

Effects of personal and situational factors on self-referenced doping likelihood

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A B S T R A C T

Objectives: The present study examined the role of moral identity, self-regulatory efficacy and moral disengagement on athletes' doping likelihood in situations representing potential benefits and costs for themselves.

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

Method: Athletes ($N = 262$) indicated their likelihood of doping in hypothetical situations and completed measures of moral identity, doping self-regulatory efficacy, and doping moral disengagement.

Results: Doping was more likely in benefit situations than in cost situations. Doping likelihood was negatively correlated moral identity, negatively correlated with self-regulatory efficacy, and positively correlated with moral disengagement in both situations. The coefficients were higher for moral identity in cost situations, self-regulatory efficacy in benefit situations, and moral disengagement in benefit situations. Process analyses indicated that moral identity was directly related to doping likelihood only in cost situations and indirectly related to doping likelihood via increased self-regulatory efficacy only in benefit situations. Moral identity was indirectly related to doping likelihood via decreased moral disengagement and via increased self-regulatory efficacy and decreased moral disengagement in both situations.

Conclusions: By showing that doping likelihood is associated with personal and situational factors our findings provide support for a social cognitive model of doping based on Bandura's theory of moral thought and action and Aquino's model of moral identity.

1. Introduction

The use of banned performance-enhancing substances by athletes poses a problem for the world of sport. Guided by social cognitive theory, researchers have attempted to understand the phenomenon of doping (WADA, 2015) by investigating the influence of the social environment on behavior. Studies have shown that situational benefits and costs may influence athletes' behavioral intentions regarding the use of banned substances (e.g., Huybers & Mazanov, 2012; Ring, Kavussanu, Simms, & Mazanov, 2018; Strelan & Boeckmann, 2006). Studies have also documented the role of cognitive factors on the use of banned substances (e.g., Erickson, McKenna, & Backhouse, 2015; Ntoumanis, Ng, Barkoukis, & Backhouse, 2014). In his social cognitive theory of moral thought and action, Bandura (1991, 2016) proposes that morally-relevant actions are influenced by situational (e.g., other people, pressure) and personal (e.g., thoughts, feelings) factors. In the present study, we considered the role of moral factors in doping likelihood when faced with hypothetical situations describing benefits and costs for athletes.

1.1. Doping and social cognitive theory

Evidence from qualitative (e.g., Engelberg, Moston, & Skinner, 2015; Erickson et al., 2015; Kirby, Moran, & Guerin, 2011) and quantitative (e.g., Ntoumanis et al., 2014) research has implicated morality as an important predictor of doping by athletes. Bandura's (1991) theory of moral thought and action provides a theoretical framework to understand the psychology of doping (e.g., Corrion, Scoffier-Mériaux, & d'Arripe-Longueville, 2017; Kavussanu, 2016, 2017; Lucidi et al., 2008; Zelli, Mallia, & Lucidi, 2016). According to this theory, our actions are guided by our moral standards and we are personally responsible for our actions: we are self-regulating moral agents (Bandura, 2018). Nonetheless, our actions sometimes fall short of what would be expected based on our moral standards (Bandura, 1991). The difference between what we do and what we ought to do can be expected to cause cognitive dissonance (Festinger, 1957); we are motivated to minimize any internal tension caused by our misdeeds. Bandura (2002) proposes that we use moral disengagement to attenuate any affective self-sanctions associated with unethical acts and thereby behave in a manner

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that disregards our moral standards.

According to Bandura (1991) individuals are able to violate their personal moral standards without self-sanction through the selective use of psychosocial maneuvers, collectively known as mechanisms of moral disengagement. Six moral disengagement mechanisms have been confirmed in the context of doping: diffusion of responsibility, displacement of responsibility, moral justification, distortion of consequences, advantageous comparison, and euphemistic labeling (for review see Kavussanu, 2016). Moral disengagement has been implicated as an important facilitator of doping in qualitative studies (e.g., Engelberg et al., 2015), cross-sectional studies (e.g., Kavussanu, Hatzigeorgiadis, Elbe, & Ring, 2016; Kavussanu & Ring, 2017; Lucidi, Grano, Leone, Lombardo, & Pesce, 2004; Mallia et al., 2016), and experiments (e.g., Ring & Hurst, 2019).

Bandura's (1991, 2016) theory of moral thought and action also describes how self-regulatory efficacy, which is the perceived capability to control one's thoughts, feelings and actions (Bandura, 1997), can influence how a person acts when confronted with situational temptations. Accordingly, doping self-regulatory efficacy, which reflects confidence in the ability to resist doping when faced with tempting situations, such as financial rewards (e.g., Huybers & Mazanov, 2012; Ring et al., 2018), can be expected to prevent doping. In line with theoretical predictions, doping self-regulatory efficacy has been identified as a deterrent of doping intention (i.e., ratings of doping intention, likelihood, and temptation) in previous research (e.g., Barkoukis, Lazuras, Tsorbatzoudis, & Rodafinos, 2013; Corrion et al., 2017; Lazuras, Barkoukis, & Tsorbatzoudis, 2015, 2010; Lucidi et al., 2008; Mallia et al., 2016; Ring & Kavussanu, 2018a).

Grounded on Bandura's (1991, 2016) theory of moral thought and action, we expected that higher self-regulatory efficacy would be associated with lower doping likelihood, whereas higher moral disengagement would be associated with higher doping likelihood. Bandura and colleagues proposed that self-regulatory efficacy influences transgressive behavior both directly and indirectly via moral disengagement, and found evidence for both pathways (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001). This indirect pathway suggests that the greater the perceived capacity to resist temptation the less mechanisms of moral disengagement are used to justify unethical conduct. Recent research has provided evidence to support this indirect pathway in the context of doping (e.g., Corrion et al., 2017; Kavussanu & Ring, 2017; Ring & Kavussanu, 2018a). The current study evaluated this pathway in situations associated with potential benefits and costs for the athlete.

1.2. Doping and moral identity

Aquino and Reed (2002) developed a model of moral identity to explain moral behavior based on social cognitive theory. Moral identity, which describes the degree to which being a moral person is central to one's self concept (Aquino & Reed, 2002; Blasi, 1984), is an important regulator of moral behavior (e.g., Hardy & Carlo, 2011; Hertz & Krettenauer, 2016). In the context of doping, moral identity has been inversely associated with doping likelihood (Kavussanu & Ring, 2017; Ring & Hurst, 2019; Ring et al., 2018). In addition, moral identity was found to be indirectly related to doping likelihood via moral disengagement (Kavussanu & Ring, 2017) and via self-regulatory efficacy and moral disengagement (Ring et al., 2018). This evidence suggests that athletes who feel that being a moral person is a central part of who they are (i.e., their self concept), are less likely to dope due to their greater confidence in their ability to resist when tempted and lower tendency to morally disengage. Accordingly, there is evidence for direct and indirect relationships between moral identity and doping that would be expected based on Aquino and Reed's (2002) model of moral identity and Bandura's (1991) theory of moral thought and action. Building on previous research, we sought to evaluate a model of doping involving both a direct route between moral identity and doping likelihood as well as an indirect route via self-regulatory efficacy and/or

moral disengagement when deciding whether to use banned substances in benefit and cost situations.

1.3. Assessing doping

Asking athletes direct questions about the use of banned performance enhancing substances can be unreliable for a number of reasons, including self-presentation and self-preservation biases (Petroczi, 2016). Instead, researchers can use scenarios describing hypothetical situations to assess doping intention. For instance, athletes have been asked to indicate how they themselves (e.g., Corrion et al., 2017; Kavussanu et al., 2016; Kavussanu & Ring, 2017; Ring & Kavussanu, 2018a, 2018b; Strelan & Boeckmann, 2006) or other athletes (Huybers & Mazanov, 2012; Petroczi, Naughton, Nepusz, Backhouse, & Mazanov, 2008; Ring et al., 2018) might act in hypothetical situations. These two methods assess self-referenced and other-referenced doping, respectively.

Research using the inferred behavior approach to assess other-referenced doping, which assumed that athletes project their own opinions onto other athletes, has identified a number of situational factors that promote doping (e.g., recovery from injury, financial remuneration, entourage advice) and discourage doping (e.g., risk of ill health, fines, and shame) (Huybers & Mazanov, 2012; Ring et al., 2018). We use the terms benefits and costs to refer to these situations that are associated with relatively increased and decreased likelihood of doping, respectively (Ring et al., 2018). Benefit situations include incentives that increase the likelihood of deciding to use banned substances, which may be financial, legal, policy, or social in nature, such as large sums of money and encouragement from a member of the entourage (Donovan, Egger, Kapernick, & Mendoza, 2002; Kegelaers, Wylleman, De Brandt, Van Rossem, & Rosier, 2018; Strelan & Boeckmann, 2006). They also include situations that imply a benefit for performance without the typical negative consequences for doping (e.g., no negative health side effects, low chance of detection, etc). In contrast, cost situations include deterrents that decrease the likelihood of deciding to use banned substances (Ring et al., 2018), such as increased risk of illness, injury, or disease as well as the absence of explicit financial, career, and performance benefits. Ring et al. (2018) reported that other-referenced doping was higher when the situations conferred a benefit to the other athlete (e.g., financial gain, career advancement) than when they incurred a cost for the other athlete (e.g., financial loss, health risk). In sum, the available evidence establishes the importance of situational factors in other-referenced doping likelihood.

1.4. The current study

Based on theorizing about the psychology of moral action (Aquino & Reed, 2002; Bandura, 1991, 2016), we evaluated a social cognitive model of doping that considers the role of situational (benefits and costs) and personal (moral identity, self-regulatory efficacy, moral disengagement) factors on doping likelihood. We had two study purposes. First, we examined whether doping likelihood differs between benefit and cost situations. We hypothesized that doping likelihood would be higher in benefit than in cost situations (Huybers & Mazanov, 2012; Ring et al., 2018). 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, are associated with doping likelihood in benefit situations and cost situations. Based on past research (Kavussanu & Ring, 2017), we hypothesized that moral identity would be inversely associated with doping likelihood both directly and indirectly via increased self-regulatory efficacy and reduced moral disengagement. Based on a previous study (Ring et al., 2018), we expected that the moral identity-doping likelihood relationship would be weaker, whereas the self-regulatory efficacy-doping likelihood and moral disengagement-doping likelihood relationships would be stronger in benefit situations compared to cost

situations.

2. Method

2.1. Participants

Participants were 262 (133 males) college athletes competing in individual ($n = 91$, 35%) and team ($n = 171$, 65%) sports in the UK. The individual sports included athletics, golf, martial arts, swimming and tennis, whereas the team sports included cricket, football, hockey, netball and rugby. At the time of data collection, the athletes ranged in age from 18 to 25 years and had competed in their respective sport for an average of 8.95 ($SD = 3.68$) years. The highest ever standard at which they had competed in their sport was club (26%), county/regional (48%), national (18%), and international (8%).

2.2. Measures

Doping likelihood. Doping likelihood was measured using materials adapted from previous research (Huybers & Mazanov, 2012; Ring et al., 2018). Participants were first presented with the following scenario:

“Imagine that you are an athlete who is due to compete in an event of critical importance to your sporting career. You are seriously considering using a banned performance enhancing substance, but have not made a final decision. To help you make that decision, we have listed a number of situations you may find yourself in. We are asking you to tell us what you think you might decide to do in each situation.”

Participants were then presented with a list of hypothetical situations (Table 1), and indicated how likely it is that they would personally 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 past research (Ring et al., 2018), we employed both benefit and cost situations. The mean of

Table 1
Likelihood of doping in each benefit and cost situation.

Situation	M	95% CI
Benefits		
Financial gain of £75,000	2.64	2.44, 2.84
Help overcome an injury on day of event	2.32	2.15, 2.50
Accelerated career advancement	2.32	2.14, 2.50
No negative health side effects	2.27	2.07, 2.47
Encouraged by a coach or manager	2.03	1.87, 2.18
Financial gain of £2500	1.92	1.77, 2.07
Encouraged by a sports administrator	1.85	1.69, 2.00
Low chance of detection on the day of the event	1.84	1.69, 1.99
Low chance of detection in future from tests on stored samples	1.81	1.66, 1.96
Help overcome bad form and stay at current competition level	1.80	1.65, 1.94
Encouraged by a senior athlete or team/club mate	1.79	1.65, 1.93
No fine if prosecuted	1.74	1.60, 1.87
Low chance of being banned as a result of a positive drug test	1.69	1.56, 1.83
Costs		
No financial gain	1.43	1.31, 1.54
Increased risk of being investigated by a journalist	1.30	1.19, 1.40
Fine of £2500	1.28	1.19, 1.37
Increased risk of minor temporary illness, injury or disease	1.28	1.18, 1.37
High chance of detection on the day of the event	1.22	1.14, 1.30
Public humiliation upon detection from the media	1.21	1.13, 1.30
No career benefit	1.21	1.13, 1.30
No performance benefit	1.21	1.12, 1.29
Increased risk of death	1.20	1.11, 1.29
High chance of detection in future from tests on stored samples	1.19	1.11, 1.26
Increased risk of major long-lasting illness, injury or disease	1.19	1.10, 1.27
High chance of being banned as a result of a positive drug test	1.18	1.11, 1.26
Fine of £75,000	1.17	1.10, 1.24

the ratings in each group of situations was computed as a measure of doping likelihood in benefit ($\alpha = .96$) and cost ($\alpha = 0.97$) situations.

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 7-point scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). This scale has shown very good internal consistency ($\alpha = 0.83$; Aquino & Reed, 2002). The mean of the five ratings was computed and used as a measure of moral identity ($\alpha = 0.81$).

Self-regulatory efficacy. A sport-specific version of the doping self-regulatory efficacy scale (Lucidi et al., 2008) was used to measure perceived ability to resist doping. This version has been used in previous research (Ring et al., 2018; Ring & Kavussanu, 2018a). Athletes indicated their 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 7-point scale anchored by 1 (*not at all confident*) and 7 (*completely confident*). The scale has shown excellent internal consistency ($\alpha = 0.96 - 0.97$; Ring & Kavussanu, 2018a; Ring et al., 2018). The mean of the seven item ratings was computed and used as a measure of doping self-regulatory efficacy ($\alpha = 0.96$).

Moral disengagement. The moral disengagement in doping scale (Kavussanu et al., 2016) was used to measure doping moral disengagement. Athletes indicated their level of agreement with six statements (e.g., “Doping does not really hurt anyone”) using a 7-point scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). The scale has shown good internal consistency (α 's = 0.78 - 0.86), test-retest reliability ($r = 0.78$), and construct validity (Kavussanu et al., 2016). The mean of the six item ratings was computed and used as a measure of moral disengagement in doping ($\alpha = 0.85$).

2.3. Procedure

After obtaining approval from the local research ethics committee, participants were recruited from university clubs and 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.

3. Results

3.1. Doping likelihood in benefit and cost situations

The first study purpose was to determine whether likelihood of using a banned performance enhancing substance in sport differs between benefit and cost situations. The means and confidence intervals for doping likelihood in each situation are presented in Table 1; a mean for one situation that lies outside of the confidence interval of another situation can be considered different from the mean for that situation.

Table 2
Descriptive statistics, alpha coefficients, and zero-order correlations.

Variable	M	SD	α	1.	2.	3.	4.
1. Moral Identity	6.05	0.81	.81				
2. Self-Regulatory Efficacy	5.89	1.45	.96	.18 *			
3. Moral Disengagement	1.94	0.96	.85	-.24 **	-.28 **		
4. Doping Likelihood (Benefits)	2.00	1.08	.96	-.22 **	-.41 **	.72 **	
5. Doping Likelihood (Costs)	1.23	0.60	.97	-.33 **	-.23 **	.59 **	.60 **

Note. Possible range of scores: 1–7. * $p < .01$, ** $p < .001$.

Doping likelihood, which was relatively low in the benefit situations and very low in the cost situations (Table 2), was positively correlated across the two sets of situations, $r(261) = 0.59, p < .001$, and was greater in benefit than in cost situations, $t(261) = 14.27, p < .001, d = 0.91$ (Cohen, 1992).

3.2. Personal factors and doping likelihood

Our second study purpose was to examine the extent to which personal factors are associated with doping likelihood in benefit and cost situations. First, we computed Pearson correlations between personal variables (moral identity, self-regulatory efficacy, moral disengagement) and doping likelihood in benefit and cost situations. In each set of situations doping likelihood was negatively related to moral identity, negatively related to self-regulatory efficacy, and positively related to moral disengagement (Table 2). To examine situational differences in the degree of association between personal moral variables and doping likelihood (Table 2), we computed a Z test to determine whether the two respective correlations were significantly different from each other (Steiger, 1980). Doping likelihood was more strongly related to moral identity ($Z = 2.08, p = .02$) in cost situations compared to benefit situations. In contrast, doping likelihood was more strongly related to self-regulatory efficacy ($Z = 3.46, p = .0006$) and moral disengagement ($Z = 3.39, p = .0008$) in benefit situations compared to cost situations.

Next, we examined whether moral identity was associated with doping likelihood directly and indirectly via self-regulatory efficacy and/or moral disengagement separately for the two sets of situations. This purpose was addressed using the PROCESS 3.0 (Hayes, 2017) SPSS macro, which simultaneously tests direct and indirect effects using regression analyses. Bootstrapping was set at 10,000 samples. Bias-corrected 95% confidence intervals were estimated for all effects. An effect was considered significant when the confidence interval did not contain zero. The completely standardized indirect effect (CSIE) was reported as the effect size metric (Preacher & Kelley, 2011) for the indirect effects, with values of 0.01, 0.09, and 0.25 denoting small, medium, and large effect sizes, respectively (Cohen, 1992).

The results are presented in Figure 1 and Tables 3 and 4. In benefit situations (Figure 1A, Table 3), moral identity had no direct effect on doping likelihood, $b = -0.03, 95\% \text{ CI} = -0.14, 0.08, t = 0.54,$

Table 3
Direct and indirect effects on self-regulatory efficacy, moral disengagement and doping likelihood in benefit situations.

Effects	B	95% CI	CSIE	95% CI
Direct effects of MI on				
SRE	.32 **	.11, .54		
MD	-.23 ***	-.37, -.09		
Doping	-.03	-.14, .08		
Direct effects of SRE on				
MD	-.16 ***	-.24, -.08		
Doping	-.17 ***	-.23, -.11		
Direct effects of MD on				
Doping	.73 ***	.63, .82		
Indirect effects of MI on doping via				
SRE	-.06 *	-.11, -.02	-.04 *	-.09, -.01
MD	-.17 *	-.31, -.04	-.13 *	-.23, -.03
SRE and MD	-.04 *	-.08, -.01	-.03 *	-.06, -.01

Notes: MI = moral identity, SRE = self-regulatory efficacy, MD = moral disengagement.

* $p < .05, **p < .01, ***p < .001.$

Table 4
Direct effects and indirect effects on self-regulatory efficacy, moral disengagement and doping likelihood in cost situations.

Effects	B	95% CI	CSIE	95% CI
Direct effects of MI on				
SRE	.32 **	.11, .54		
MD	-.23 ***	-.37, -.09		
Doping	-.15 ***	-.22, -.07		
Direct effects of SRE on				
MD	-.16 ***	-.24, -.08		
Doping	-.02	-.06, .02		
Direct effects of MD on				
Doping	.33 ***	.27, .40		
Indirect effects of MI on doping via				
SRE	-.01	-.02, .01	-.01	-.04, .01
MD	-.08 *	-.17, -.02	-.10 *	-.20, -.03
SRE and MD	-.02 *	-.04, -.01	-.02 *	-.05, -.01

Notes: MI = moral identity, SRE = self-regulatory efficacy, MD = moral disengagement.

* $p < .05, **p < .01, ***p < .001.$

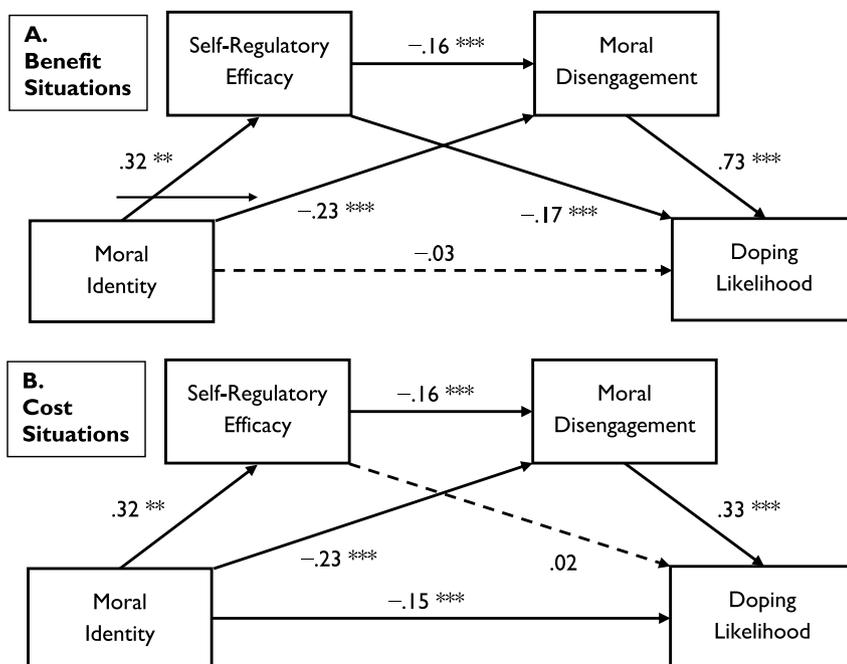


Figure 1. Statistical models of the effects of moral identity, self-regulatory efficacy and moral disengagement on doping likelihood in benefit (A) and cost (B) situations. The values are the unstandardized regression coefficients, a solid line depicts a significant relationship, and a dashed line depicts a non-significant relationship. * $p < .05, **p < .01, ***p < .001.$

$p = .59$. However, it had significant indirect effects on doping likelihood via self-regulatory efficacy alone, moral disengagement alone, and the serial combination of self-regulatory efficacy and moral disengagement. The total indirect effect of moral identity on doping likelihood in benefit situations was significant and large, $b = -0.26$, 95% CI = $-0.40, -0.12$, CSIE = -0.195 , 95% CI = $-0.30, -0.09$. In cost situations (Figure 1B, Table 4), moral identity had a direct effect on doping likelihood, $b = -0.15$, 95% CI = $-0.22, -0.07$, $t = 3.83$, $p = .001$. In addition, it had an indirect effect via moral disengagement alone and via the serial combination of self-regulatory efficacy and moral disengagement. The path via self-regulatory efficacy alone was not significant. The total indirect effect of moral identity on doping likelihood in cost situations was significant and medium sized, $b = -0.10$, 95% CI = $-0.19, -0.04$, CSIE = -0.13 , 95% CI = $-0.22, -0.06$. In sum, moral identity was indirectly linked to doping in benefit situations whereas moral identity was directly and, to a lesser extent, indirectly linked to doping in cost situations.

4. Discussion

Grounded in social cognitive theorizing, including Bandura's (1991, 2016) theory of morality and Aquino and Reed's (2002) conceptualization of moral identity, as well as previous research on doping (Kavussanu & Ring, 2017; Ring et al., 2018), our study evaluated a model of doping that considered the role of situational and personal factors in relation to the likely use of banned performance-enhancing substances. First, we examined whether doping likelihood differed between benefit and cost situations, and, second, we examined whether moral identity, self-regulatory efficacy, and moral disengagement were related to athletes' doping likelihood, and determined if these relationships differed between benefit and cost situations.

4.1. Doping likelihood in benefit and cost situations

Bandura's (1986, 1989) social cognitive theory of thought and action argues that our social environment regulates our behavior. In the context of sport, there is evidence showing that athletes take account of the expected benefits (incentives) and costs (threats) of their actions when deciding whether or not to use banned performance-enhancing substances (e.g., Donovan et al., 2002; Huybers & Mazanov, 2012; Mazanov & Huybers, 2010; Ring et al., 2018; Strelan & Boeckmann, 2006). We found evidence that athletes consider the seriousness of the threats (e.g., ill-health, discovery, fines, bans, public scrutiny) and magnitude of the incentives (e.g., remuneration, career, health) when deciding whether to use a banned substance themselves. This shows that the likelihood of using banned substances depends on the expected benefits and costs associated with doping. The current findings broadly replicate research using hypothetical scenarios on the relative effects of situational benefits and costs on other-referenced doping likelihood (Huybers & Mazanov, 2012; Ring et al., 2018) and the effects of health, legal, moral, and social costs on self-referenced doping likelihood (Strelan & Boeckmann, 2006).

It is worth noting that decisions about one's own doping (current study) and decisions about doping by other athletes (Ring et al., 2018) appear to yield similar estimates of absolute doping likelihood in cost situations but different estimates of absolute doping likelihood in benefit situations. This difference suggests that doping likelihood may be underestimated by the self-referenced method and/or overestimated by the other-referenced method. This self-other divergence should be explored in future research that assesses doping likelihood in hypothetical scenarios using both methods (cf., Petroczi et al., 2008;

Uvascek et al., 2011).

4.2. Personal factors and doping likelihood

Bandura's (1991) social cognitive theory of moral thought and action coupled with Aquino and Reed's (2002) social cognitive model of moral identity (e.g., Aquino, Freeman, Reed, Lim, & Felps, 2009) recognize moral identity, self-regulatory efficacy, and moral disengagement as core components of personal morality that regulate ethical behavior. In the current study, correlation analyses showed that doping likelihood in benefit and cost situations was negatively correlated with moral identity and doping self-regulatory efficacy but positively correlated with doping moral disengagement.

The strength of the personal morality-doping likelihood relationships depended on the nature of the doping situation. The bivariate relationship was strongest for moral identity when doping imposed costs on the athletes, whereas the relationship was strongest for moral disengagement and self-regulatory efficacy when doping conferred benefits for the athletes (Table 2). The multivariate models (Table 3, Table 4, Figure 1) confirmed a direct path between moral identity and doping likelihood only in cost situations and an indirect path between moral identity and doping likelihood via self-regulatory efficacy only in benefit situations. The indirect path via moral disengagement alone was stronger (i.e., larger effect size) in benefit situations compared to cost situations. Finally, the indirect serial path via self-regulatory efficacy and moral disengagement was present in both situations.

A previous study of other-referenced doping also noted that the direct effect of moral identity on doping likelihood was confined to benefit situations (Ring et al., 2018). In contrast to the present models, the same study found only one indirect effect in benefit situations (via the serial combination of self-regulatory efficacy and moral disengagement) and no indirect effects in cost situations. This latter discrepancy suggests that one's moral constructs (e.g., moral identity, self-regulatory efficacy, moral disengagement) are more closely related to one's own compared to someone else's behavioral intentions. We await for future studies to confirm and explain this self-other divergence using research designs that concurrently compare self-referenced and other-referenced doping likelihood in benefit and cost situations in the same sample of athletes.

In support of Bandura's (1991) theory of moral thought and action and in line with past research that has investigated the relationship between self-regulatory efficacy and doping intentions (e.g., Corrion et al., 2017; Barkoukis et al., 2013; Mallia, et al., 2016; Ring et al., 2018) we found that athletes who were confident that they can resist temptations and refuse to use banned substances when put under pressure to perform were less likely to consider using a banned substance. Importantly, the statistical models (Figure 1) showed that the relationship between self-regulatory efficacy and doping likelihood depended on the situational context, with a negative relationship for benefit situations and a non-significant relationship for cost situations. A similar contextual difference for the relationship between self-regulatory efficacy and doping likelihood was evident in the correlation analyses. This evidence for a contextual difference indicates that the perceived ability to resist doping is more important when the situational pressures make doping more likely.

In support of the theory of moral thought and action (Bandura, 1991) and in line with previous studies (e.g., Corrion et al., 2017; Engelberg et al., 2015; Kavussanu & Ring, 2017; Mallia et al., 2016; Zelli et al., 2016), we found that moral disengagement was associated with a more permissive view of doping. In other words, athletes who were more likely to concur with the use of mechanisms of moral

disengagement were also the ones who were more likely to agree with the use of banned performance enhancing substances. Interestingly, the moral disengagement-doping relationship was moderated by the situational context, with a larger effect for benefit situations than cost situations. This finding confirms the operation of a conditional effect or situation by person interaction (Ring et al., 2018) whereby the decision to use moral disengagement to justify use of banned substances plays a stronger role when such doping is associated with a pressurized social environment created by athlete support personnel and reinforcement in the form of career advancement and financial rewards.

4.3. Study limitations, future directions and practical implications

Our findings should be interpreted after considering potential study limitations. First, we assessed doping likelihood in hypothetical scenarios and found that many athletes were unlikely to use a banned substance in many of the situations. Future studies could evaluate our social cognitive model of doping in athletes with and without convictions for anti-doping rule violations concerning use of banned substances. Second, we did not measure negative emotions to evaluate the role of affective self sanction. To paint a fuller picture of the morality-doping relationship, future studies could include measures of guilt and shame associated with doping.

In terms of practical implications, anti-doping training programs, particularly those underpinned by moral theory, would be better served if they assessed their effectiveness in terms of self-referenced doping likelihood rather than other-referenced doping likelihood. This is because the associations between moral variables and doping intentions appeared to be stronger in the current study compared to a previous study that examined other-referenced doping (Ring et al., 2018). In these programs, activities could be developed that make the moral self concept more salient for the athletes, enhance their self-regulatory efficacy to resist doping, and challenge their use of moral disengagement mechanisms.

4.4. Conclusion

The present study confirmed that doping behavior by athletes is more likely when the situation affords them benefits compared to when the situation imposes costs on them. We also documented how doping likelihood depended on personal morality, with intended doping behavior discouraged by moral identity and self-regulatory efficacy but encouraged by moral disengagement. Moreover, the extent to which moral thoughts influenced intended doping behavior depended on the situational context. In the cost situations, moral identity acted directly and, to a lesser extent, indirectly via self-regulatory efficacy and moral disengagement, whereas in the benefit situations, moral identity acted only indirectly via self-regulatory efficacy and/or moral disengagement.

References

Aquino, K., Freeman, D., Reed, A., Lim, V. K. G., & Felps, W. (2009). Testing a social cognitive model of moral behavior: The interaction of situational factors and moral identity centrality. *Journal of Personality and Social Psychology*, *97*, 123–141.

Aquino, K., & Reed, A. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, *83*, 1423–1440.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*, 1175–1184.

Bandura, A. (1991). Social cognitive theory of moral thought and action. In W. M. Kurtines, & J. L. Gewirtz (Vol. Eds.), *Handbook of moral behavior and development: Theory, research, and applications: Vol. 1*, (pp. 71–129). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *Journal of Moral Education*, *31*, 101–119.

Bandura, A. (2016). *Moral disengagement: How people do harm and live with themselves*. New York: Worth.

Bandura, A. (2018). Toward a psychology of human agency: Pathways and reflections. *Perspectives on Psychological Science*, *13*, 130–136.

Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behavior. *Journal of Personality and Social Psychology*, *80*, 125–135.

Barkoukis, V., Lazuras, L., Tsorbatzoudis, H., & Rodafinos, A. (2013). Motivational and social cognitive predictors of doping intentions in elite sports: An integrated approach. *Scandinavian Journal of Medicine & Science in Sports*, *5*, e330–e340.

Blasi, A. (1984). Moral identity: Its role in moral functioning. In G. G. Naom, & T. E. Wren (Eds.), *The moral self* (pp. 99–122). Cambridge, MA: MIT Press.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159.

Corrion, K., Scoffier-Mériaux, S., & d'Arripe-Longueville, F. (2017). Self-regulatory mechanisms of doping intentions in elite athletes: The role of self-determined motivation in sport. *Journal of Sports Medicine & Doping Studies*, *7*, 1–8.

Donovan, R. J., Egger, G., Kapernick, V., & Mendoza, J. (2002). A conceptual framework for achieving performance enhancing drug compliance in sport. *Sports Medicine*, *32*, 269–284.

Engelberg, T., Moston, S., & Skinner, J. (2015). The final frontier of anti-doping: A study of athletes who have committed doping violations. *Sport Management Review*, *18*, 268–279.

Erickson, K., McKenna, J., & Backhouse, S. H. (2015). A qualitative analysis of the factors that protect athletes against doping in sport. *Psychology of Sport and Exercise*, *16*, 149–155.

Festinger, L. (1957). *A theory of cognitive dissonance*. Palo Alto, CA: Stanford University Press.

Hardy, S. A., & Carlo, G. (2011). Moral identity: What is it, how does it develop, and is it linked to moral action? *Child Development Perspectives*, *5*, 212–218.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York: Guilford Press.

Hertz, S. G., & Krettenauer, T. (2016). Does moral identity effectively predict moral behavior? A meta-analysis. *Review of General Psychology*, *20*, 129–140.

Huybers, T., & Mazanov, J. (2012). What would Kim do? A choice study of projected athlete doping considerations. *Journal of Sport Management*, *26*, 322–334.

Kavussanu, M. (2016). Moral disengagement and doping. In V. Barkoukis, L. Lazuras, & H. Tsorbatzoudis (Eds.), *The psychology of doping in sport* (pp. 151–164). New York: Routledge.

Kavussanu, M. (2017). Doping in soccer: A moral psychology perspective. In J. Bangsbo, P. Krustrup, P. Hansen, L. Ottesen, G. Pfister, & A. M. Elbe (Eds.), *Science & football VIII*. Routledge.

Kavussanu, M., Hatzigeorgiadis, A., Elbe, A. M., & Ring, C. (2016). The moral disengagement in doping scale. *Psychology of Sport and Exercise*, *24*, 188–198.

Kavussanu, M., & Ring, C. (2017). Moral identity predicts doping likelihood via moral disengagement and anticipated guilt. *Journal of Sport & Exercise Psychology*, *39*, 293–301.

Kegelaers, J., Wylleman, P., De Brandt, K., Van Rossem, N., & Rosier, N. (2018). Incentives and deterrents for drug-taking behaviour in elite sports: a holistic and developmental approach. *European Sport Management Quarterly*, *18*, 112–132.

Kirby, K., Moran, A., & Guerin, S. (2011). A qualitative analysis of the experiences of elite athletes who have admitted to doping for performance enhancement. *International Journal of Sport Policy and Politics*, *3*, 205–224.

Lazuras, L., Barkoukis, V., Rodafinos, A., & Tsorbatzoudis, H. (2010). Predictors of doping intentions in elite-level athletes: A social cognition approach. *Journal of Sport & Exercise Psychology*, *32*, 694–710.

Lazuras, L., Barkoukis, V., & Tsorbatzoudis, H. (2015). Toward an integrative model of doping use: An empirical study with adolescent athletes. *Journal of Sport & Exercise Psychology*, *37*, 37–50.

Lucidi, F., Grano, C., Leone, L., Lombardo, C., & Pesce, C. (2004). Determinants of the intention to use doping substances: An empirical contribution in a sample of Italian adolescents. *International Journal of Sport Psychology*, *35*, 133–148.

Lucidi, F., Zelli, A., Mallia, L., Grano, C., Russo, P. M., & Violani, C. (2008). The social cognitive mechanisms regulating adolescents' use of doping substances. *Journal of Sports Sciences*, *26*, 447–456.

Mallia, L., Lazuras, L., Barkoukis, V., Brand, R., Baumgarten, F., Tsorbatzoudis, H., Zelli, A., & Lucidi, F. (2016). Doping use in sport teams: The development and validation of measures of team-based efficacy beliefs and moral disengagement from a cross-national perspective. *Psychology of Sport and Exercise*, *25*, 78–88.

Mazanov, J., & Huybers, T. (2010). An empirical model of athlete decisions to use performance enhancing drugs: Qualitative evidence. *Qualitative Research in Sport and Exercise*, *2*, 385–402.

Ntoumanis, N., Ng, J. Y. Y., Barkoukis, V., & Backhouse, S. (2014). Personal and psychosocial predictors of doping use in physical activity settings: A meta-analysis. *Sports Medicine*, *44*, 1603–1624.

Petroczi, A. (2016). Indirect measures in doping behavior research. In V. Barkoukis, L. Lazuras, & H. Tsorbatzoudis (Eds.), *The psychology of doping in sport* (pp. 93–110). New York: Routledge.

Petroczi, A., Naughton, D. P., Nepusz, T., Backhouse, S., & Mazanov, J. (2008). Comfort in big numbers: False consensus in hypothetical performance enhancing situations. *Journal of Occupational Medicine and Toxicology*, *3*, 19.

Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, *16*,

- 93–115.
- Ring, C., & Hurst, P. (2019). The effects of moral disengagement mechanisms on doping likelihood are mediated by guilt and moderated by moral traits. *Psychology of Sport and Exercise, 40*, 33–41.
- Ring, C., & Kavussanu, M. (2018a). The role of self-regulatory efficacy, moral disengagement, and guilt on doping likelihood: A social cognitive theory perspective. *Journal of Sports Sciences, 36*, 578–584.
- Ring, C., & Kavussanu, M. (2018b). Ego involvement increases doping likelihood. *Journal of Sports Sciences, 36*, 1757–1762.
- Ring, C., Kavussanu, M., Simms, M., & Mazanov, J. (2018). Effects of situational costs and benefits on projected doping likelihood. *Psychology of Sport and Exercise, 34*, 88–94.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin, 87*, 245–251.
- Strelan, P., & Boeckmann, R. J. (2006). Why drug testing in elite sport does not work: Perceptual deterrence theory and the role of personal moral beliefs. *Journal of Applied Social Psychology, 36*, 2909–2934.
- Uvascek, M., Nepusz, T., Mazanov, J., Naughton, D., Ranky, M., & Petroczi, A. (2011). Self-admitted behaviour and perceived use of performance enhancing versus psychoactive drugs among competitive athletes. *Scandinavian Journal of Medicine & Science in Sports, 21*, 224–234.
- WADA (2015). *World anti-doping code*. Montreal: WADA. Retrieved from: <http://www.wada-ama.org/>.
- Zelli, A., Mallia, L., & Lucidi, F. (2016). The possible contribution of interpersonal appraisals to social-cognitive accounts of doping use. In V. Barkoukis, L. Lazuras, & H. Tsorbatzoudis (Eds.), *The psychology of doping in sport* (pp. 151–164). New York: Routledge.