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Integrating Moral and Achievement Variables to Predict Doping Likelihood in Football: A Cross-Cultural Investigation

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Abstract

Objectives. In our study, we had two objectives. Our first objective was to test a social-cognitive model of doping in sport. In this model, we examined personal (i.e., moral disengagement, moral identity, anticipated guilt) and contextual (i.e., performance motivational climate) predictors of doping likelihood and whether performance motivational climate moderates the relationship between moral disengagement and doping likelihood. The second objective was to determine whether this model is invariant across sex and country.

Design. We used a cross-sectional study design.

Method. Participants were 1,495 (729 females) elite football players (mean age 20.4 ± 4.4) recruited from 93 teams in the UK, Denmark and Greece. They completed questionnaires measuring the aforementioned variables.

Results. Moral disengagement positively predicted doping likelihood both directly and indirectly via anticipated guilt. The direct relationship was significant only when performance climate was perceived as average or high. Moral identity negatively predicted doping likelihood via both moral disengagement and anticipated guilt; and performance climate positively predicted doping likelihood. The model was largely invariant across sex and country.

Conclusions. Our findings suggest that young elite football players in the UK, Denmark and Greece are less likely to use banned substances to enhance their performance, if they consider being moral an important part of who they are, and if they perceive a low performance climate in their team. Moral identity is likely to trigger feelings of guilt associated with the use of banned substances. Our findings highlight the importance of moral variables in predicting doping likelihood.

Integrating Moral and Achievement Variables to Predict Doping Likelihood in Football: A Cross-Cultural Investigation

The psychological factors associated with the use of banned performance-enhancing substances or methods in sport, also known as doping, have received increased research attention in recent years (see Ntoumanis, Ng, Barkoukis, & Backhouse, 2014). Identifying such factors is important if we want to design interventions to prevent doping in sport. A number of psychological models have been proposed to explain doping (e.g., Barkoukis, Lazuras, & Tsorbatzoudis, 2016; Donovan, Egger, Kapernick, & Mendoza, 2002). The aim of the present research was to extend previous work by testing a model of doping in football players and determine whether this model generalizes to athletes from different countries. Our model integrated elements of social cognitive theory (Bandura, 1991), the model of moral identity (Acquino & Reed, 2002), and achievement goal theory (Ames, 1992).

Moral Variables and Doping

In his social cognitive theory of moral thought and action, Bandura (1991) proposed that individuals develop moral standards through socialization experiences and interaction with others, for example, by observing significant others and through reinforcement and punishment. These moral standards help regulate behavior via evaluative affective self-reactions. Individuals feel satisfaction and pride when they act in line with their moral standards, and experience negative emotions such as shame or guilt when they contravene these standards. These self-sanctions regulate behavior anticipatorily: People typically avoid behaviors that evoke self-condemnation and tend to act in line with their moral standards (Bandura, 1991, 2002). Thus, anticipated emotions are key regulators of moral action.

Guilt is one such emotion arising from moral transgressions and has been proposed to be a key regulator of moral action (Bandura, 1991; Tangney, Stuewig, & Mashek, 2007). In their seminal study, Bandura, Barbaranelli, Caprara, and Pastorelli (1996) found that anticipated guilt negatively predicted aggressive behavior in school children. Similar results have been reported in relation to

athletes' antisocial behavior (e.g., Stanger, Kavussanu, Boardley, & Ring, 2013) as well as their doping likelihood and susceptibility (e.g., Boardley et al., 2017; Kavussanu & Ring, 2017; Ring & Kavussanu, 2018). Other anticipated negative emotions such as regret or shame about potential doping have also been negatively associated with doping intentions in adolescent and adult athletes (Barkoukis, Lazuras, & Harris, 2015; Lazuras, Barkoukis, & Tsorbatzoudis, 2015).

Although anticipated negative emotion regulates moral action, people alleviate these affective experiences that would normally arise from bad behavior via the use of cognitive mechanisms, known as moral disengagement (Bandura, 1991). For example, doping could be contrasted with worse behaviors, such as using illegal drugs (i.e., advantageous comparison), thereby appearing not as serious (Boardley & Grix, 2013); athletes may refer to doping as "juice" or "vitamins" (i.e., euphemistic labelling), so that the behavior does not sound as bad; they may absolve themselves of responsibility by thinking that "everybody does it" or that their coach, medical personnel or team captain told them to do it (i.e., diffusion and displacement of responsibility); and they can ignore, distort, or minimize the consequences of their behavior for others (i.e., distortion of consequences). Numerous studies have shown a positive relationship between moral disengagement and doping attitudes, temptation, likelihood, or intention in athletes (e.g., Chen, Wang, Wang, & Huang, 2017; Hodge, Hargreaves, Gerrard, & Lonsdale, 2013; Ntoumanis, Barkoukis, Gucciardi, & Chan, 2017). In other work, moral disengagement has predicted doping likelihood or susceptibility indirectly via lower guilt (e.g., Boardley et al., 2017; Kavussanu & Ring, 2017; Ring & Kavussanu, 2018). This evidence is in line with Bandura's (1991) assertion that moral disengagement facilitates transgressive behavior by attenuating the negative emotions associated with this behavior.

Building, in part, on social cognitive theory (Bandura, 1991), Aquino and Reed (2002) described the psychological construct of moral identity as a self-regulatory mechanism; they defined this construct as a self-conception organized around a set of moral traits, and proposed that people vary in the degree to which they consider being a moral person as a central part of their self-concept. Moral identity is a strong source of moral motivation due to people's desire to maintain

consistency between conceptions of their moral self and their actions (Aquino, Freeman, Reed, Lim, & Felps, 2009). Indeed, individuals whose moral identity was central to their self-concept were less likely to lie in a salary negotiation (Aquino et al., 2009) and more likely to avoid antisocial behavior (Hertz & Krettenauer, 2016). In the context of sport, athletes with a strong moral identity reported less frequent antisocial behavior toward their opponents (Kavussanu, Stanger, & Boardley, 2013; Kavussanu, Stanger, & Ring, 2015; Sage, Kavussanu, & Duda, 2006).

Moral identity could deter athletes from doping by influencing both moral disengagement and anticipated guilt. Specifically, athletes with a strong moral identity should be motivated to act morally (i.e., not cheat), thus they would not need to mobilize moral disengagement mechanisms to alleviate the negative affect typically associated with unethical behavior. Athletes with a strong moral identity should also expect to feel guilt, if they used banned substances, as cheating would be incompatible with their view of the self as moral. Indeed, moral identity was a negative predictor of moral disengagement and a positive predictor of anticipated guilt in club and college British athletes (Kavussanu & Ring, 2017; Ring, Kavussanu, Lucidi, & Hurst, 2019). These variables in turn predicted doping likelihood.

The Role of Performance Climate

Doping takes place in a social context; thus to better understand this behavior, consideration of the social environment is essential. One aspect of the social environment that could lead to doping is the motivational climate of the team, which pertains to the achievement goals emphasized and the criteria of success conveyed to the participants by significant others, such as coaches (Ames, 1992). Those significant others determine important features of the achievement context, such as the evaluation procedures and the distribution of rewards, and, via their behavior, they communicate to participants what is valued in that context. Coaches create a “performance” motivational climate when they evaluate success using normative criteria such as winning, reward only the best athletes, and place emphasis on doing better than others. In this climate players may

be tempted to cheat in their quest of establishing superiority over others. A team environment that defines success in terms of winning may facilitate doping[1].

Research has provided support for the positive link between performance climate and cheating. Football players who perceived a performance motivational climate in their team, were more likely to report diving to fool the referee and deliberate handball (Kavussanu, 2006). Similar results have been reported in other studies examining athletes' antisocial behavior (e.g., Stanger, Backhouse, Jennings & McKenna, 2018; van de Pol, Kavussanu, & Claessens, 2018). However, in elite Scottish athletes, performance climate was unrelated to doping attitudes (Allen, Taylor, Dimeo, Dixon, & Robinson, 2015); this may have been due to the low reliability of the scale scores observed in this study. Performance climate may also accentuate the relationship between moral disengagement and doping likelihood, such that this relationship may become stronger as performance climate becomes more salient. Performance climate could strengthen the temptation to use banned substances and increase the need to morally disengage (Stanger et al., 2018) to enable individuals to use banned substances without feeling guilt. Thus, moral disengagement may have a stronger relationship with doping likelihood when performance climate is salient in the team.

The Present Research

In sum, several studies have found a positive relationship between moral disengagement and doping variables (e.g., Chen et al., 2017; Hodge et al., 2013; Lucidi et al., 2008; Ntoumanis et al., 2017), while recent research has indicated that the process through which moral disengagement facilitates doping may be by reducing anticipated guilt (e.g., Boardley et al., 2017; Kavussanu & Ring, 2017). Less attention has been given to the role of moral identity in predicting doping likelihood with some evidence suggesting that this variable may reduce doping likelihood both by decreasing moral disengagement *and* increasing anticipated guilt (Kavussanu & Ring, 2017; Ring et al., 2019). Finally, no study has investigated the role of performance motivational climate on doping likelihood. This is important because doping is a complex behavior that could be influenced by the

context within which it takes place. Considering both the context and the individual athlete characteristics should advance our understanding of this behavior.

One limitation of the studies examining moral disengagement, anticipated guilt, and moral identity as predictors of doping (Boardley et al., 2017; Kavussanu & Ring, 2017; Ring et al., 2019) is that they were conducted only in British non-elite athletes. However, doping is a universal phenomenon in elite sport. Therefore, research is needed to determine whether the same processes identified in British non-elite athletes also take place in elite athletes from different countries, who may vary in culture. Replication studies are considered a "must" for the scientific advancement of psychology (Amir & Sharon, 1990) and are important because they increase our confidence in the validity of the findings. Replicating findings across cultures would help us establish general laws of behavior across cultures. Finally, doping has been documented in males and females (Pitsch & Emrich, 2012), and evidence that our model applies to both sexes would further increase our confidence in its utility in predicting doping.

Our research, which was funded by the World Anti-Doping Agency, aimed to advance our understanding of doping in sport and had two purposes. The first purpose was to test a social-cognitive model of doping in sport that included the variables discussed above. We expected that: (a) moral disengagement would positively predict doping likelihood both directly and indirectly via anticipated guilt (Hypothesis 1; e.g., Boardley et al., 2017; Kavussanu & Ring, 2017); (b) moral identity would negatively predict doping likelihood via both anticipated guilt and moral disengagement (Hypothesis 2; Kavussanu & Ring, 2017); and (c) performance climate would positively predict doping likelihood (e.g., Hypothesis 3; Kavussanu, 2006) and would moderate the relationship between moral disengagement and doping likelihood (Hypothesis 4). The hypothesized model is depicted in Figure 1.

The second purpose of this study was to examine whether our model is invariant across sex and country. Thus, we tested our model in males and females in UK, Denmark, and Greece. We selected these countries due to their location in different parts of Europe (e.g., west, north and

south), and it could be argued that they represent fairly distinct cultures (see Hofstede, 2011). This comparison is important because providing evidence for the invariance of the model across different countries would suggest that the processes we examine are universal rather than country specific. Such evidence would also strengthen our confidence in the study findings. We focused on football, as it is a relatively unexplored sport in doping research and is the most popular sport in Europe.

Method

Participants

A total of 1,495 (729 females) elite football players (mean age 20.4 ± 4.4) from 93 teams participated in the study. In the UK, 506 (251 females) football players (mean age 18.4 ± 1.9) were recruited from 37 Division 1 teams; mean years of playing football were 9.6 ± 3.2. In Denmark, 509 (251 females) elite football players (mean age 21.3 ± 4.5) were recruited from 13 premier league clubs, 11 clubs from Division 1, and 6 clubs from young talent teams; mean years of playing football were 8.1 ± 4.6. In Greece, 480 football players (mean age 21.7 ± 5.2, 223 females) were recruited from 26 clubs in Divisions 1, 2 and 3; mean years of playing football were 8.0 ± 5.0.

Measures

Prior to the data collection in Denmark and Greece, the entire questionnaire was translated into Danish, and parts of the questionnaire were translated into Greek, using the translation-back-translation method (Brislin, 1970). In Denmark, the translated questionnaire was pilot tested in 52 elite team handball players. Analysis of the pilot test data indicated good reliabilities. In Greece, the questionnaire was administered to 10 football players to ensure that participants could comprehend the questions asked and to measure time for completion. This is the first study to use these measures in Denmark and Greece.

Doping likelihood. Two scenarios developed specifically for this study, in consultation with elite football players, were used to measure doping likelihood; these scenarios have also been used in two other studies (Kavussanu & Ring, 2017; Kavussanu, Hatzigeorgiadis, Elbe, & Ring, 2016). The first scenario described a situation where the participant had the opportunity to use a banned

substance to enhance performance, while the second referred to a situation where the banned substance could be used to recover from injury. We present the first scenario[1] below:

It is the day before the most important game of the season. The winner of this game will win the league. The team against which you will compete is of similar ability level to your team, and they are just one point ahead of your team in the league. Lately, your performance has been below your best. You don't feel you have the necessary fitness for this important game, and you are concerned about how you will perform. You mention this to one of your teammates, who tells you that he/she has been using a new substance, which has enhanced his/her fitness and, as a result, his/her performance. The substance is banned for use in sport, but the chance that you will be caught is extremely small.

Following each scenario, participants were asked to indicate how likely it was that they would use the banned substance if they were in that hypothetical situation. They indicated their responses on a Likert scale, anchored by 1 (*not at all likely*) and 7 (*extremely likely*).

Anticipated guilt. The guilt subscale from the State Shame and Guilt Scale (Marschall, Sanftner, & Tangney, 1994) was used to measure anticipated guilt in the two hypothetical situations. Following each scenario, participants were asked to imagine themselves in the situation described in the scenario and indicate how they would feel if they had used the banned substance. The stem for each item was "If I had used the banned substance..." and sample items are "I would feel remorse, regret" and "I would feel bad about what I had done". Participants indicated their responses on a Likert scale anchored by 1 (*not at all*) and 7 (*very strongly*). Marschall et al. (1994) reported very good internal consistency for scale scores ($\alpha = .82$).

Moral disengagement. Moral disengagement was measured with the six-item Moral Disengagement in Doping Scale (Kavussanu et al., 2016), which captures the six mechanisms of moral disengagement that are relevant to doping (see Lucidi et al., 2008; Kavussanu et al., 2016). A sample item is "Doping does not really hurt anyone". Responses were made on a Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). The scale has shown very good levels of

internal consistency (α range = .82 - .86) and support for its factorial, convergent, concurrent, and discriminant validity, as well as test-retest reliability has been provided (Kavussanu et al., 2016).

Moral identity. Moral identity was assessed using the five-item internalization subscale of the moral identity scale, which taps the degree to which being moral is central to individuals' self-concept (Aquino & Reed, 2002). Participants were presented with nine traits (e.g., honest, fair, hardworking, kind, helpful) validated as necessary characteristics of a moral person (Aquino & Reed, 2002), and were asked to respond to statements concerning these traits (e.g., "It would make me feel good to be a person who has these characteristics"). Responses were made on a Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). The scale has demonstrated very good internal consistency (α = .85; Aquino & Reed, 2002).

Performance motivational climate. We used an abbreviated version of the performance climate scale of the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton, Duda, & Yin, 2000) to measure performance motivational climate. Although this questionnaire also includes a scale that measures mastery motivational climate, this scale was not relevant to this study: Doping is cheating, and past research has shown weak links between mastery climate and behaviors that break the rules of sport (see Kavussanu, 2012). Thus, only performance climate was expected to be associated with doping likelihood. Participants were asked to think how it felt to play on this team during important league games; a sample item is "the coach favours some players more than others". They indicated their level of agreement on a Likert scale anchored by 1 (*strongly disagree*) and 5 (*strongly agree*). The abbreviated version consisted of two subscales (punishment for mistakes and social comparison) and 12 items because these items were the only ones relevant to competition, to which the scenarios referred. The PMCSQ-2 has shown good psychometric properties (Newton et al., 2000).

Procedure

Upon approval of the study by the university ethics committee, participants were recruited from football teams. In each of the three countries, one or two Research Assistants (RAs) contacted

the coaches of the teams and invited the team to take part in the research. In the UK, 37 teams were contacted, and all agreed to take part; in Denmark, we contacted 32 clubs, and 24 of them agreed to participate with 30 teams (i.e., more than one team was recruited from some clubs). In Greece, 30 teams were contacted and all agreed to take part. The RAs administered the questionnaires to the players either before or after a training session. He or she informed them about the purpose of the study, and that their responses would be kept confidential and used only for research purposes. All questionnaires were completed anonymously. We encouraged honest responses by: (a) emphasizing the anonymity of responses; and (b) asking participants to place each completed questionnaire in an envelope and seal it before handing it to the RA. Participants provided informed consent prior to completing the questionnaire. The order of the scales within the questionnaires was counterbalanced to ensure that the order of questions did not influence participants' responses.

Data Analysis

We analyzed the data using Mplus 8.0 (Muthén & Muthén, 1998-2017) and the maximum likelihood estimation method with standard errors, robust to non-normality (MLR). First, we conducted confirmatory factor analyses of the scores of moral disengagement, moral identity, anticipated guilt, and performance climate scales and then examined their reliabilities. We evaluated the fit of the models based on the chi-square, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Standardized Root Mean square Residual (SRMR). CFI and TLI values close to .90 or .95 reflect a good model fit, RMSEA and SRMR values less than .05 indicate a good fit, and RMSEA values of .05 to .08 indicate close fit (Hu & Bentler, 1999; Schumacker & Lomax, 2016).

Then, we tested the structural model (depicted in Figure 1) in which all latent variables were allowed to freely correlate. Indirect relationships were explored using a bootstrapping procedure (Bollen & Stine, 1990; Shrout & Bolger, 2002) with 2,500 bootstrapped samples, decomposing them into separate effects. We also tested whether performance motivational climate moderated the

relationship between moral disengagement and doping likelihood. This was modeled as the interaction of two latent variables (see Muthén & Asparahov, 2015).

Finally, we examined whether path coefficients differed across sex (male, female) and country (UK, Denmark, Greece) by testing structural invariance across these groups using the Wald test of parameter constraints. Prior to testing path differences across groups, we assessed measurement invariance (i.e., invariance of the constructs). First, we tested the measurement model for each group separately. Then, we tested measurement invariance in steps to assess the psychometric equivalence of the constructs across groups, including (a) *configural*, which indicates equivalence of factor patterns; (b) *metric* (weak factorial), which indicates equivalence of factor loadings; and (c) *scalar* (strong factorial), which indicates equivalence of item intercepts. We compared the models based on the changes in fit indices. A cutoff value of .01 on changes in CFI, paired with cutoff values of .015 on changes in RMSEA and SRMR, was used (see Chen, 2007).

Results

Preliminary Analysis

Missing data on observed variables ranged from 0.27% to 1.67% and were assumed to be missing at random. Before testing the study hypotheses, the factorial structure of each scale was tested in confirmatory factor analyses. The results for the total sample are presented in Table 1. The CFA results for each country are presented in supplementary materials. The fit of the moral disengagement factor was good, while the fit of the moral identity factor was marginally good. For the 2-factor anticipated guilt, each item was specified to correlate with its matching item across the scenarios for conceptual reasons, with the model showing a good fit. The results for performance climate, which included two subscales, showed that a single-factor (Model 4a in Table 1) and two correlated-factor models (Model 4b in Table 1) did not fit the data well. An alternative bifactor model was tested, which specified two uncorrelated specific factors and one general performance climate factor. A bifactor model can be used to test the extent to which a general factor reflects a single variable, even when the data are multidimensional; in this model, each item is loaded on both

the general factor and the corresponding specific factor. The bifactor model (Model 4c in Table 1) had a better fit than the one factor model and the two correlated-factors model. The factor loadings showed that the variance related to the group factor was mostly accounted for by the general performance climate factor. This was accepted as the final model. Finally, we tested the entire measurement model, which had a good fit: $\chi^2(512) = 2040.98$, $p < .001$, RMSEA = .045, 90% CI [.043, .047], SRMR = .041, CFI = .939, and TLI = .929.

Descriptive Statistics, Reliabilities, and Correlations

Table 2 shows the Cronbach's alphas, means, standard deviations, and correlations among all study variables for the total sample. The reliability results for each country are presented in supplementary materials. Cronbach's alpha coefficients indicated good-to-very-good reliability for all scale scores. In general, participants reported low likelihood to use banned substances, particularly with respect to performance enhancement; expected to feel a lot of guilt if they used the banned substance; scored high on moral identity and low on moral disengagement; and perceived a relatively low performance climate in their team. Zero-order correlations showed that doping likelihood was positively correlated with moral disengagement and performance climate, and negatively correlated with moral identity and anticipated guilt.

Testing the Hypothesized Structural Model

The structural model (see Figure 2) explained 24.4% and 26.4%, respectively, of the variance in doping likelihood for scenarios 1 and 2; 15.1% and 10.9% of the variance in anticipated guilt for scenarios 1 and 2; and 22.6% of the variance in moral disengagement. Table 3 summarizes the results from testing the hypotheses related to the structural paths among the constructs. As expected (Hypothesis 1), moral disengagement emerged as a positive predictor of doping likelihood. Because the links between moral disengagement and anticipated guilt in both scenarios were significant, indirect relationships were possible. The bootstrapping procedure showed indirect relationships between moral disengagement and doping likelihood in scenario 1 ($\beta = .10$, $SE = .02$, 95% CI [.07,

.12], $p < .001$) and in scenario 2 (β = .11, *SE* = .02, 95% CI [.07, .14], $p < .001$) through anticipated guilt, thus supporting Hypothesis 1.

With respect to Hypothesis 2, analysis revealed similar results for both scenarios. Specifically, for scenario 1, the total indirect effect of moral identity on doping likelihood was significant (β = -.21, *SE* = .02, 95% CI [-.25, -.17], $p < .001$). Decomposing this into separate effects revealed significant indirect relationships between moral identity and doping likelihood through: (a) moral disengagement (β = -.11, *SE* = .02, 95% CI [-.15, -.08], $p < .001$); (b) anticipated guilt (β = -.05, *SE* = .01, 95% CI [-.08, -.03], $p < .001$); and (c) moral disengagement and anticipated guilt (β = -.05, *SE* = .01, 95% CI [-.06, -.03], $p < .001$). For scenario 2, the total indirect effect of moral identity on doping likelihood was also significant (β = -.19, *SE* = .02, 95% CI [-.22, -.15], $p < .001$). Decomposing this effect into separate effects showed significant indirect relationships between moral identity and doping likelihood through: (a) moral disengagement (β = -.10, *SE* = .02, 95% CI [-.13, -.06], $p < .001$); (b) anticipated guilt (β = -.04, *SE* = .02, 95% CI [-.07, -.01], $p = .007$); and (c) moral disengagement and anticipated guilt (β = -.05, *SE* = .01, 95% CI [-.07, -.03], $p < .001$). Thus, Hypothesis 2 was fully supported in both scenarios.

As can be seen in Table 3, performance motivational climate emerged as a positive predictor of doping likelihood, supporting Hypothesis 3. In addition, the interaction between moral disengagement and performance climate was significant for predicting doping likelihood in both scenarios, supporting Hypothesis 4. Tests of simple slopes showed that when performance motivational climate is high, the relationship between moral disengagement and doping likelihood is positive and significant (tested at *SE* = 1: β = .49, *SE* = .09, 95% CI [.32, .66], $p < .001$ for scenario 1; and β =.46, *SE* = .09, 95% CI [.29, .64], $p < .001$ for scenario 2). However, when performance motivational climate is low, the relationships between moral disengagement and doping likelihood is non-significant (tested at *SE* = -1: β = .12, *SE* = .10, 95% CI [-.07, .30], $p = .228$ for scenario 1; and β =.17, *SE* = .09, 95% CI [-.02, .36], $p = .071$ for scenario 2).

Testing Measurement and Structural Invariance Across Sex and Country

Prior to testing the structural invariance of the model, we tested for configural, metric, and scalar measurement invariance of the model across sex and country (see Table 4). Measurement invariance was established across sex. As full scalar invariance was not established across country based on the difference in the CFI value, a partially invariant model was achieved by freeing intercepts of two performance climate items, one moral identity item, and three moral disengagement items. The performance climate items were: "if you want to play in a game you must be one of the best players" and "the coach favours some players more than others". The moral identity item was: "I strongly desire to have these characteristics". The moral disengagement items were: "doping is just a way to "maximize your potential", "players cannot be blamed for doping if their teammates pressure them to do it", and "doping is alright because it helps your team".

Next, we tested for structural invariance across sex and country. With respect to sex, the Wald tests of parameter constraints ($\chi^2(1) = 7.47$, $p = .006$) showed that the correlation between scenario 1 and scenario 2 doping likelihood was stronger for women ($\beta = .52$, $SE = .04$, $p < .001$) than for men ($\beta = .35$, $SE = .08$, $p < .001$). In addition, the relationships between moral disengagement and doping likelihood were not invariant across sex for either scenario 1 ($\chi^2(1) = 4.51$, $p = .034$) or scenario 2 ($\chi^2(1) = 11.36$, $p < .001$). Specifically, these relationships were stronger for men ($\beta = .27$, $SE = .05$, $p < .001$ for scenario 1 and $\beta = .28$, $SE = .05$, $p < .001$ for scenario 2) than for women ($\beta = .13$, $SE = .04$, $p = .004$ for scenario 1 and $\beta = .07$, $SE = .04$, $p = .097$ for scenario 2).

With respect to country invariance, the Wald test ($\chi^2(2) = 10.79$, $p = .005$) showed that the correlation between scenario 1 and scenario 2 doping likelihood was stronger in Danish ($\beta = .57$, $SE = .06$, $p < .001$) and Greek ($\beta = .45$, $SE = .05$, $p < .001$) than British athletes ($\beta = .30$, $SE = .05$, $p < .001$). The Wald test ($\chi^2(2) = 7.08$, $p = .029$) also showed that the relationship between performance motivational climate and scenario 1 doping likelihood was significant for athletes in Denmark ($\beta = .19$, $SE = .04$, $p < .001$), but not in UK ($\beta = .02$, $SE = .05$, $p = .710$) or Greece ($\beta = .07$, $SE = .06$, $p = .240$). Finally, the Wald test ($\chi^2(2) = 20.77$, $p < .001$) showed that the relationship between moral

identity and moral disengagement was weaker in Danish athletes (β = -.22, *SE* = .06, $p < .001$) than in British (β = -.57, *SE* = .05, $p < .001$) and Greek athletes (β = -.48, *SE* = .05, $p < .001$).

Discussion

Bandura's (1991) social cognitive theory provides a useful theoretical framework to help understand doping in sport and has guided much research on doping (e.g., Boardley et al., 2017; Kavussanu & Ring, 2017; Lucidi et al., 2008). Recent studies in college students or amateur British athletes (e.g., Kavussanu & Ring, 2017; Ring et al., 2019) have integrated elements from the social cognitive theory and the model of moral identity proffered by Aquino and Reed (2002) to examine doping likelihood. In this study, we tested a social-cognitive model of doping in which we integrated elements from social cognitive theory, achievement goal theory, and the model of moral identity; we also tested whether this model is invariant across sex and culture. We examined doping likelihood with respect to two hypothetical situations describing the opportunity for performance enhancement and the possibility of accelerating recovery from injury.

Moral Disengagement and Doping Likelihood

In line with our hypothesis, moral disengagement predicted doping likelihood both directly and indirectly via anticipated guilt. This finding supports two main tenets of social cognitive theory (Bandura, 1991), namely that anticipated affective self-sanctions play an important role in regulating transgressive behavior, and that moral disengagement enables individuals to engage in such behavior by reducing these self-sanctions. Previous studies have also shown that moral disengagement positively predicts doping likelihood and susceptibility, as well as aggression and antisocial behavior by acting on anticipated guilt (e.g., Bandura et al., 1996; Boardley et al., 2017; Kavussanu & Ring, 2017; Stanger et al., 2013). However, this is the first study to show this effect in a large sample of elite football players across three European countries.

This finding also highlights the important role of guilt on doping – guilt arises from moral transgressions and is assumed to regulate behavior because people strive to minimize affective dissonance elicited by threats to the moral self (e.g., Tangney et al., 2007). Anticipated regret, a

variable similar to guilt, about potential doping has also been inversely associated with doping intentions in previous research (e.g., Barkoukis et al., 2015; Lazuras et al., 2015). Anticipated guilt is a key variable in our understanding of doping with strong negative links to doping likelihood. Taken together with past work, our findings suggest that negatively valenced, self-conscious emotions such as guilt can act as self-sanctions that thwart doping and can be reduced by moral disengagement.

Moral disengagement had also a *direct* effect on doping likelihood, a finding that is in line with previous research (e.g., Boardley et al., 2017; Kavussanu & Ring, 2017). This suggests that moral disengagement may act on doping likelihood via other processes and that guilt is not the only mechanism through which moral disengagement thwarts doping. Our findings replicate and extend previous research that has consistently shown strong links between moral disengagement and doping attitudes or intentions in athletes from a variety of countries and sports (Chen et al., 2017; Hodge et al., 2013; Ntoumanis et al., 2017). The findings highlight the significance of intervening on moral disengagement, or its antecedents, to reduce doping in sport.

It is worth noting that the relationship between moral disengagement and doping likelihood was stronger in men than in women, and, in women, it did not predict doping likelihood in the injury recovery scenario. It may be that men are more prone to morally disengage, which may make one more likely to use banned substances. Indeed, past research has shown gender differences, with men scoring higher on moral disengagement than women (Boardley & Kavussanu, 2007). We also found that the relationship between moral disengagement and doping likelihood was significant only when performance climate was perceived as average or high. It would be interesting for future research to further explore these relationships.

Moral Identity and Doping Likelihood

Moral identity was indirectly related to doping likelihood via moral disengagement. This finding is in line with previous research in amateur British athletes from a variety of team sports (Kavussanu & Ring, 2017), and further underscores the importance of having a strong moral

identity for deterring doping. Individuals who consider being moral a central part of who they are (i.e., their self-concept) are less likely to morally disengage to facilitate transgressive behaviors such as doping. Although Bandura (1991) does not refer to moral identity explicitly, he mentions moral standards as important regulators of moral conduct. People with a strong moral identity should have high moral standards, as these individuals consider being moral (which is translated into acting in an ethical manner) as central to their self-concept. It may be that a strong moral identity reduces the need for moral disengagement because these athletes are less likely to consider transgressive behavior.

Moral identity was also indirectly associated with doping likelihood via anticipated guilt. Athletes who have strong moral identity may be deterred from using banned substances to enhance their performance and recover from injury because they would expect to experience guilt. This finding supports and extends past work, which has shown a negative link between moral identity and antisocial sport behavior (e.g., Kavussanu et al., 2013, 2015; Sage et al., 2006) as well as unethical conduct in other contexts (Hertz & Krettenauer, 2016). Like other transgressive acts, doping may be viewed as unethical behavior, which is not compatible with the perception of the athlete as a moral person. That these effects were evident with respect to both the performance enhancement and the injury recovery scenarios further attest to the validity of our findings.

Performance Motivational Climate and Doping Likelihood

Performance motivational climate positively predicted doping likelihood for both performance enhancement and injury recovery. Thus, athletes who perceived their coach emphasizing winning at all costs, favoring the best players, and taking players out of the game for mistakes, thereby communicating that winning is most valued, were more likely to indicate higher likelihood to use banned substances. Performance motivational climate has been positively associated with antisocial behavior in sport (Kavussanu, 2006; Stanger et al., 2018), thus our finding is in line with previous research on other transgressive sport behaviors. However, it is not in accord with the findings of

study in Scottish athletes, where performance climate was unrelated to doping attitudes (Allen et al., 2015); the null findings in that study may have been due to low reliability of scale scores.

The positive relationship between moral disengagement and doping likelihood was stronger when football players perceived a high performance climate in their team. Thus, performance climate may accentuate the potentially facilitating role of moral disengagement on doping likelihood. When athletes perceive a performance climate in their team, they may have a stronger temptation to use banned substances – due to the emphasis of the coach on winning – and the tendency to morally disengage may be more likely to lead one to use banned substances. Interestingly, when performance climate was low, moral disengagement was not related to doping likelihood. The moderating role of performance climate on the relationship between moral disengagement and doping likelihood is an important finding that extends our understanding of doping in sport. The finding highlights the role the motivational environment can play in this relationship and suggests that some context and person variables could operate in a synergistic manner to facilitate doping.

Structural Invariance across Sex and Country

Results of invariance testing showed that the model was largely invariant across sex and country; however, some differences were identified. Specifically, the correlation between the two scenarios was stronger in women than men. Each scenario described a slightly different context, which did not seem to matter for women. Men, on the other hand, appear to differentiate between scenarios, that is, their doping likelihood was dependent on the context. This suggests that there is more stability in doping likelihood in women than in men. Similar findings were revealed for Danish and Greek athletes who evidenced stronger relationship between scenarios 1 and 2 doping likelihood compared to British athletes. The results showed that there was less differentiation between the two scenarios (i.e., participants showed more consistency across situations) in Danish and Greek athletes, compared to British athletes.

Two additional differences emerged from our invariance testing: Performance climate predicted doping likelihood for scenario 1 (performance enhancement) in Danish, but not in British or Greek athletes, and the relationship between moral identity and moral disengagement was weaker in Danish athletes compared to their British and Greek counterparts. In Danish athletes, a team environment that emphasizes normative success may facilitate the use of banned substances to enhance performance more than it would in British or Greek athletes. Perhaps there are aspects of the Danish sport culture that have led to these differences. Perhaps the morality of Danish athletes is different from the morality of British and Greek athletes. Indeed, one study found that Danish athletes replied less honestly about doping behavior than athletes in other European countries (Elbe & Pitsch, 2018). The differences identified between countries highlight the importance of being aware of cultural variation (Ryba, Schinke, & Tenenbaum, 2009) and suggest that doping prevention programs should consider gender and cultural differences. For Denmark, for example, it seems especially relevant for practitioners to pay attention to the performance climate.

Practical Implications

Our findings have important implications for doping prevention. The findings point to the importance of developing anti-doping interventions that target moral variables (i.e., moral identity, moral disengagement, and anticipated guilt). One way this can be done is through seminars delivered by trained facilitators in small groups of athletes to encourage engagement and reflection. In these seminars, the facilitator can discuss the importance of fair play, point to the positive consequences this has for athletes, and discuss the negative psychological and social consequences of doping for others. The facilitator can also present stories of athletes who have been successful in sport while competing clean. These athletes can act as moral exemplars inspiring younger athletes to do the same, thus gradually strengthening their moral identity. Doping prevention programmes can also include stories of athletes who have doped and recall their experiences of guilt, typically associated with doping. This should increase participants' anticipated guilt, thereby further deterring doping. For moral disengagement, interventions could make participants aware of the

justifications used by athletes who dope and challenge these justifications. For example, the "distortion of consequences" mechanism, exemplified by the statement "doping does not hurt anyone" could be challenged by pointing out that doping does hurt others.

The effect of performance climate on doping likelihood and its role in accentuating the positive relationship between moral disengagement and doping likelihood also have practical implications. Performance climate is evident when coaches put a lot of emphasis on winning, and this is manifested in behaviors such as negative reactions to athlete mistakes and giving the most attention to the best players due to their value in helping the team win. Coaches need to avoid this type of behavior that communicates to athletes that "winning is everything" as this attitude can lead athletes to use banned substances to elicit positive coach reactions. Coaches need to understand the important role they play in influencing athletes, and in their interactions with athletes, they need to emphasize adhering to the rules of sport, which include not using banned substances to enhance performance. Gradually, athletes should internalize the value of fair play, and this should strengthen their moral identity.

Limitations of the Study and Directions for Future Research

The present research revealed some interesting findings, but also has some limitations. First, we used a cross-sectional design, and therefore, we cannot make firm assertions about the direction of causality. We can simply say that our data supported the hypothesized model. It would be enlightening to attempt to replicate our findings using longitudinal and experimental designs, which provide clearer evidence for the direction of causality. Second, this study included only football players. It would be interesting to replicate this study in other types of sport that have been identified as being more prone to doping (e.g., Pitsch & Emrich 2012; Striegel, Ulrich, & Simon, 2010). Third, although our measurement model had a good fit to the data for each country, full scalar invariance was not established. Achieving partial scalar invariance allowed us to make inferences about invariance of structural paths. Because only a partial measurement invariance was achieved, interpretations should be made with caution.

Conclusion

In conclusion, our findings suggest that young elite football players in the UK, Denmark and Greece are less likely to use banned substances to enhance their performance and recover from injury if they consider being moral an important part of their identity. Moreover, when football players perceive a performance climate in their team they are more likely to use banned substances. This type of climate may accentuate the potentially facilitating effects of moral disengagement on doping likelihood. Moral identity is likely to trigger feelings of guilt associated with the use of banned substances, and could reduce the need to morally disengage leading to lower likelihood to dope. Finally, anticipated guilt appears to be a key variable in the prediction of doping likelihood among elite football players. In sum, our findings underscore the importance of considering moral variables in our understanding of doping in sport.

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Endnotes

[1]The second scenario is available from the first author upon request.

[2]Before conducting our final analyses, we considered a multilevel approach to data analyses. Athletes are nested within teams, and it can be expected that their likelihood to use doping is similar within teams. Therefore, we considered approaching data analysis through multilevel structural equation modeling (MSEM) with two levels, partitioning the total variance of doping likelihood into within-team and between-team variances, in line with previous studies with athletes nested within teams (e.g., Yukhymenko-Lescroart et al., 2015; Yukhymenko-Lescroart, 2018). When the two items of doping likelihood (one for each scenario) were specified as single-item latent factors using a two-level model, in which athletes were clustered within teams, the intraclass correlations indicated that athletes within teams shared 11.5% and 11.8% of the variance in doping likelihood for scenario 1 and 2 respectively. However, after attempting to explore structural relationships using a two-level model, we faced a number of issues (including non-convergence of the model with the latent variable interaction) because the number of parameters was greater than the number of *between* units (i.e., 93 teams). Exploring and comparing results for structural relationships of a two-level model and a traditional single-level model showed that while the values for some estimates slightly differed across single-level and two-level models, from a practical consideration standpoint, the results were not different. With these considerations in mind, and because we were interested in exploring the relationships at the athlete level, we proceeded with a single-level SEM model.

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Table 1

Results for Confirmatory Factor Analysis for Each Measure (N = 1494)

Model	χ^2	*df*	RMSEA	CFI	TLI	SRMR
1. Moral disengagement	46.66	9	.053	.970	.950	.027
2. Moral identity	70.82	4	.106	.950	.876	.021
3. Guilt: two factors	345.21	29	.085	.959	.936	.040
4a. Performance climate: one factor	1085.26	54	.113	.824	.784	.065
4b. Performance climate: two correlated factors	889.08	53	.103	.857	.822	.061
4c. Performance climate: bifactor	411.45	42	.077	.937	.901	.047

Notes. RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean squared residual; *df* = degrees of freedom.

Table 2 1

Means, Standard Deviations, Reliability Estimates, and Pearson's Correlations Among All Variables (N = 1494)

Variables	α	*M*	*SD*	1	2	3	4	5	6
1. Doping likelihood (scenario 1)	n/a	1.71	1.24	-					
2. Doping likelihood (scenario 2)	n/a	2.04	1.49	.54***	-				
3. Anticipated guilt (scenario 1)	.94	5.20	1.69	-.40***	-.37***	-			
4. Anticipated guilt (scenario 2)	.94	5.06	1.75	-.32***	-.44***	.83***	-		
5. Moral disengagement	.78	2.19	1.04	.35***	.32***	-.31***	-.27***	-	
6. Moral identity	.79	5.75	1.06	-.18***	-.15***	.22***	.17***	-.38***	-
7. Performance climate	.89	2.67	.74	.16***	.19***	-.11***	-.14***	.21***	-.12***

Note. Possible range of responses 1 – 7 for all variables except for performance climate (1-5). Scenario 1 was about performance enhancement; scenario 2 was about injury recovery.

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

Table 3

SEM Results: Standardized Direct Effects for the Combined Effects Model, N = 1494

	Estimate	*SE*	95% *CI*
Anticipated Guilt (scenario 1) → Doping Likelihood (scenario 1)	-0.34***	0.03	[-0.39, -0.28]
Moral Disengagement →Doping Likelihood (scenario 1)	0.21***	0.03	[0.15, 0.28]
Performance Climate →Doping Likelihood (scenario 1)	0.11***	0.03	[0.05, 0.18]
Moral Disengagement X Perf. Cl. →Doping Likelihood (scenario 1)	0.10*	0.04	[0.02, 0.17]
Anticipated Guilt (scenario 2) →Doping Likelihood (scenario 2)	-0.40***	0.03	[-0.45, -0.34]
Moral Disengagement →Doping Likelihood (scenario 2)	0.18***	0.03	[0.12, 0.25]
Performance Climate →Doping Likelihood (scenario 2)	0.11***	0.03	[0.05, 0.16]
Moral Disengagement X Perf. Cl. →Doping Likelihood (scenario 2)	0.06*	0.03	[0, 0.12]
Moral Disengagement →Anticipated Guilt (scenario 1)	-0.29***	0.04	[-0.36, -0.21]
Moral Identity →Anticipated Guilt (scenario 1)	0.16***	0.04	[0.08, 0.23]
Moral Disengagement →Anticipated Guilt (scenario 2)	-0.27***	0.04	[-0.34, -0.19]
Moral Identity →Anticipated Guilt (scenario 2)	0.10**	0.04	[0.03, 0.18]
Moral Identity →Moral Disengagement	-0.48***	0.03	[-0.54, -0.41]

Notes. CI = confidence interval for estimate. *$p < .05$; **$p < .01$; ***$p < .001$.

Table 4

Measurement Invariance Across Sex and Country

	χ^2	*df*	CFI	RMSEA	SRMR
		Sex			
Men, *n* = 765	1338.77	512	0.933	0.046	0.048
Women, *n* = 729	1298.30	512	0.939	0.046	0.044
Configural invariance	2637.69	1024	0.936	0.046	0.046
Metric invariance	2702.65	1062	0.935	0.045	0.048
Scalar invariance	2798.80	1088	0.932	0.046	0.048
		Country			
UK, *n* = 506	1235.32	512	0.928	0.053	0.049
Denmark, *n* = 509	899.90	512	0.951	0.039	0.043
Greece, *n* = 479	1149.05	512	0.921	0.051	0.052
Configural invariance	3285.52	1536	0.933	0.048	0.048
Metric invariance	3498.04	1612	0.928	0.048	0.056
Scalar invariance	4123.87	1664	0.906	0.054	0.062
Partial scalar invariance	3772.50	1652	0.919	0.051	0.057

Notes. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean squared residual; *df* = degrees of freedom.

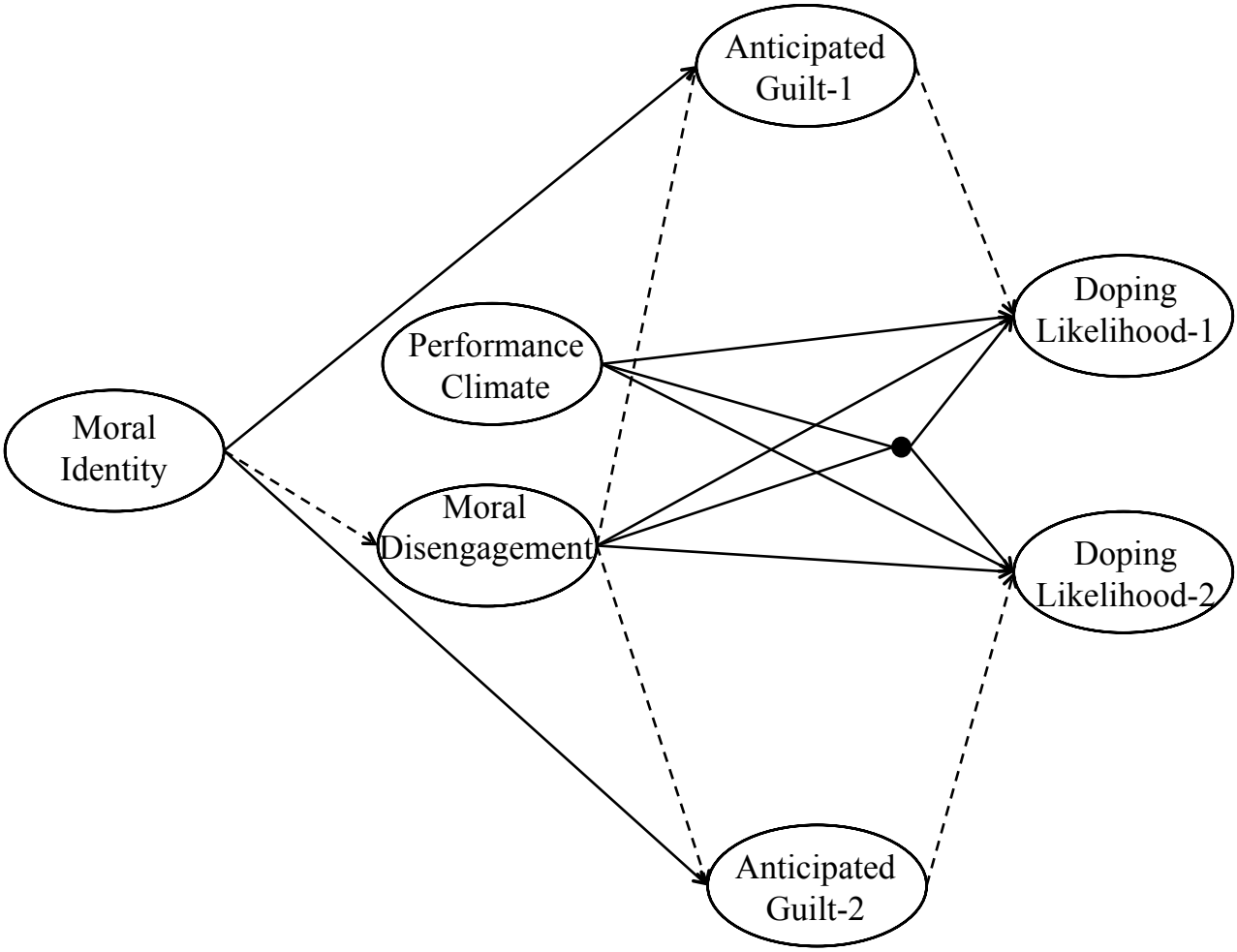

Figure 1. Hypothesized model. Solid line denotes hypothesized positive relationships. Dashed line denotes hypothesized negative relationships.

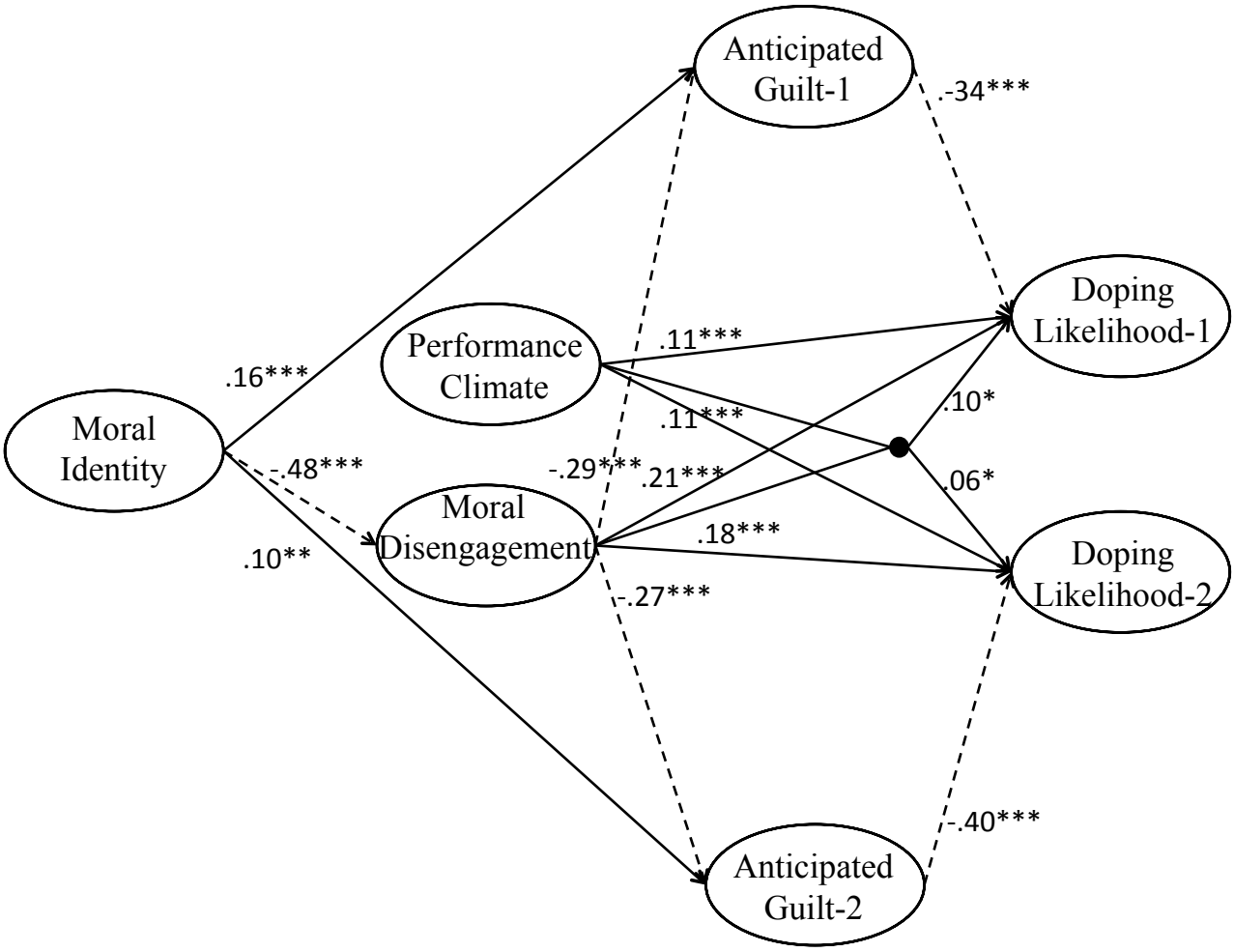

Figure 2. SEM results for the structural model. Solid line denotes positive relationships. Dashed line denotes negative relationships. For anticipated guilt, each item is correlated with its matching item across the scenarios due to conceptual reasons. For performance climate, a bifactor model is specified with one general factor (depicted in the figure) and two specific factors (not depicted in the figure to simplify the figure). Correlations between latent factors were as follows: scenario 1 and 2 doping likelihood, $r = .42$, $p < .001$; scenario 1 and 2 anticipated guilt, $r = .81$, $p < .001$; performance climate general factor and moral identity, $r = -.24$, $p < .001$; performance climate specific factor-1 and moral identity, $r = .24$, $p < .001$; and performance climate specific factor-2 and moral identity, $r = .03$, $p = .494$.