific version of the doping self-regulatory efficacy scale (Lucidi et al., 2008), employed in recent research (Ring & Kavussanu, 2017), was used to measure confidence in one's ability to resist doping in sport. Athletes rated confidence in their ability to avoid using banned substances to improve performance in sport in seven situations (e.g., "When pressured to do so by others") using a Likert scale anchored by 1 (*not at all confident*) and 7 (*completely confident*). The scale has shown excellent internal consistency (α = .97) and validity (Ring & Kavussanu, 2017). The mean of all seven item ratings was computed and used as a measure of doping self-regulatory efficacy (α = .96).

Moral disengagement. The moral disengagement in doping scale (Kavussanu et al., 2016) was used to measure moral disengagement in doping in sport. Athletes indicated their level of agreement with six statements (e.g., "Doping does not really hurt anyone") using a Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). The scale has shown good internal consistency (α's = .78 - .86), test-retest reliability (r = .78), and construct

validity (Kavussanu et al., 2016). The mean of all six item ratings was computed as a measure of moral disengagement in doping (α = .79).

Procedure

After obtaining approval from the research ethics committee, participants were recruited from local clubs and university classes. The athletes were informed about the study's aims, that participation was voluntary, honesty in responses was vital, data would be anonymous, and information would only be used for research purposes. After consenting, they completed the measures described above via a web-based questionnaire.

Results

Situational Factors and Doping Likelihood

The first purpose of the study was to determine the effect of situational factors on the projected likelihood of doping. The means and confidence intervals for the likelihood of using a banned performance enhancing substance in the 23 situations are presented in Table 1; a mean for one situation that lies outside of the confidence intervals of another situation can be considered different from the mean for that same situation. It can be seen that there was considerable variation in doping likelihood across situations, with doping being least likely when there was an increased risk of death and most likely when there was a large financial reward.

A repeated measures analysis of variance, with situation as the within-subjects factor, was performed on the doping likelihood ratings. The multivariate solution for this analysis revealed that doping likelihood differed across the situations, $F(22, 188) = 46.59$, $p < .001$, $\eta_p^2 = .85$). Newman-Keuls post-hoc comparisons indicated that doping likelihood in each situation differed from that in most other situations, with the number of differences ranging between 15 (68%) and 22 (100%) out of a possible 22 comparisons (Table 1). Below we summarize the differences within the four major categories.

Situation and motivation. In terms of performance outcome, doping was more likely when: (a) it was expected to help advance Jo's career than to overcome an injury; (b) it was used to overcome an injury than to overcome bad form; and (c) it was used to improve form than to maintain Jo's current level of performance. In terms of financial gain, doping likelihood was monotonically related to the amount of money expected to be gained (e.g., via winnings or sponsorship): doping was more likely with a gain of £75,000 than with a gain of £2,500, and less likely with no monetary gain than with a gain of £2,500.

About the drug. In terms of sources of influence, doping was more likely when Jo was encouraged to use the substance by: (a) a coach or manager than by a senior athlete in the team or club; and (b) by a senior athlete than by a sports administrator. In terms of health side effects, the likelihood that Jo would use the banned substance was less when there was an increased risk of dying compared to when no negative health side effects were envisaged.

Deterrence system. In terms of detection, doping was more likely when: (a) the chance of being detected on the day of the event was low rather than high; (b) the chance of detection in the future from tests on stored samples was low compared to high; and (c) the chance of being banned as a result of positive drug test was low than high.

Consequences if prosecuted. Doping was monotonically related to the amount of money expected to be lost (e.g., via fines) following potential prosecution: Doping was more likely when: (a) no fine was expected than when a fine of £2,500 was expected; and (b) less likely with a £75,000 fine than a £2,500 fine. In terms of non-financial consequences, the athletes judged that Jo was not very likely to use the banned substance when doping was associated with the feeling of letting down friends and family, as well as the chance of media-driven public humiliation upon detection. Finally, doping was less likely when it was linked with public humiliation than with letting others down.

Personal Factors and Doping Likelihood in Cost and Benefit Situations

As expected, projected doping likelihood was greater under situations representing situational benefits than those representing situational costs (Table 1). Accordingly, average doping likelihood was computed separately for the benefit situations (i.e., the 13 situations with a rating of greater than 3, $\alpha = .93$) and the cost situations (i.e., the eight situations with a mean rating of less than 2, $\alpha = .85$). The descriptive statistics indicated that the grand mean doping likelihood was medium in the benefit situations and low in the cost situations, and that moral identity was high, doping self-regulatory efficacy was high, and doping moral disengagement was low (Table 2).

Pearson correlations were computed to examine the relationships among personal variables (moral identity, doping self-regulatory efficacy, doping moral disengagement) and situational variables (doping likelihood for situational benefits and costs). These analyses indicated that doping likelihood in benefit situations was unrelated to moral identity, negatively related to self-regulatory efficacy, and positively related to moral disengagement whereas doping likelihood in cost situations was negatively related to moral identity, unrelated to self-regulatory efficacy, and positively related to moral disengagement (Table 2).

Next, we examined whether moral identity was inked with doping likelihood directly and indirectly via self-regulatory efficacy and/or moral disengagement separately for the two clusters of situations (i.e. benefits and costs), To this end, we used the PROCESS (Hayes, 2013) SPSS macro (model 6), which simultaneously tests direct and indirect effects in mediation models. Direct effects are the effects of the predictor on the outcome variable that occur independently of the mediator(s), whereas indirect effects are the effects of the predictor on the outcome variable via the mediator(s). Bootstrapping was set at 10,000 samples. Bias-corrected 95% confidence intervals were estimated for all effects. An effect is considered significant when the confidence interval does not contain zero. The completely

standardized indirect effect (CSIE) has been reported as the effect size metric (Preacher & Kelley, 2011), with values of .01, .09, and .25 representing small, medium, and large effect sizes, respectively (Cohen, 1992).

The findings are presented in Figure 1, where it can be seen that in benefit situations, such as those involving career progression and financial gains, moral identity had an indirect effect on doping likelihood via the serial combination of self-regulatory efficacy followed by moral disengagement, $b = -.03$, 95% CI = −.06, −.01, CSIE = −.02, 95% CI = −.05, −.01. Specifically, moral identity was a positive predictor of self-regulatory efficacy, which in turn predicted doping likelihood via decreased moral disengagement (Figure 1A). In contrast, when the scenarios depicted potential costs (e.g., health consequences, greater chance to be detected) associated with doping (Figure 1B), moral identity had only a direct effect on doping likelihood, $b = -.10$, 95% CI = −.20, −.01, $t = 2.12$, $p < .05$.

Discussion

The current findings show the unique importance of almost two dozen hypothetical situations in relation to the likelihood of using a banned substance to improve performance in sport. The pattern of our mean likelihood ratings data across these situations are broadly in line with the model estimation coefficients reported by Huybers and Mazanov (2012) in their forced-choice paradigm. The current dataset, together with the one collected by Huybers and Mazanov (2012), both of which were generated using a projected decision-making approach, helps establish the extent to which situational costs and benefits might be considered by athletes when making decisions about doping. The findings also provide novel empirical support for a social cognitive model of doping grounded on Bandura's (1991) theory of moral thought and action and Aquino and Reed's (2002) model of moral identity, in which doping likelihood may be influenced by the athlete's moral identity, self-regulatory efficacy, and moral disengagement.

Situational Factors and Doping

The identification of factors that athletes may take into consideration when deciding whether or not to use banned performance substances has attracted some attention in the psychology of doping literature. There is evidence that athletes consider both the costs and the benefits associated with doping decisions (Huybers & Mazanov, 2012; Mazanov & Huybers, 2010; Strelan & Boeckmann, 2006). The most recent evidence has been generated from compound multi-factor scenarios thus providing relative rather than absolute estimates of projected doping intentions in elite athletes (Huybers & Mazanov, 2012).

Our findings broadly replicate the results of Huybers and Mazanov (2012) and confirm that the consideration to dope is sensitive to the associated costs and benefits of doping. In other words, our athletes indicated that a hypothetical athlete would take into account the perceived seriousness of the deterrents (e.g., increased risk of death, imposition of a large fine, or greater risk of being banned) and scale of the benefits to be accrued (e.g., expected financial gain or accelerated career advancement), when deciding whether to use a banned substance. Assuming that our athletes' projections of another athlete's behavior reflect their own intentions, the likelihood of doping among athletes can be seen to depend on the perceived benefits and costs associated with doping (cf. Strelan & Boeckmann, 2006).

Overall, the current findings reveal that projected likelihood of doping is sensitive to the specific situational factors that athletes might face when competing in their sport. In line with previous research (Huybers & Mazanov, 2012), our data suggest that the likelihood of using banned substances is greatest, when doping motivates and rewards athletes by helping them to restore form, recover from injuries, achieve personal best performances, and be remunerated. Athletes are put at increased risk of doping when the deterrence system is weak, in such instances when their doping is unlikely to be detected, or their conviction is unlikely to lead to a ban or fine. Finally, there are individuals who surround the athlete,

including members of their coaching and management entourage, as well as fellow athletes, who can exert influence over the actions of the athlete and therefore constitute a risk for doping, presumably because of the pressure that they can exert.

Given that the current findings indicated that a low chance of detection was amongst the strongest factors linked to doping likelihood, and the fact that only one or two percent of athletes test positive for doping annually (de Hon, Kuipers, & van Bottenburg, 2015), it could be argued that one of the biggest factors that lead athletes to dope is because they perceive they are unlikely to be caught. In contrast, when doping was expected to have a high chance of detection, athletes were very unlikely to dope, suggesting that their perceptions about the risk of being detected influenced their decision. It remains to be seen how the relative risk of detection would change, if different drug control paradigms were introduced as part of hypothetical scenarios, such as comparing the mixed prohibitionist anti-doping policy with either more restrictive (e.g., absolute prohibition) or less restrictive (e.g., harm minimization) policy paradigms (Mazanov, 2017).

A Moral Framework for Doping

Building upon previous research examining the social cognitive determinants of moral behavior, the present study found that the likelihood of doping was negatively related to both moral identity and self-regulatory efficacy and positively related to moral disengagement. Interestingly, the strength of these relationships appeared to be influenced by the nature of the doping context. Specifically, moral identity was directly and negatively related to doping likelihood in the situations depicting potential costs of doping, where the probability of doping was low. The finding that doping likelihood was negatively related to moral identity in cost situations concurs with the extensive literature on moral identity and avoidance of unethical behavior (Hertz & Krettenauer, 2016).

In the benefit situations, where the probability of doping was moderate, moral identity was indirectly related to doping likelihood via self-regulatory efficacy (positively) and moral disengagement (negatively). The null finding for moral identity and doping likelihood in benefit situations may reflect a suppression of the role of the moral self when the temptation to dope is great. We know of no doping research that has directly addressed this issue. Given that some of the benefit situations used in the current study (e.g., coach pressured me to dope) may be construed by athletes as excuses for doping, it would be interesting for future research to examine whether the role of moral identity on any doping-related decision is influenced by the extent to which moral disengagement is elicited by the situation.

In line with Bandura's (1991) theory of moral thought and action and in agreement with previous studies that have examined the relationship between self-regulatory efficacy and doping intentions (e.g., Barkoukis, et al., 2013; Lazuras, et al., 2010; 2015; Lucidi, et al., 2008; Mallia, et al., 2016; Ring & Kavussanu, 2017) we found that athletes who are confident that they can avoid using banned substances when tempted to do so because of social pressures and distorted beliefs were less likely to consider using a banned substance. Importantly, the self-regulatory efficacy and doping relationship was influenced by the context, with a medium-sized negative effect for benefit situations and a non-significant small-sized negative effect for cost situations. This contextual difference suggests that the perceived ability to resist doping is more important when the situational pressures make doping more likely.

In line with Bandura's (1991) theory of moral thought and action and in agreement with past research (Engelberg et al., 2015; Hodge, et al., 2013; Kavussanu et al., 2016; Mallia, et al., 2016; Ring & Kavussanu, 2017; Zelli, et al., 2010, 2016), we found that moral disengagement was linked with a permissive view of doping, with athletes who had the

tendency to morally disengage, also being most likely to consider doping. Importantly, the moral disengagement-doping relationship was influenced by the context, with a medium-sized positive effect for benefit situations and a small-sized positive effect for cost situations. This novel finding reveals the existence of a situation by person interaction whereby an athlete's use of moral disengagement to justify doping is more prominent when doping is linked with positive outcomes, such as financial remuneration and career progression, and a pressurized social environment created by key members of the entourage, such as the coach and senior athletes.

An important aim of the current study was to evaluate a morality-based model of the psychology of doping in which moral identity had a direct effect on doping likelihood and an indirect effect via doping self-regulatory efficacy and doping moral disengagement. The statistical models provide support for both the direct pathway when doping referred to costs (Figure 1B) and the indirect pathway when doping pertained to benefits (Figure 1A). A similar mediation pathway has been reported to link moral values with aggression in sport via self-regulatory efficacy and moral disengagement (Albouza, et al., 2017). Moreover, in the context of doping, previous research has reported the effect of self-regulatory efficacy on doping likelihood was mediated by moral disengagement (Ring & Kavussanu, 2017). Taken together, these findings provide support for a model of doping grounded on Bandura's (1991) theory of moral thought and action and Aquino and Reed's (2002) model of moral identity.

Limitations and Directions

This study revealed some novel findings. However, there are some issues that should be considered when interpreting our findings. First, we measured doping likelihood, our dependent variable, using projected responses, whereas we measured moral identity, our predictor variable, as well as self-regulatory efficacy and moral disengagement, our mediator

variables, using personal responses. It is therefore worth repeating the study and assessing doping likelihood using personal responses to see if the current findings are replicated, when all responses pertain to the self. Second, we recruited a heterogeneous sample of athletes, with a range of experiences at different levels of competitive sport. A study that recruits large numbers of elite and non-elite athletes, spanning the professional to club athlete ranks, could examine whether competitive level moderates the pathways described in our social cognitive model of doping likelihood. Third, we examined doping likelihood in relation to a number of hypothetical situations. Future research could investigate whether the current findings extend to a larger portfolio of hypothetical situations, including neutral circumstances. Fourth, given the importance of situational costs and benefits, it would be interesting to see whether the effects are moderated by individual differences in reward and punishment sensitivity. Finally, we did not assess the role of affective self-sanctions, such as feelings of guilt and shame, in relation to projected doping. A study that extends the current protocol by measuring anticipated guilt and shame about doping could help paint a more complex picture of the psychology of doping from a social cognitive perspective.

Taken together the current findings confirm predictions about the influences of antecedents of projected doping derived from the theory of moral thought and action (Bandura, 1986, 1991, 2001) and the model of moral identity (Aquino & Reed, 2002). Future studies with longitudinal designs, multiple sampling points, and large samples are required to further evaluate a model of doping likelihood based on these perspectives, whereby moral identity influences future or repeated instances of doping via changes in doping self-regulatory efficacy and moral disengagement. Alternatively, the model could also be evaluated using training interventions designed to reduce use of banned substances by enhancing doping self-regulatory efficacy and/or counteracting moral disengagement in athletes.

Conclusions

The current research offers new insights into the importance of situational costs and benefits in athletes' doping likelihood. Our findings can educate those looking after the interests of the athlete, such as support personnel seeking to protect athletes from the harms of substance misuse (Mazanov, 2017) or the anti-doping system (Mazanov, Hemphill, Connor, Quirk, & Backhouse, 2015). Our evidence supports the argument that costs and benefits influence athlete decisions about using banned substances (Strelan & Boeckmann, 2003). Importantly, the decision to dope was influenced by self-regulatory processes, as predicted by Bandura's theory of moral thought and action and Aquino and Reed's model of moral identity. Thus, the current findings suggest that moral identity and doping self-regulatory efficacy can act as deterrents, whereas doping moral disengagement can act as a promoter of doping by athletes.

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Table 1

Likelihood of Doping in Each Situation

Subcategory / Situation	*M*	*95% CI*	Not Different From
Performance Outcome			
1. Career advancement [B]	4.41	4.18, 4.64	8 13
2. Injury recovery [B]	4.12	3.90, 4.35	8 11 15 17
3. Overcome bad form [B]	3.83	3.63, 4.04	6 9 11 15 19
4. Maintain performance	2.93	2.72, 3.14	
Financial Gain			
5. £75,000 [B]	4.67	4.42, 4.92	13
6. £2,500 [B]	3.72	3.50, 3.95	3 9 11 19
7. £0 [C]	1.93	1.77, 2.09	20
Source of Influence			
8. Coach or manager [B]	4.31	4.09, 4.54	1 2 13
9. Senior athlete [B]	3.88	3.68, 4.09	3 11 15 17 19
10. Sports administrator [B]	3.41	3.16, 3.65	
Health Side Effects			
11. No side effect [B]	3.91	3.66, 4.15	2 3 6 9 15 17 19
12. Risk of death [C]	1.24	1.15, 1.33	
Detection at Event			
13. Low chance [B]	4.48	4.24, 4.73	1 5 8
14. High chance [C]	1.36	1.25, 1.46	18 21
Detection in Future			
15. Low chance [B]	3.93	3.70, 4.16	2 3 9 11 17 19
16. High chance [C]	1.55	1.40, 1.69	
Prosecution from Test			
17. Low chance [B]	4.04	3.80, 4.29	2 9 11 15
18. High chance [C]	1.41	1.28, 1.54	14 21
Financial Loss			
19. £0 [B]	3.76	3.53, 4.00	3 6 9 11 15
20. £2,500 [C]	1.94	1.79, 2.10	7
21. £75,000 [C]	1.36	1.26, 1.47	14 18
Non-Financial Consequence			
22. Let down family and friends	2.22	2.02, 2.42	
23. Public humiliation [C]	1.69	1.55, 1.82	

Note: Possible range of scores: 1 (*not at all*) to 7 (*very likely*). [C] = cost situation. [B] = benefit situation

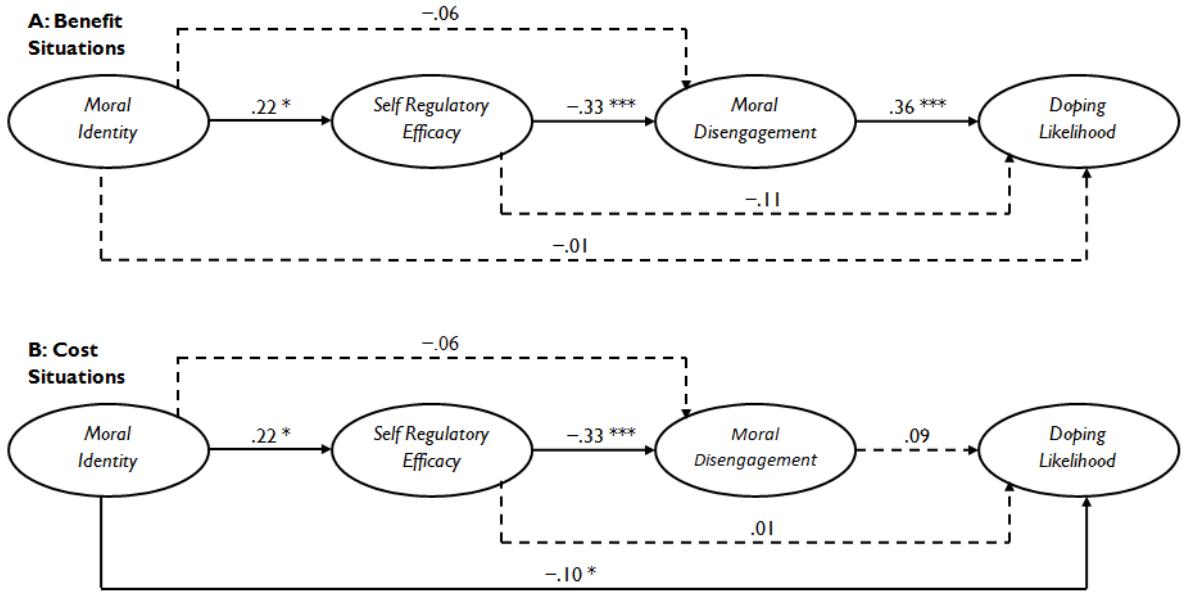
Table 2

Descriptive Statistics, Alpha Coefficients, and Zero-Order Correlations

Variable	*M*	*SD*	α	1.	2.	3.	4.
1. Moral identity	5.98	0.95	.83				
2. Self-regulatory efficacy	5.82	1.40	.96	.15 *			
3. Moral disengagement	2.02	0.90	.79	–.14 *	–.52 **		
4. Doping Likelihood (Benefits)	4.04	1.24	.93	–.04	–.26 **	.32 **	
5. Doping Likelihood (Costs)	1.56	0.67	.85	–.17 *	–.10	.14 *	.27 **

Note. Possible range of scores: 1 – 7. * $p < .05$; ** $p < .001$.

Figure 1. Statistical models of the effects of moral identity on doping likelihood in benefit situations (A) and cost situations (B). The values presented are the unstandardized regression coefficients. A solid line represents a significant relationship whereas a dashed line represents a non-significant relationship. * $p < .05$, *** $p < .001$



APPENDIX

Categories and Subcategories	Situation
Situation and Motivation	
Performance outcome	Accelerated career advancement to next level of competition Help overcome an injury on the day of the event Help overcome bad form and stay at current level of competition Maintain current performance level
Financial gain	Financial gain of £75,000 Financial gain of £2,500 No financial gain
About the Drug	
Source of influence	Encouraged by the coach or manager Encouraged by a senior athlete or team/club mate Encouraged by a sports administrator
Health side effects	No negative health side effects Increased risk of death
Deterrence System	
Detection at the event	Low chance of detection on the day of the event High chance of detection on the day of the event
Detection in the future	Low chance of detection in future from tests on stored samples High chance of detection in future from tests on stored samples
Prosecution from the test	Low chance of being banned as a result of positive drug test High chance of being banned as a result of positive drug test
Consequences if prosecuted	
Fine if prosecuted	No fine £2,500 £75,000
Non-financial	Feeling of letting down family and friends Public humiliation upon detection from the media