UNIVERSITY OF BIRMINGHAM
University of Birmingham Research at Birmingham

The Role of Self-Regulatory Efficacy, Moral Disengagement and Guilt on Doping Likelihood:

Ring, Christopher; Kavussanu, Maria

DOI:
10.1080/02640414.2017.1324206

License:
Other (please specify with Rights Statement)

Document Version
Peer reviewed version

Citation for published version (Harvard):
Ring, C & Kavussanu, M 2017, 'The Role of Self-Regulatory Efficacy, Moral Disengagement and Guilt on Doping Likelihood: A Social Cognitive Theory Perspective', *Journal of Sports Sciences*, pp. 1-7.
https://doi.org/10.1080/02640414.2017.1324206

Link to publication on Research at Birmingham portal

Publisher Rights Statement:
This is an Accepted Manuscript of an article published by Taylor & Francis in Journal od Sports Sciences on 08/05/2017, available online: http://www.tandfonline.com/10.1080/02640414.2017.1324206

General rights
Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

• Users may freely distribute the URL that is used to identify this publication.
• Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
• User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
• Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy
While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Download date: 19. Jan. 2021

The Role of Self-Regulatory Efficacy, Moral Disengagement and Guilt on Doping Likelihood: A Social Cognitive Theory Perspective

Christopher Ring & Maria Kavussanu

School of Sport, Exercise & Rehabilitation Sciences, University of Birmingham, UK

Address correspondence to:

Christopher Ring, PhD

School of Sport, Exercise & Rehabilitation Sciences

University of Birmingham

Edgbaston, Birmingham, B15 2TT, UK

E: c.m.ring@bham.ac.uk

T: +44 121 414 4115

Abstract

Given the concern over doping in sport, researchers have begun to explore the role played by self-regulatory processes in the decision whether to use banned performance enhancing substances. Grounded on Bandura's (1991) theory of moral thought and action, this study examined the role of self-regulatory efficacy, moral disengagement and anticipated guilt on the likelihood to use a banned substance among college athletes. Doping self-regulatory efficacy was associated with doping likelihood both directly (b = –.16, P < .001) and indirectly (b = –.29, P < .001) through doping moral disengagement. Moral disengagement also contributed directly to higher doping likelihood and lower anticipated guilt about doping, which was associated with higher doping likelihood. Overall, the present findings provide evidence to support a model of doping based on Bandura's social cognitive theory of moral thought and action, in which self-regulatory efficacy influences the likelihood to use banned performance enhancing substances both directly and indirectly via moral disengagement.

Keywords: affective self-sanction; social cognitive theory; morality.

The Role of Self-Regulatory Efficacy, Moral Disengagement, and Guilt on Doping Likelihood: A Social Cognitive Theory Perspective

The use of banned performance enhancing substances by athletes is one of the most urgent issues facing sport today. For instance, in early 2017 the US Congress and the UK government's Culture, Media and Sport Select Committee debated and investigated the issue of doping in sport. Some substances are prohibited under the World Anti-Doping Code as being a performance enhancer, and a health risk, with consumption of such substances referred to as doping (WADA, 2015). A few models have been proposed to help understand doping in sport, with morality playing a central role in several of these models (e.g., Barkoukis, Lazuras, Tsorbatzoudis, & Rodafinos, 2013; Donovan, Egger, Kapernick, & Mendoza, 2002; Zelli, Mallia, & Lucidi, 2016). A theoretical framework that could aid attempts to understand doping in sport is the social cognitive theory of moral thought and action (Bandura, 1991). Below, we outline the main tenets of this theory and discuss research pertinent to doping.

In his social cognitive theory of moral thought and action, Bandura (1991) proposed that individuals develop moral standards from several sources, including direct instruction, observation of others, and reinforcement and punishment. These moral standards regulate behaviour via evaluative self-reactions: People feel good when their actions match their moral standards, and they feel bad when their actions violate these standards. These evaluative self-reactions eventually come to regulate conduct anticipatorily: People are more likely to perform acts that will confer self-worth and satisfaction and avoid acts that will evoke self-condemnation (Bandura, 1991, 2002). Thus, anticipatory affective self-sanctions, such as feelings of guilt about doing the wrong thing, help keep people's actions in accord with their moral standards.

People, however, do not always act as they should. They are able to disengage affective self-sanctions from reprehensible behaviour by enacting a thought process – termed moral disengagement – that allows individuals with the same moral standards to act differently in the same situation (Bandura, 2002). Six mechanisms of moral disengagement have been identified in doping research (see Kavussanu, 2016; Lucidi et al., 2008; Mallia et al., 2016): advantageous comparison (e.g., doping use is considered less severe compared to worse acts); euphemistic labeling (e.g., doping substances are referred to as "*juice*"); moral justification (e.g., doping is justified as done for a higher social purpose); diffusion of responsibility (e.g., athletes might dope because "*everyone in the team does it*"); displacement of responsibility (e.g., athletes may dope because "*their entourage pressures them to do it*"); and distortion of consequences (e.g., downplaying or distorting the negative consequences of doping for other competitors).

One variable which could reduce the need or tendency to morally disengage is self-regulatory efficacy (Bandura, 1977), which is a person's perceived capability to exercise influence over barriers and impediments, thought processes, emotional states, and patterns of behavior. According to Bandura (1977), this is acquired and reinforced by successful personal experiences and by the modeling of, and persuasion by, those around us. For example, athletes who are able to resist the temptation to use banned performance enhancing substances when competing against others, or who identify with prominent role models of successful athletes who do not use banned performance substances should have a stronger belief in their ability to resist the temptation to use banned substances to enhance their own performance. Athletes' self-regulatory efficacy about their capacity to resist doping when faced with various circumstances – such as when unfit or injured, when encouraged and/or pressured to perform or improve, and when no one else will know – can be expected to deter doping by countering moral disengagement.

Research in a school context has identified a direct pathway from self-regulatory efficacy to transgressive behaviour by children and indirect pathways via moral disengagement alone or via moral disengagement and negative affect (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001). Self-regulatory efficacy has also been found to influence cheating both directly and indirectly via moral disengagement in schoolchildren (Farnese, Tramontano, Fida, & Paciello, 2011) and in adolescent athletes (d'Arripe-Longueville, Corrion, Scoffier, Roussel, & Chalabaev, 2010). Finally, Bandura and colleagues have shown that moral disengagement can act indirectly via guilt to influence transgressive behaviour in schoolchildren (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). However, to date, no study has examined moral disengagement as a mediator of the relationship between self-regulatory efficacy and doping.

In a recent meta-analysis (Ntoumanis, Ng, Barkoukis, & Backhouse, 2014), self-regulatory efficacy was a strong negative predictor of doping intention, whereas moral disengagement was a moderate-to-strong positive predictor of doping intention. Self-regulatory efficacy has been linked with lower doping intention (Barkoukis et al. 2013; Lazuras, Barkoukis, & Tsorbatzoudis, 2015; Mallia et al., 2016) and low moral disengagement (Lucidi et al., 2008, 2013; Zelli et al., 2010); the latter has been associated with higher doping intentions (e.g., Hodge, Hargreaves, Gerrard, & Lonsdale, 2013; Kavussanu et al., 2016; Lucidi et al., 2008; Mallia et al., 2016). Finally, regret-like feelings (ratings of anticipated regret, disappointment, shame, and feeling bad) about doping were negatively associated with doping intentions in elite adult and adolescent athletes (Barkoukis, Lazuras, & Harris, 2015; Lazuras, Barkoukis, & Tsorbatzoudis, 2015). Thus, there is evidence linking negative regret-like feelings with the possible use of banned substances to improve performance.

The research described above suggests that self-regulatory efficacy, moral disengagement, and anticipated regret have been associated with doping intentions.

However, the causal path between self-regulatory efficacy and transgressive behaviour (i.e., self-regulatory efficacy→moral disengagement→negative affect→ doping) has yet to be fully tested in the context of doping. The current study was designed to fill this gap in our knowledge, thereby advancing our understanding of the mechanisms governing doping in sport. The purpose of the study was to examine whether self-regulatory efficacy predicts likelihood to dope in hypothetical situations among college athletes, and whether moral disengagement alone or in combination with anticipated guilt mediates this relationship.

In the current study, we employed an indirect approach to assess doping, namely, the reported likelihood of doping in *hypothetical scenarios* by athletes. Scenarios, which are extensively employed in studies of morality, have been used in previous doping research (e.g., Huybers & Mazanov, 2012; Kavussanu et al., 2016; Strelan & Boeckmann, 2006). Their advantage is that they do not require athletes to reveal their true behaviour and can refer to various doping situations. As they can be used to ask athletes about the likelihood they would engage in doping in a *hypothetical* situation, athletes should feel less threatened about revealing their true intentions. This is important because doping is against the rules, thus, it is not a behavior, which athletes can openly confess doing.

Method

Participants

Participants were 204 (108 males, 96 females) college athletes competing in individual (n = 67, 33%) and team (n = 137, 67%) sports at a British university. The individual sports included athletics, badminton, boxing, cycling, fencing, golf, gymnastics, martial arts, squash, swimming, table tennis and tennis, whereas the team sports included Amercian football, basketball, cricket, football, hockey, netball, rowing, rugby, softball, volleyball and waterpolo. At the time of data collection, participants were 18.78 ± 1.42 (range = 18–31) years old and had competed in their respective sport for 8.84 ± 3.76 years. The highest ever standard at

which they had competed in their sport was club (31%), county (28%), regional (20%), national (14%), and international (7%).

Measures

Doping likelihood. Doping likelihood was measured with respect to two situations: performance enhancement and injury recovery. Specifically, athletes were asked to imagine being in two hypothetical situations that described the use of a banned substance to enhance performance and to aid recovery from injury. The first of these scenarios has been used in previous research (Kavussanu et al., 2016), while the second was developed specifically for this study.

The performance enhancement scenario read as follows: "*It's the week before the most important competitive game/event of your season. Your opponents are of similar ability to you. Lately, your performance has been below your best. You don't feel you have the necessary fitness for this competition, and you're concerned about how you'll perform. You mention this to a mate, who tells you that he/she uses a substance to enhance fitness. The substance is prohibited for use in sport according to the rules, but there's only a very small chance you'll be caught.*"

The injury recovery scenario read as follows: "*It's two weeks before the most important competitive game/event of your season. Your opponents are of similar ability to you. You really want to take part. However, two months ago, you sustained a knee injury, and you know you need at least one more month of rehabilitation to fully recover. One of your mates tells you that he/she has recently used a new substance, which has helped him/her recover faster than usual from a knee injury. The substance is banned for use in sport, but the chance that you will be caught is extremely small.*"

In line with previous doping research (e.g., Kavussanu, 2017; Kavussanu et al, 2016), athletes were asked to indicate how likely it was that they would use the banned substance in each hypothetical situation, on a 7-point scale, anchored by 1 (*not at all likely)* and 7 (*very*

likely). Such ratings have also been used to assess likelihood of engaging in antisocial behaviour in sport (e.g., Kavussanu & Ring, 2015; Kavussanu, Stanger, & Ring, 2015). The ratings of doping likelihood were highly correlated across the two scenarios (r = .61, p < .001), and so the average of the two ratings (α = .74) was used to measure doping likelihood.

Anticipated guilt. Participants were asked to rate their anticipated feelings of guilt if they were to use the banned substance in each hypothetical situation, on a 7-point scale, anchored by 1 (not at all) and 7 (very). The guilt ratings were highly correlated across scenarios (r = .79, p < .001), and the average of the two ratings (α = .88) was used to measure anticipated guilt about doping. Guilt has been assessed using single-item rating scales in previous scenario-based paradigms used to study moral psychology (e.g., Giner-Sorolla & Espinosa, 2011; Olthof, Schouten, Kuiper, Stegge, & Jennekens-Schinkel, 2000; Stearns & Parrott, 2012).

Self-regulatory efficacy. The doping-specific self-regulatory efficacy scale (Lucidi et al., 2008) was used to assess the confidence of athletes in their ability to avoid using banned performance enhancing substances in various situations (see Appendix). In the adapted 7-item sport-specific scale, the three items from the original scale concerning physical appearance were not included since they did not pertain to sport performance, some words were changed (e.g., "*illicit*" was replaced by "*banned*") and some phrases anglicized (e.g. "*in the sport you practice*" was replaced by "*in your sport*"). Athletes were asked to indicate their confidence in their ability to avoid using banned substances to improve performance in sport in seven situations using a Likert scale anchored by 1 (not at all confident) and 7 (completely confident). The original scale has shown excellent internal consistency (α = .95; Cronbach, 1951) and test-retest reliability (r = .76) in past research (Lucidi et al., 2008). In the current study, the adapted scale exhibited excellent internal consistency (α = .97).

Confirmatory Factor Analysis using EQS 6.1 (Bentler & Wu, 2002) was used to test the factorial validity of the adapted doping self-regulatory efficacy scale. Model fit was assessed using the Chi-square ($\chi 2$), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA). According to Hu and Bentler (1998), a good fit yields values close to .95 for CFI, .08 for SRMR, and .06 for RMSEA. The one-factor model had a good fit ($\chi 2 = 33.76$, CFI = .94, SRMR = .03, RMSEA = .08), and factor loadings ranged from .81 to .94. The mean of all seven item ratings was computed as a measure of doping self-regulatory efficacy in sport.

Moral disengagement. The moral disengagement in doping scale (Kavussanu et al., 2016) was used to measure doping moral disengagement. Athletes were asked to indicate their level of agreement with six statements (e.g., "*Doping does not really hurt anyone*", "*Compared to the illegal things people do in everyday life, doping in sport is not very serious*") using a Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree). The scale has shown good-to-very good internal consistency (alphas = .78 - .86), test-retest reliability ($r = .78$), and factorial, convergent, and concurrent validity (Kavussanu et al., 2016). The mean of six item ratings was computed as a measure of doping moral disengagement ($\alpha = .82$).

Procedure

After obtaining approval from our ethics committee, participants were recruited from university sport and exercise science classes. They were informed about the study's aims, that participation was voluntary, honesty in responses was vital, and data would be kept strictly confidential and would be used only for research purposes. The response rate was 89%. After consenting, participants completed the measures described above using an online survey to ensure anonymity.

Results

Data Analysis

Before the main statistical analyses, preliminary data screening was conducted to check for normality, missing values, and outliers for each variable. When missing data is below 5%, any method for replacing missing values is appropriate (Tabachnick & Fidell, 2001). Missing data (< 1 %) were replaced with the mean of the respective variable.

Descriptive Statistics and Zero-Order Correlations

The descriptive statistics for the measures (Table 1) indicate that, on average, the athletes reported high doping self-regulatory efficacy and low doping moral disengagement, anticipated feeling very guilty about using banned performance enhancing substances, and were unlikely to dope to enhance their performance and recover from injury. The measures exhibited good internal consistency. Pearson correlations showed that self-regulatory efficacy was inversely associated with moral disengagement and doping likelihood but positively associated with anticipated guilt. Anticipated guilt was inversely associated with moral disengagement and doping likelihood.

Main Analyses

Our main study purposes were to examine: (a) whether self-regulatory efficacy was linked with moral disengagement and doping likelihood; and (b) whether moral disengagement alone (i.e., self-regulatory efficacy → moral disengagement → doping likelihood) or moral disengagement followed by guilt (i.e., self-regulatory efficacy → moral disengagement → guilt → doping likelihood) mediated the relationship between self-regulatory efficacy and doping likelihood. To this end, we used the PROCESS (Hayes, 2013) SPSS macro, which simultaneously tests direct and indirect effects in simple and multiple 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 10000 samples. Bias-corrected 95% confidence intervals were estimated for all effects. An effect

was significant when the confidence interval did 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 direct and indirect effects are presented in Table 2. Below we have focused on the findings that pertain directly to our study purposes.

We examined whether self-regulatory efficacy was associated with moral disengagement and doping likelihood, and whether the effects of self-regulatory efficacy on doping likelihood were mediated by moral disengagement alone or by moral disengagement then guilt in a serial mediation pathway. As can be seen in Table 2 and Figure 1, self-regulatory efficacy had: significant direct effects on moral disengagement and doping likelihood; and a significant indirect effect via moral disengagement on doping likelihood. Guilt was only marginally associated with doping likelihood, thus the serial mediation pathway between self-regulatory efficacy and doping likelihood via moral disengagement and guilt was not fully supported (see Table 2 and Figure 1).

Discussion

Bandura's (1991) social cognitive theory of moral thought and action provides a useful framework to help us understand the self-regulatory processes underlying transgressive behaviour. It is well established that beliefs of personal efficacy can exercise substantial control over people's actions (Bandura, 1977, 2001). Building upon the research conducted on the role of self-regulatory efficacy, moral disengagement, and feelings of regret on doping (for reviews see Kavussanu, 2016; Ntoumanis et al., 2014; Zelli et al., 2016), the current study extended this research by examining whether doping-specific self-regulatory efficacy predicts doping likelihood directly and indirectly via moral disengagement or via moral disengagement and anticipated guilt about doping.

Our findings support the existence of a direct path between self-regulatory efficacy and doping likelihood, as well as an indirect path via moral disengagement. Prior research has shown that both self-regulatory efficacy and moral disengagement predict antisocial behaviour in sport (for reviews see Kavussanu, 2012, 2014) and, more recently, doping intention and behaviour (for reviews see Kavussanu, 2016; Ntoumanis et al., 2014; Zelli et al., 2016). The current study confirmed the existence of these pathways by showing that doping self-regulatory efficacy and moral disengagement had direct effects on doping likelihood, and that doping self-regulatory efficacy had an indirect effect on doping likelihood via doping moral disengagement.

Our study is therefore the first to provide evidence to support the prediction, derived from the social cognitive theory of moral thought and action (Bandura, 1991), that moral disengagement mediates the effect of self-regulatory efficacy on doping likelihood. This suggests that the capability to resist situational temptations to use banned substances, such as when asked to do so by a member of the entourage, may influence the likelihood to use the substance by reducing the tendency to morally disengage. In other words, athletes who are confident they can resist the temptation to use banned performance enhancing substances are also unlikely to feel the need to justify their use of banned substances and displace responsibility on to another individual, such as their coach. The current findings suggest that interventions designed to increase self-regulatory efficacy to resist the temptation to use banned substances should be effective, at least in part, by decreasing athletes use of moral disengagement.

Past research has also shown that negative self-conscious emotions, such as guilt, serve as regulators of moral behaviour. Guilt is often referred to as a moral self-conscious emotion because it is elicited by violations of someone's moral standards (Tangney, Stuewig, & Mashek, 2007; Zebel, Doosje, & Spears, 2009). It is an adaptive emotion because it elicits

reparatory action. Anticipated guilt has been associated with lower aggression in laboratory experiments (e.g., Stanger, Kavussanu, McIntyre, & Ring, 2016), reduced delinquent and aggressive behaviour in children (e.g., Bandura, et al., 1996), and reduced likelihood of behaving antisocially in athletes (e.g., Kavussanu et al., 2015; Stanger, Kavussanu, Boardley, & Ring, 2013; Stanger, Kavussanu, & Ring, 2012).

In the present study, the direct link between anticipated guilt and doping likelihood was confirmed by the bivariate correlational analysis. Specifically, anticipated guilt was moderately-to-strongly negatively correlated with doping likelihood, a finding which is in line with recent reports that anticipated regret-like feelings were negatively correlated with doping intentions (Barkoukis et al., 2015; Lazuras et al., 2015). However, in the current study, the basic emotion-intention link was reduced to marginal status in the multivariate serial mediation path analysis.

This finding was unexpected given prior research showing that anticipated guilt mediated the relationship between moral disengagement and doping likelihood in football players (Kavussanu, 2017). Without self-regulatory efficacy in the statistical model, guilt became a significant mediator of the relationship between moral disengagement and doping likelihood[1]. This finding suggests that because self-regulatory efficacy shares common variance with moral disengagement, guilt and doping likelihood, the contribution of guilt to the moral disengagement – doping relationship shares sufficient common variance with self-regulatory efficacy, such that when both variables are included in the model the unique contribution of each is reduced and the mediation pathway is rendered non-significant. The role of guilt in doping by athletes clearly warrants examination in further research, together with other self-conscious moral emotions, such as shame and embarrassment.

Study Limitations and Research Directions

Our study revealed some interesting findings. However, there are some potential limitations that should be considered when interpreting these findings. First, although single-item measures are often used to measure simple constructs, future studies should assess guilt using a multi-item measure. Second, we employed a cross-sectional design and therefore causal pathways cannot be inferred from the current findings. In an extension of prior research (e.g., Bandura et al., 2001; Lucidi et al., 2008), it should prove fruitful to examine the current model in training-based intervention studies, where the effects of increased self-regulatory self-efficacy and decreased moral disengagement on doping likelihood can be tested. Third, we examined doping likelihood in relation to two hypothetical scenarios. Future research could investigate the role of self-regulatory efficacy on doping likelihood in a broader range of hypothetical situations, including circumstances relating to performance outcomes, sources of influence, and rewards and punishments (see Huybers & Mazanov, 2012).

Conclusion

In conclusion, our findings show that athletes with high doping-specific self-regulatory efficacy are less likely to use banned substances to improve their performance and recover from injury. In contrast, those with low doping self-regulatory efficacy are more likely to use performance enhancing substances. This may be in part because they tend to morally disengage and thwart uncomfortable feelings associated with future transgressions. Studies are now needed to evaluate the effectiveness of training-based interventions to determine whether enhancing self-regulatory efficacy and reducing moral disengagement in relation to doping, reduces doping likelihood.

References

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

Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social Issues, 46*, 27-46.

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

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review, 3*, 193-209.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.

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

Bandura, A., Barbaranelli, C., Caprara, G.V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology, 71,* 364-374.

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., & Harris, P. R. (2015). The effects of self-affirmation manipulation on decision making about doping use in elite athletes. *Psychology of Sport and Exercise, 16,* 175-181.

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 and Science in Sports, 5,* e330-e340.

Bentler, P.M., & Wu, E.J.C. (2002). *EQS 6 for Windows user's guide*. Multivariate Software.

Bustamente, A., & Chaux, E. (2014). Reducing moral disengagement mechanisms: A comparison of two interventions. *Journal of Latino/Latin American Studies, 6,* 52-63.

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

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.

d'Arripe-Longueville, F., Corrion, K., Scoffier, S., Roussel, P., & Chalabaev, A. (2010). Sociocognitive self-regulatory mechanisms governing judgments of the acceptability and likelihood of sport cheating. *Journal of Sport & Exercise Psychology, 32,* 595-618.

Farnese, M.L., Tramontano, C., Fida, R., & Paciello, M. (2011). Cheating behaviors in academic context: Does academic moral disengagement matter? *Procedia - Social and Behavioral Sciences, 29,* 356-365.

Giner-Sorolla, R., & Espinosa, P. (2011). Social cuing of guilt by anger and of shame by disgust. *Psychological Science, 22,* 49-53.

Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hodge, K., Hargreaves, E. A., Gerrard, D., & Lonsdale, C. (2013). Psychological mechanisms underlying doping attitudes in sport: Motivation and moral disengagement. *Journal of Sport & Exercise Psychology, 35,* 419-432.

Hu, L., & Bentler, P.M. (1998). Fit indices in covariance structure modeling: Sensitivity to under parameterized model misspecification. *Psychological Methods, 3*, 424-453.

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. (2012). Moral behavior in sport. In S. Murphy (Ed.), *The Oxford handbook of sport and performance psychology* (pp. 364-383). Oxford: Oxford University Press.

Kavussanu, M. (2014). Moral behavior. In: R.J. Eklund & G.T. Tenenbaum (Eds), *Sage encyclopedia of sport and exercise psychology*. Sage.

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 football: 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 & Exercise, 24*, 188-198.

Kavussanu, M., & Ring, C. (2015). Moral thought and action in sport and student life: A study of bracketed morality. *Ethics and Behavior, 26,* 267-276.

Kavussanu, M., Stanger, N., & Ring, C. (2015). The effects of moral identity on moral emotion and antisocial behavior in sport. *Sport, Exercise and Performance Psychology, 4*, 268-279.

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., Zelli, A., & Mallia, L. (2013). The contribution of moral disengagement to adolescents' use of doping substances. *International Journal of Sport Psychology, 44,* 331-350.

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 & Exercise, 25,* 78-88.

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.

Olthof, T., Schouten, A., Kuiper, H., Stegge, H., & Jennekens-Schinkel, A. (2000). Shame and guilt in children: Differential situational antecedents and experiential correlates. *British Journal of Developmental Psychology, 18*, 51-64.

Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods, 16*, 93-115.

Stearns, D. C., & Parrott, W. G. (2012). When feeling bad makes you look good: Guilt, shame, and person perception. *Cognition & Emotion, 26*, 407-430.

Stanger, N., Kavussanu, M., Boardley, I.D., & Ring, C. (2013). The influence of moral disengagement and negative emotion on the regulation of antisocial behaviour. *Sport, Exercise & Performance Psychology, 2,* 117-129.

Stanger, N., Kavussanu, M., McIntyre, D., & Ring, C. (2016). Empathy inhibits aggression in competition: The role of provocation, emotion, and gender. *Journal of Sport & Exercise Psychology, 38,* 4-14.

Stanger, N., Kavussanu, M., & Ring, C. (2012). Put yourself in their boots: Effects of empathy on emotion and aggression. *Journal of Sport & Exercise Psychology, 34*, 208-222.

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.

Tabachnick, B. G., & Fidell, L. S. (2001). Using multivariate statistics (4th ed.). Boston: Allyn & Bacon.

Tangney, J., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior. *Annual Review of Psychology, 58,* 345-372.

WADA (2015). World anti-doping code. Montreal: WADA. Retrieved from http://www.wada-ama.org/

Zebel, S., Doosje, B., & Spears, R. (2009). How perspective-taking helps and hinders group-based guilt as a function of group identification. *Group Processes & Intergroup Relations, 12,* 61-78.

Zelli, A., Mallia, L., & Lucidi, F. (2010). The contribution of interpersonal appraisals to a social-cognitive analysis of adolescents' doping use. *Psychology of Sport & Exercise, 11*, 304-311.

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.

Endnote

1. We used PROCESS to examine the direct effects of moral disengagement on doping likelihood, moral disengagement on guilt, and guilt on doping likelihood, as well as the indirect effect of moral disengagement on doping likelihood via guilt. These regressions indicated significant direct effects of moral disengagement on doping likelihood, b = 0.45, 95% CI =0.30, 0.59, moral disengagement on guilt, b = –0.68, 95% CI = –0.83, –0.53, and guilt on doping likelihood, b = –0.16, 95% CI = –0.27, –0.05. Further, moral disengagement had a significant indirect effect on doping likelihood mediated via guilt, b = 0.11, 95% CI = 0.01, 0.22; CSIE = .10, 95% CI = .01, .20.

Table 1. Descriptive statistics, alpha coefficients, and zero-order correlations.

Variable	*M*	*SD*	A	1.	2.	3.
1. Self-Regulatory Efficacy	6.16	1.34	.97			
2. Moral Disengagement	1.94	0.96	.82	–.40 *		
3. Anticipated Guilt	6.25	1.23	.74	.41 *	–.53 *	
4. Doping Likelihood	1.68	1.01	.88	–.44 *	.53 *	–.42 *

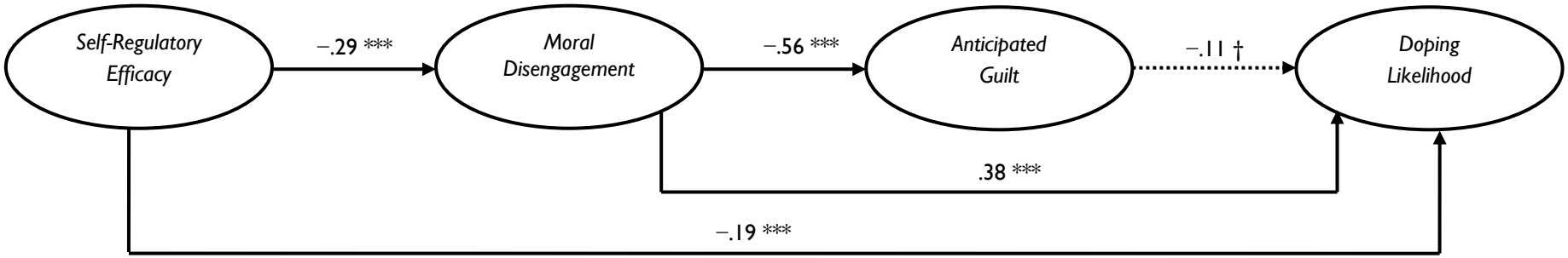
Note. All scales ranged from 1-7. * $p < .001$.

Table 2. Direct and indirect effects of doping self-regulatory efficacy on doping likelihood.

Pathways		*b*	95% CI	CSIE	95% CI
Direct effects					
SRE	→MD	–.29 **	–.38, –.20		
	→Likelihood	–.19 **	–.28, –.09		
MD	→Guilt	–.56 **	–.72, –.40		
	→Likelihood	.58 **	.38, .77		
Guilt	→Likelihood	–.11	–.22, .01		
Indirect effect on guilt via					
MD		.07 *	.02, .21	.08 *	.02, .18
Indirect effects on doping likelihood via					
MD		–.11 *	–.20, –.05	–.14 *	–.24, –.07
MD & Guilt		–.02	–.05, .01	–.02	–.07, .01

Note. Unstandardized coefficients for the paths are shown. SRE = self-regulatory efficacy. MD = moral disengagement. CSIE = completely standardized indirect effect, where .01 = small, .09 = medium, and .25 = large. * p <.05; ** p < .001

Figure 1. A serial multiple mediation model for the direct and indirect effects of self-regulatory efficacy on doping likelihood. The values presented are the unstandardised regression coefficients. A solid line represents a significant relationship. A dashed line represents a non-significant relationship. † $p < .07$, *** $p < .001$



APPENDIX

Doping Self-Regulatory Efficacy Scale

Below are some statements that refer to situations concerning use of banned substances to improve performance in sport. Please answer them while thinking about yourself. For each statement, indicate to what extent you would be able to resist the temptation to use banned substances.

Regarding your sport, how confident are you in your ability to avoid using banned substances...	not at all confident						completely confident
... when most athletes in your sport use them	1	2	3	4	5	6	7
... when you feel down physically (i.e., unfit)	1	2	3	4	5	6	7
... when you have been told to improve your performance	1	2	3	4	5	6	7
... when pressured to do so by others (e.g., coach, manager, sponsor)	1	2	3	4	5	6	7
... to improve your performance, even if it will not have any adverse side-effects	1	2	3	4	5	6	7
... before an important competition even when you can get away with it	1	2	3	4	5	6	7
... to get results more quickly, even if no one would ever know	1	2	3	4	5	6	7