Moral Identity Predicts Doping Likelihood via Moral Disengagement and Anticipated Guilt

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Moral Identity, Moral Disengagement and Anticipated Guilt

Predict Doping Likelihood in Amateur Athletes

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1   Abstract

2   In this study, we integrated elements of social cognitive theory of moral thought and action

3   (Bandura, 1991) and the social cognitive model of moral identity (Aquino & Reed, 2002) to

4   better understand doping likelihood in amateur athletes. Participants (N = 398) recruited

5   from a variety of team sports completed measures of moral identity, moral disengagement,

6   anticipated guilt and doping likelihood. Moral identity predicted doping likelihood indirectly

7   via moral disengagement and anticipated guilt. Anticipated guilt about potential doping

8   mediated the relationship between moral disengagement and doping likelihood. Our findings

9   provide novel evidence to suggest that athletes, who feel that being a moral person is

10   central to their self-concept are less likely to use banned substances due to their lower

11   tendency to morally disengage and the more intense feelings of guilt they expect to

12   experience for using banned substances.

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14   Keywords: affective self-sanction; social cognitive theory; banned substances

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Moral Identity, Moral Disengagement and Guilt Predict Doping Likelihood in Amateur

Athletes

1   The psychological factors associated with the use of banned performance-enhancing

2   substances or methods in sport, also known as doping, have received increased research

3   attention in recent years (see Ntoumanis, Ng, Barkoukis, & Backhouse, 2014). Identifying

4   such factors is important, as this knowledge would enable us to design interventions to

5   prevent doping in sport. There is growing evidence that not only professional but also

6   amateur athletes consume banned performance-enhancing substances (e.g., Locquet et al.,

7   2017; Zabala, Morente-Sánchez, Mateo-March, & Sanabria, 2016). Therefore, research into

8   doping in amateur competitive athletes is important. A number of psychological models have

9   been proposed to explain doping in sport (e.g., Barkoukis, Lazuras, & Tsorbatzoudis, 2016;

10   Donovan, Egger, Kapernick, & Mendoza, 2002). The aim of the present research was to

11   extend previous work by testing a model of doping based on Bandura's (1991) social

12   cognitive theory of moral thought and action and the socio-cognitive model of moral

13   identity (Aquino & Reed, 2002).

Social Cognitive Theory and Doping

15   Bandura (1991) proposed that individuals develop moral standards through

16   socialization experiences and interaction with others, for example, by observing significant

17   others and through reinforcement and punishment. These moral standards help regulate

18   behavior via evaluative affective self-reactions. People feel satisfaction and pride when they

19   act in line with their moral standards, and experience negative emotions, such as shame or

20   guilt, when they do not act in line with these standards. These self-sanctions regulate

21   behavior anticipatorily, whereby individuals tend to avoid behaviors that will evoke self-

22   condemnation (Bandura, 1991, 2002). Thus, anticipated negative emotion is a key regulator

23   of unethical behavior. Indeed, anticipated negative feelings (e.g., guilt, regret, shame) about

1   possible doping have been negatively associated with doping intentions[1] in adolescent and

2   adult athletes (Barkoukis, Lazuras, & Harris, 2015; Lazuras, Barkoukis, & Tsorbatzoudis,

3   2015; Ring & Kavussanu, 2017).

4   Although moral standards are assumed to regulate behavior via affective self-sanctions,

5   people do not always act as they should. They are able to engage in transgressive behavior

6   without feeling bad about it, via the use of cognitive mechanisms, known as moral

7   disengagement. Bandura (1991, 1999) described eight mechanisms of moral disengagement;

8   however, only six are relevant to doping (see Kavussanu, 2016; Kavussanu, Hatzigeorgidadis,

9   Elbe, & Ring, 2016; Lucidi et al., 2008; Mallia et al., 2016). These are: (a) moral justification,

10   for example, doping is justified as done for a higher social purpose, such as to feed one's

11   family or to help one's country; (b) advantageous comparison, when doping is contrasted to

12   other less severe behaviors, thereby appearing not as serious; (c) euphemistic labeling, when

13   athletes who dope use sanitizing language by referring to doping as "juice" or to EPO as

14   "altitude training in a bottle"; (d) diffusion of responsibility (e.g., "everyone in the team is

15   doing it"); (e) displacement of responsibility, where responsibility for one's transgressive

16   behavior is displaced on others (e.g., "my coach told me to do it"); and (f) distortion of

17   consequences, for example, when athletes downplay the negative consequences of their

18   transgressive behavior for others. Moral disengagement has been positively associated with

19   both doping temptation (Hodge, Hargreaves, Gerrard, & Lonsdale, 2013) and doping

20   intentions in several studies (Kavussanu et al., 2016; Ntoumanis, Barkoukis, Gucciardi, &

21   Chan, 2017; Ring & Kavussanu, 2017; Zelli, Mallia, & Lucidi, 2010).

22   As indicated above, Bandura (1991) proposed that moral disengagement enables

23   individuals to engage in transgressive behavior, by reducing the anticipated negative affective

24   reactions, such as guilt, which would normally arise from engaging in such behavior. Guilt, a

25   self-conscious moral emotion arising from moral transgression, is a key regulator of moral

1   action (Tangney, Stuewig, & Mashek, 2007; Zebel, Doosje, & Spears, 2009). In his seminal

2   study, which examined moral disengagement empirically, Bandura and colleagues (Bandura,

3   Barbaranelli, Caprara, & Pastorelli, 1996) reported that moral disengagement was a negative

4   predictor of anticipated guilt, which in turn negatively predicted aggressive behavior in

5   school children. In the context of sport, Stanger, Kavussanu, Boardley and Ring (2013)

6   showed that moral disengagement predicted athletes' antisocial behavior both directly and

7   indirectly via anticipated guilt. However, to date, only one study has investigated the

8   mediating role of anticipated guilt in the relationship between moral disengagement and

9   doping likelihood. Specifically, Ring and Kavussanu (2017) found evidence consistent with

10   this mediating role in a sample of university athletes. There is a need to determine whether

11   these findings are replicated in a larger, independent sample of athletes, from a more diverse

12   age group, that is more representative of adult sport. In addition, research is needed to

13   identify factors that influence moral disengagement.

14   **Moral Identity and Doping**

15   Building, in part, on the social cognitive model of moral behavior (Bandura, 1991),

16   Aquino and Reed (2002) described the psychological construct of moral identity, as a self-

17   regulatory mechanism. They defined moral identity as "a self-conception organized around a

18   set of moral traits" (Aquino & Reed, 2002, p. 1424) and proposed that people vary in the

19   degree to which they consider being a good or moral person a central part of their self-

20   concept. Moral identity is a strong source of moral motivation, that is, the motive to behave

21   morally, due to individuals' desire to maintain consistency between conceptions of their

22   moral self and their actions (Aquino, Freeman, Reed, Lim, & Felps, 2009; Blasi, 1984).

23   Indeed, individuals whose moral identity was central to their self-concept were less likely to

24   lie in a salary negotiation (Aquino et al., 2009) and more likely to avoid antisocial behavior

25   (Hertz & Krettenauer, 2016). In the context of sport, athletes with strong moral identity

1   reported less frequent antisocial behavior toward their opponents (Kavussanu, Stanger, &

2   Boardley, 2013; Kavussanu, Stanger, & Ring, 2015). However, to date, no study has

3   investigated whether moral identity predicts the doping likelihood in sport.

4   Moral identity could deter individuals from doping by acting on the two variables

5   discussed in the previous section, namely moral disengagement and anticipated guilt. It is

6   reasonable to expect that the individual, who places high importance on being a moral

7   person, should experience more guilt, if he or she behaved badly, as this behavior would not

8   be compatible with the person's view of the self as moral. Indeed, moral identity was

9   positively associated with anticipated guilt in athletes, who were faced with the possibility of

10   acting antisocially, in both cross-sectional and experimental research (Kavussanu et al., 2013,

11   2015). Moral identity should also reduce the tendency to morally disengage, as one would

12   be motivated to act morally, in order to keep one's actions in line with one's self-concept as

13   a moral person, therefore not needing to justify unethical behavior. Indeed, moral identity

14   has been inversely associated with moral disengagement in past research (Detert, Trevino, &

15   Sweitzer, 2008; Kavussanu et al., 2016).

16   **The Present Research**

17   Considerable research evidence has been accumulated indicating that moral

18   disengagement is positively related to doping variables (e.g., Hodge et al., 2013; Kavussanu et

19   al., 2016; Ntoumanis et al., 2017). However, to date, only one study has investigated

20   whether anticipated guilt mediates the relationship between moral disengagement and

21   doping likelihood (Ring & Kavussanu, 2017). This study used exclusively university athletes,

22   of a limited age range, thus their findings have limited generalizability. Therefore, the first

23   purpose of this study was to examine whether anticipated guilt mediates the relationship

24   between moral disengagement and doping likelihood in an independent and more diverse

25   sample of athletes. We expected to replicate findings of previous research (Ring &

1   Kavussanu, 2017). The second purpose of this study was to investigate whether moral

2   identity is associated with doping likelihood and whether this relationship is mediated by

3   moral disengagement and anticipated guilt. Based on previous findings on antisocial sport

4   behavior (Kavussanu et al., 2013, 2015), we hypothesized that moral identity would be

5   inversely associated with doping likelihood, and that this relationship would be mediated by

6   moral disengagement and guilt (e.g., Detert et al., 2008; Kavussanu et al., 2015).

7   **Method**

8   **Participants**

9   Participants were 398 (233 males) club and college athletes participating in five team

10   sports (netball, rugby, football, basketball, korfball) recruited from competitive adult regional

11   (n = 281; 70.6%) and college (Division I and II) leagues in the West Midlands region of the

12   United Kingdom. At the time of data collection, participants ranged in age from 16[2] to 40

13   years, had competed in their sport for an average of 9.06 (*SD* = 4.22) years, had played for

14   their current team for an average of 2.88 (*SD* = 3.11) years, and had played under their

15   current coach for an average of 2.35 (*SD* = 2.69) years.

16   **Measures**

17   **Doping likelihood.**

18   One of the difficulties in doping research is that doping is an illegitimate behavior, to

19   which athletes are naturally reluctant to admit. To circumvent this issue, most researchers

20   measure variables such as doping intentions (e.g., Lazuras et al., 2015), temptation (Hodge et

21   al., 2013; Ntoumanis et al., 2017) or likelihood (e.g., Kavussanu et al., 2016), as proxies for

22   doping behavior. In line with previous research (Kavussanu et al., 2016; Ring & Kavussanu,

23   2017), we asked participants to report their likelihood of doping in two hypothetical

24   situations, in which they could use a banned substance to (a) enhance performance and (b)

25   aid recovery from injury[3]. These two scenarios were used because consultation with elite

1   athletes suggested that fitness-related performance enhancement and injury recovery are

2   two of the most common reasons athletes decide to use banned substances (also see

3   Huybers & Mazanov, 2012; Whitaker & Backhouse, 2016).

4   The performance-enhancement scenario read as follows: "It is the day before the most

5   important game of the season. The winner of this game will win the league. The team against

6   which you will compete is of similar ability level to your team, and they are just one point

7   ahead of your team in the league. Lately, your performance has been below your best. You

8   don't feel you have the necessary fitness for this important game, and you are concerned

9   about how you will perform. You mention this to one of your teammates, who tells you

10   that he/she has been using a new substance, which has enhanced his/her fitness and, as a

11   result, his/her performance. The substance is banned for use in sport, but the chance that

12   you will be caught is extremely small."

13   The injury recovery scenario read as follows: "It is two weeks before the most

14   important game of the season. The winner of this game will win the league. The team against

15   which you will compete is of similar ability level to your team and they are just one point

16   ahead of your team in the league. You really want to play in this game. However, two

17   months ago, you sustained a knee injury, and you know you need at least one more month

18   of rehabilitation to fully recover. One of your teammates tells you that he/she has recently

19   used a new substance, which has helped him/her recover faster than usual from a knee

20   injury. The substance is banned for use in sport, but the chance that you will be caught is

21   extremely small."

22   After reading each scenario, participants indicated the likelihood that they would use

23   the banned substance on a Likert scale, anchored by 1 (*not at all likely*) and 7 (*very likely*).

24   Although the mean ratings for the injury scenario were higher than those of the

25   performance-enhancing scenario, these ratings were also highly related to each other (r =

1   .71, p < .001); thus, the average of the two ratings was used to measure doping likelihood.

2   The internal consistency of the scores of this combined measure was very good (α = .81).

3   **Moral disengagement.**

4   The moral disengagement in doping scale (Kavussanu et al., 2016) was used to measure

5   doping moral disengagement. Participants were asked to indicate their level of agreement

6   with six statements (e.g., "Doping does not really hurt anyone", "Compared to the illegal

7   things people do in everyday life, doping in sport is not very serious") using a Likert scale,

8   anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). The scale has shown good internal

9   consistency (α = .78 - .86), test-retest reliability (r = .78), and factorial, convergent, and

10   concurrent validity (Kavussanu et al., 2016). The mean of the six item ratings was computed

11   and used as a measure of doping moral disengagement; internal consistency of the scale

12   scores in the present study was good (α = .75).

13   **Moral identity.**

14   The internalization dimension of the moral identity scale (Aquino & Reed, 2002) was

15   used to measure moral identity. Participants were presented with nine traits (e.g., fair,

16   honest, helpful, kind, generous, compassionate, etc) considered common characteristics of

17   moral persons and were asked to respond to five statements concerning these traits (e.g.,

18   "It would make me feel good to be a person who has these characteristics") on a Likert

19   scale, anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). This scale has shown very good

20   internal consistency in previous research (α = .83; Aquino & Reed, 2002). The mean of the

21   five item ratings was computed and used as a measure of moral identity; internal consistency

22   of the scale scores was very good (α = .81).

23   **Procedure**

24   After obtaining ethical approval, participants were recruited from sports teams

25   participating in local competitive leagues and university teams in the UK. Data were

1   collected by research assistants either at the beginning or at the end of a training session.

2   Participants were instructed to complete the questionnaires as carefully as possible. They

3   were informed about the study's aims, that participation was voluntary, honesty in

4   responses was vital, and data would be kept strictly confidential and used only for research

5   purposes. Next, participants indicated consent with taking part in the study and completed

6   the questionnaires described above. The questionnaires were completed anonymously and

7   without the coach present to minimise socially-desirable responding.

8   **Results**

9   **Preliminary Analyses**

10   Prior to our main data analysis, we conducted preliminary analyses to examine missing

11   values, outliers, normality, skewness, kurtosis and internal consistency of the scales

12   (Tabachnick & Fidell, 2007). These analyses indicated that 0.2% of the data points were

13   missing. When less than 5% of the data are missing, any method for replacing missing data is

14   acceptable (Tabachnick & Fidell, 2007); therefore, we replaced missing data with the series

15   mean. There were no outliers, identified as scores more than 3.29 *SD* from the mean.

16   Skewness and kurtosis were low (i.e., < 2) for all variables (Tabachnick & Fidell, 2007). All

17   scale scores exhibited good internal consistency (see Table 1).

18   **Descriptive Statistics and Zero-Order Correlations**

19   The mean measure scores (Table 1) showed that players were characterized by

20   relatively high moral identity, low moral disengagement, and high anticipated guilt, and were

21   not likely to use banned substances. The zero-order correlations indicated that moral

22   identity was negatively associated with doping likelihood and moral disengagement, and

23   positively associated with anticipated guilt. Doping likelihood was also positively associated

24   with moral disengagement and negatively associated with guilt.

25   **Main Analyses**

1   The first purpose of this study was to determine whether anticipated guilt mediates

2   the relationship between moral disengagement and doping likelihood, in line with previous

3   research (Ring & Kavussanu, 2017). The second purpose was to examine whether moral

4   identity was associated with doping likelihood and whether this relationship was mediated

5   by moral disengagement and anticipated guilt. We examined both purposes in a single model

6   using the PROCESS 2.16 (Hayes, 2013) SPSS macro (model 6), which simultaneously tests

7   direct and indirect effects, in serial mediation models. Direct effects are the effects of the

8   predictor on the outcome variable that occur independently of the mediator(s), while

9   indirect effects are the effects of the predictor on the outcome variable via the mediator(s).

10   Bootstrapping was set at 10,000 samples. Bias corrected 95% Confidence Intervals (CI)

11   were estimated for all effects. An effect was significant when the CI did not contain zero.

12   The Completely Standardized Indirect Effect (CSIE) was reported as the effect size metric

13   (Preacher & Kelley, 2011), with values of .01, .09, and .25 representing small, medium, and

14   large effect sizes, respectively (Cohen, 1992).

15   Results of these analyses are presented in Table 2 and Figure 1. With respect to the

16   first study purpose, it can be seen that anticipated guilt significantly mediated the

17   relationship between moral disengagement and doping likelihood: indirect effect = .40, 95%

18   CI =.31, .50; CSIE = .28, 95% CI = .22, .35. Moral disengagement had a strong negative effect

19   on anticipated guilt, which also had a negative effect on doping likelihood. With respect to

20   the second study purpose, moral identity was not directly related to doping likelihood in the

21   model (Table 2, Figure 1). Results of mediation analysis (Table 2 and Figure 1) show that

22   moral identity had a direct negative effect on moral disengagement and a positive effect on

23   guilt. Importantly, moral identity had significant indirect effects on doping likelihood via

24   moral disengagement, anticipated guilt, and moral disengagement, then guilt (see Table 2).

25   These findings provide support for the mediating role of both moral disengagement and

1   anticipated guilt on the relationship between moral identity and doping likelihood. Overall,

2   the model accounted for 59% of the variance in doping likelihood, $F(4, 394) = 186.11$, $p <$

3   .001, $R = .77$.

Discussion

5   Bandura's (1991) social cognitive theory of moral thought and action provides a useful

6   theoretical framework to help understand doping in sport. In this study, we integrated

7   elements from the social cognitive theory and the model of moral identity proferred by

8   Aquino and Reed (2002) to examine doping likelihood in amateur athletes. Specifically, we

9   investigated whether moral identity predicted doping likelihood both directly and indirectly

10   via moral disengagement and/or anticipated guilt in a sample of college and club-level

11   athletes.

12   **Moral Disengagement and Doping**

13   In support of our hypothesis, we found that the relationship between moral

14   disengagement and doping likelihood was mediated by anticipated guilt. Moral

15   disengagement was a negative predictor of anticipated guilt, which in turn negatively

16   predicted doping likelihood. This mediation pathway has also been revealed in previous

17   research examining doping likelihood in athletes (Ring & Kavussanu, 2017) and other forms

18   of transgressive behavior in sport (e.g., Stanger et al., 2013) and school (e.g., Bandura et al.,

19   1996). This finding supports a main tenet of social cognitive theory (Bandura, 1991), namely

20   that moral disengagement enables individuals to engage in transgressive conduct by reducing

21   the anticipated affective self-sanctions, typically associated with such conduct.

22   Our result highlights the important role of emotion on doping. The moral emotion of

23   guilt is elicited by moral transgressions and is assumed to regulate behavior because people

24   strive to minimize affective dissonance elicited by threats to the moral self (e.g., Tangney et

25   al., 2007). Other studies have also reported that anticipated regret and guilt about potential

1   doping were inversely associated with doping intentions (e.g., Barkoukis et al., 2015; Lazuras

2   et al., 2015; Ring & Kavussanu, 2017). Taken together with past work, our findings suggest

3   that negatively-valenced self-conscious emotions such as guilt can act as self-sanction that

4   thwarts doping by athletes.

5   In addition to the indirect effect via anticipated guilt, moral disengagement also had a

6   direct effect on doping likelihood suggesting that guilt may only partially mediate the

7   relationship between the two variables. Thus, moral disengagement may operate on doping

8   likelihood via other processes, besides reducing guilt, for example, by promoting positively

9   valenced emotions. Specifically, it is possible that reframing an act as laudatory or

10   praiseworthy may bring positive affective responses into play in support of committing the

11   unethical act of doping. It is also possible that simply morally disengaging enables athletes to

12   use banned substances. In a recent meta-analysis (Ntoumanis et al., 2014), moral

13   disengagement was one of the strongest and most reliable predictors of doping variables.

14   The tendency to use rationalizations for cheating could facilitate cheating behavior, and

15   anticipated guilt may not be the only variable that plays a role in this process.

16   It is also worth noting that we causally ordered our variables to be in line with the

17   seminal work by Bandura et al (1996) investigating moral disengagement as a predictor of

18   transgressive behavior, in school children, as well as with previous cross-sectional (e.g.,

19   Boardley & Kavussanu, 2009, 2010; d'Arripe-Longueville et al., 2010; Hodge et al., 2013) and

20   experimental (Stanger et al., 2013) sport research, treating moral disengagement as an

21   antecedent of transgressive behavior in sport. However, moral disengagement could also

22   follow transgressive behavior. That is, once a person has committed a transgression, the

23   need to alleviate the ensuing negative affect should trigger the use of moral disengagement

24   mechanisms. Indeed, a recent study showed that moral disengagement increased after

25   participants cheated during an experiment (Shu, Gino, & Bazerman, 2011). It would be

1 interesting to determine, in a single study, the degree to which moral disengagement and

2 transgressive behavior influence each other.

3 **The Role of Moral Identity on Doping**

4   In line with our hypothesis, moral identity was inversely associated with doping

5 likelihood: Athletes who felt that being a moral person is central to their self-concept were

6 less likely to use banned substances to enhance their performance and recover from injury.

7 This finding supports and extends past work, which has shown a link between moral identity

8 and antisocial behavior in sport (e.g., Kavussanu et al., 2013, 2015), as well as unethical

9 conduct in other contexts (Hertz & Krettenauer, 2016). Like other transgressive acts,

10 doping may be viewed as unethical behavior, which is not compatible with the perception of

11 the (doping) athlete, as a moral person.

12   Another interesting finding of our study was that the relationship between moral

13 identity and doping likelihood was mediated by moral disengagement. The negative

14 association between moral identity and moral disengagement is in line with evidence

15 suggesting that moral identity operates as an antecedent of moral disengagement (e.g.,

16 Detert et al., 2008). Although Bandura (1991, 1999) does not refer to moral identity

17 specifically, he mentions moral standards as important regulators of moral conduct. Moral

18 identity has been proposed as another self-regulatory mechanism (Aquino & Reed, 2002),

19 which may be somewhat similar to the concept of moral standards. Specifically, it is

20 reasonable to assume that people, who have a strong moral identity would also have high

21 moral standards, as these individuals consider being moral (which is translated into doing

22 good things) as important and central to their self-concept. Our findings have theoretical

23 implications and suggest that people who are likely to morally disengage may simply not

24 have very high moral standards and that being a moral person is not that important to them.

1   The relationship between moral identity and doping likelihood was also mediated by

2   anticipated guilt. This suggests that athletes with a strong moral identity may be deterred

3   from using banned substances, because they would expect to experience intense guilt for

4   acting in this manner. Guilt is an important deterrent of unethical behavior (e.g., Kavussanu

5   et al., 2015; Tangney et al., 2007), and people with a strong moral identity would feel guilty

6   for acting in an unethical manner. The emotional experience elicited by wrongdoing could

7   be augmented by strengthening one's moral identity. Overall, our results underline the

8   important role of moral identity in doping.

9   **Practical Implications**

10   Our findings have some implications for practitioners, who wish to alleviate doping

11 from sport. They clearly show that both moral identity and moral disengagement are

12 indirectly related to doping likelihood via anticipated guilt. Thus, practitioners need to focus

13 on strengthening athletes' moral identity and reduce their tendency to morally disengage.

14 People with a strong moral identity consider being a good or moral person a central part of

15 their self-concept, that is, it is important to them to be moral. To strengthen moral identity,

16 coaches could emphasize the importance of acting in an ethical manner when taking part in

17 sport. They could also reduce moral disengagement by challenging athletes' justifications for

18 doping, and facilitating moral engagement. For example, the distortion of consequences

19 mechanism, exemplified in the statement "doping does not hurt anyone" could by challenged

20 by pointing out that doping does hurt others and is a threat to the integrity of sport, as it

21 compromises fair play. Overall, the findings point to the importance of focusing on moral

22 variables in eliminating doping from sport.

23 **Limitations of the Study and Directions for Future Research**

24   In this study, we reported some interesting findings. However, it is prudent to

25 consider potential limitations when interpreting these findings. First, the sample was

1   characterized by relatively low moral disengagement and doping likelihood. It remains to be

2   seen whether our model holds in athletes with higher scores on these variables. Second, we

3   examined doping likelihood only in relation to two hypothetical scenarios. Future research

4   could investigate the influence of moral cognition and emotion on doping likelihood and

5   intentions across a broad range of situations, including circumstances relating to

6   performance outcomes, sources of influence, and rewards and punishments (see Huybers &

7   Mazanov, 2012).

8   Third, our participants came from a variety of team sports. It would be interesting to

9   examine whether our model is replicated in athletes from a variety of individual sports.

10   Fourth, we did not use a social desirability scale. We did not see the need for this because

11   the questionnaires were completed anonymously, and participants referred to hypothetical

12   situations indicating their doping likelihood, rather than explicitly indicating whether they

13   had used banned substances. Although we are confident that they responded honestly,

14   future research could include a social desirability scale to determine whether responses are

15   affected by social desirability. Finally, we used a cross-sectional design and therefore we

16   cannot make firm assertions about the direction of causality. We can simply say that our

17   mediation analysis provided evidence that is consistent with the conceptual model that we

18   tested. It would be enlightening to attempt to replicate the present findings using

19   longitudinal and experimental designs, which provide clear evidence for the direction of

20   causality.

21

1   **References**

2   Aquino, K., & Reed, A. (2002). The self-importance of moral identity. *Journal of Personality*

3   *and Social Psychology, 83,* 1423-1440.

4   Aquino, K., Freeman, D., Reed, A. II, Lim, V. K. G., & Felps, W. (2009). Testing a social

5   cognitive model of moral behavior: The interaction of situational factors and moral

6   identity centrality. *Journal of Personality and Social Psychology, 97,* 123-141.

7   Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social*

8   *Issues, 46*, 27-46.

9   Bandura, A. (1991). Social cognitive theory of moral thought and action. In W.M. Kurtines &

10   J.L. Gewirtz (Eds.), *Handbook of moral behavior and development: Theory, research, and*

11   *applications* (Vol. 1, pp. 71-129). Hillsdale, NJ: Lawrence Erlbaum Associates.

12   Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and*

13   *Social Psychology Review, 3*, 193–209.

14   Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of*

15   *Psychology, 52*, 1-26.

16   Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *Journal of*

17   *Moral Education, 31*, 101-119.

18   Bandura, A., Barbaranelli, C., Caprara, G.V., & Pastorelli, C. (1996). Mechanisms of moral

19   disengagement in the exercise of moral agency. *Journal of Personality and Social*

20   *Psychology, 71,* 364-374.

21   Bandura, A., Caprara, G.V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001).

22   Sociocognitive self-regulatory mechanisms governing transgressive behavior. *Journal of*

23   *Personality and Social Psychology, 80,* 125-135.

1   Barkoukis, V., Lazuras, L., & Harris, P. R. (2015). The effects of self-affirmation manipulation

2   on decision making about doping use in elite athletes. *Psychology of Sport and Exercise,*

3   *16,* 175-181.

4   Barkoukis, V., Lazuras, L., & Tsorbatzoudis, H. (2016). *The psychology of doping in sport.* New

5   York: Routledge.

6   Barkoukis, V., Lazuras, L., Tsorbatzoudis, H., Rodafinos, A. (2013). Motivational and social

7   cognitive predictors of doping intentions in elite sports: An integrated approach.

8   *Scandinavian Journal of Medicine and Science in Sports, 5,* e330-e340.

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

10   Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika,*

11   *16*, 297-334.

12   Detert, J., Trevino, L., & Sweitzer, V. (2008). Moral disengagement in ethical decision

13   making: A study of antecedents and outcomes. *Journal of Applied Psychology, 93,* 374-

14   391.

15   Donovan, R.J., Egger, G., Kapernick, V., & Mendoza, J. (2002). A conceptual framework for

16   achieving performance enhancing drug compliance in sport. *Sports Medicine, 32,* 269-

17   284.

18   Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A*

19   *regression-based approach.* New York: Guilford Press.

20   Hertz, S.G., & Krettenauer, T. (2016). Does moral identity effectively predict moral

21   behavior? A meta-analysis. *Review of General Psychology, 20,* 1-12.

22   Hodge, K., Hargreaves, E. A., Gerrard, D., & Lonsdale, C. (2013). Psychological mechanisms

23   underlying doping attitudes in sport: Motivation and moral disengagement. *Journal of*

24   *Sport & Exercise Psychology, 35,* 419-432.

1   Huybers, T. & Mazanov, J. (2012). What would Kim do? A choice study of projected athlete

2   doping considerations. *Journal of Sport Management, 26*, 322-334.

3   Kavussanu, M. (2016). Moral disengagement and doping. In: V. Barkoukis, L. Lazuras, & H.

4   Tsorbatzoudis (Eds), *The psychology of doping in sport* (pp. 151-164). New York:

5   Routledge.

6   Kavussanu, M. (2017). Doping in football: A moral psychology perspective. In J. Bangsbo, P.

7   Krustrup, P. Hansen, L. Ottesen, G. Pfister, & A.M. Elbe (Eds.), *Science and Football VIII.*

8   Routledge.

9   Kavussanu, M., Elbe, A.M., Hatzigeorgiadis, A. (2015). *A cross-cultural approach to a cross-*

10   *cultural issue: Psychosocial predictors of doping intentions in young athletes.* Research report

11   submitted to World Anti-Doping Agency Social Science Programme.

12   Kavussanu, M., Hatzigeorgiadis, A., Elbe, A.M., & Ring, C. (2016). The moral disengagement

13   in doping scale. *Psychology of Sport & Exercise, 24*, 188-198.

14   Kavussanu, M., Stanger, N., & Boardley, I.D. (2013). The Prosocial and Antisocial Behavior in

15   Sport Scale: Further evidence for construct validity and reliability. *Journal of Sports*

16   *Sciences, 31,* 1208-1221.

17   Kavussanu, M., Stanger, N., & Ring, C. (2015). The effects of moral identity on moral

18   emotion and antisocial behavior in sport. *Sport, Exercise and Performance Psychology, 4,*

19   268-279.

20   Lazuras, L., Barkoukis, V., Rodafinos, A., & Tsorbatzoudis, H. (2010). Predictors of doping

21   intentions in elite-level athletes: A social cognition approach. *Journal of Sport & Exercise*

22   *Psychology, 32,* 694-710.

23   Lazuras, L., Barkoukis, V., & Tsorbatzoudis, H. (2015). Toward an integrative model of

24   doping use: An empirical study with adolescent athletes. *Journal of Sport & Exercise*

25   *Psychology, 37*, 37-50.

1   Locquet, M., Beaudart, C., Larbuisson, R., Leclercq, V., Buckinx, F., Kaux, J. F., Reginster, J-Y.,

2   & Bruyère, O. (2017). Self-administration of medicines and dietary supplements among

3   female amateur runners: A cross-sectional analysis. *Advances in Therapy, 33*, 2257-2268.

4   Lucidi, F., Grano, C., Leone, L., Lombardo, C., & Pesce, C. (2004). Determinants of the

5   intention to use doping substances: An empirical contribution in a sample of Italian

6   adolescents. *International Journal of Sport Psychology, 35*, 133-148.

7   Lucidi, F., Zelli, A., & Mallia, L. (2013). The contribution of moral disengagement to

8   adolescents' use of doping substances. *International Journal of Sport Psychology, 44,* 331-

9   350.

10   Mallia, L., Lazuras, L., Barkoukis, V., Brand, R., Baumgarten, F., Tsorbatzoudis, H., Zelli, A, &

11   Lucidi, F. (2016). Doping use in sport teams: The development and validation of

12   measures of team-based efficacy beliefs and moral disengagement from a cross-national

13   perspective. *Psychology of Sport & Exercise, 25,* 78-88.

14   Ntoumanis, N., Ng, J.Y.Y, Barkoukis, V., Backhouse, S. (2014). Personal and psychosocial

15   predictors of doping use in physical activity settings: A meta-analysis. *Sports Medicine,*

16   *44*, 1603-1624.

17   Ntoumanis, N., Barkoukis, V., Gucciardi, D.F., & Chan, D.K.C. (2017). Linking coach

18   interpersonal style with athlete doping Intentions and doping Use: A prospective study.

19   *Journal of Sport & Exercise Psychology, 39*, 188-198. https://doi.org/10.1123/jsep.2016-

20   0243

21   Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative

22   strategies for communicating indirect effects. *Psychological Methods, 16*, 93-115.

23   Ring, C., & Kavussanu, M. (2017). The role of self-regulatory efficacy, moral disengagement

24   and guilt on doping likelihood: A social cognitive theory perspective. *Journal of Sports*

25   *Sciences.* http://dx.doi.org/10.1080/02640414.2017.1324206

1   Shu, L.L., Gino, F., & Bazerman, M.H. (2011). Dishonest deed, clear conscience: When

2   cheating leads to moral disengagement and motivated forgetting. *Personality and Social*

3   *Psychology Bulletin, 37,* 330-349.

4   Stanger, N., Kavussanu, M., Boardley, I.D., & Ring, C. (2013). The influence of moral

5   disengagement and negative emotion on antisocial sport behavior. *Sport, Exercise &*

6   *Performance Psychology, 2,* 117-129.

7   Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics.* Boston, MA: Allyn & Bacon.

8   Tangney, J., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior. *Annual*

9   *Review of Psychology, 58,* 345-372.

10   Whitaker, L., & Backhouse, S. (2016): Doping in sport: an analysis of sanctioned UK rugby

11   union players between 2009 and 2015. *Journal of Sports Sciences.*

12   http://dx.doi.org/10.1080/02640414.2016.1226509

13   Zabala, M., Morente-Sánchez, J., Mateo-March, M., & Sanabria, D. (2016). Relationship

14   between self-reported doping behavior and psychosocial factors in adult amateur

15   cyclists. *The Sport Psychologist, 30,* 68-75.

16   Zebel, S., Doosje, B., & Spears, R. (2009). How perspective-taking helps and hinders group-

17   based guilt as a function of group identification. *Group Processes & Intergroup Relations,*

18   *12,* 61-78.

19   Zelli, A., Mallia, L., & Lucidi, F. (2010). The contribution of interpersonal appraisals to a

20   social-cognitive analysis of adolescents' doping use. *Psychology of Sport and Exercise, 11,*

21   304-311.

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1   Endnotes

2   [1]Some of these studies examined doping likelihood rather than doping intention. The

3   term doping intention is used to refer to this work for the sake of conciseness.

4   [2]In the UK, where this study was conducted, parental consent is required only for

5   participants younger than 16 years.

6   [3]These scenarios were developed and used in research funded by the World Anti-Doping

7   Agency (Kavussanu, Elbe, & Hatzigeorgiadis, 2015).

8

Table 1

Descriptive Statistics, Alpha Coefficients, and Zero-Order Correlations (N = 398)

Variable	*M*	*SD*	α	1.	2.	3.
1. Moral identity	5.89	0.90	.79			
2. Moral disengagement	2.29	1.00	.82	−.33 *		
3. Anticipated guilt	4.69	1.74	.94	.30 *	−.57 *	
4. Doping likelihood	2.53	1.41	.79	−.27 *	.65 *	−.70 *

Note. Possible range of all variables was 1-7. * *p* < .001.

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Table 2. *Direct and Indirect Effects on Moral Disengagement, Guilt Doping and Likelihood (N = 398)*
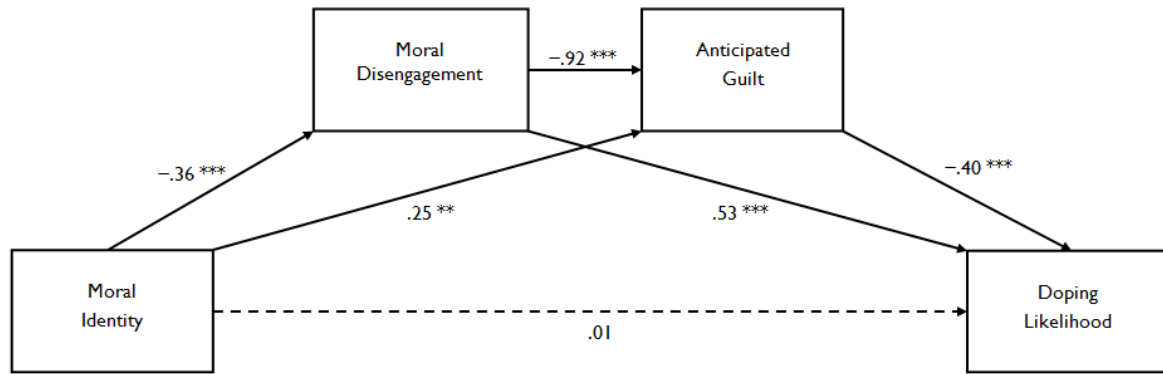
Pathways		*B*	95% CI	CSIE	95% CI
Direct effects					
MI	→ MD	−.36 ***	−.46, −.26		
	→ Guilt	.25 **	.09, .42		
	→ Doping	.01	−.10, .12		
MD	→ Guilt	−.92 ***	−1.07, −.77		
	→ Doping	.53 ***	.42, .64		
Guilt	→ Doping	−.40 ***	−.46, −.33		
Indirect effects of MD on Doping via					
Guilt		.40*	.31, .50	.28*	.22, .35
Indirect effects of MI on Doping via					
MD		−.19 *	−.29, −.12	−.12 *	−.18, −.08
Guilt		−.10 *	−.18, −.03	−.06 *	−.12, −.02
MD & Guilt		−.13 *	−.20, −.08	−.08 *	−.12, −.05

Note. Unstandardized coefficients are shown. MI = moral identity. MD = moral disengagement. Guilt = anticipated guilt. Doping = doping likelihood. CSIE = completely standardized indirect effect, where .01 = small, .09 = medium, and .25 = large.

* *p* < .05; ** *p* < .01; *** *p* < .001

1

Figure 1. The Effects of Moral Identity on Doping Likelihood and the Mediating Role of Moral Disengagement and Anticipated Guilt. Note. The values presented are the unstandardized regression coefficients. A solid line represents a significant relationship.

** p < .01, *** p < .001.

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