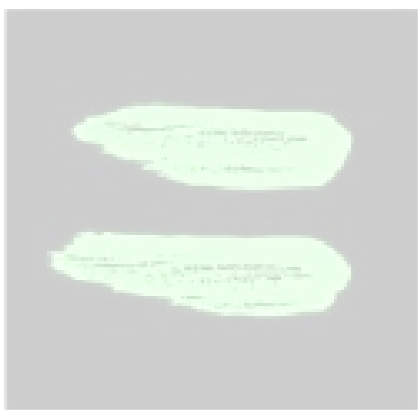


**FINAL
REPORT**

**World Anti-Doping Agency
Social Science Target Research Grant**

PROJECT: WHISTLEBLOWER 1.0



**WORLD
ANTI-DOPING
AGENCY**

play true

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TABLE OF CONTENTS

Executive summary	6
Introduction	9
Achievement goal theory	11
Self-determination theory	13
Project WHISTLE-DOPE	14
Study 1- Qualitative evaluation of athletes' beliefs	16
Method	16
Sample	16
Interview matrix and Data Collection	16
Data Analysis and Rigor	17
Results and Discussion	19
Summary of results	27
Implications for anti-doping policy and practice	27
Implications for future research	28
Study 2 – Quantitative evaluation of athletes' beliefs	29
Method	29
Sample	29
Measures	29
Procedure	32
Results	33

Full sample- Descriptive statistics	33
Greece- Descriptive statistics	40
Russia- Descriptive statistics	46
UK- Descriptive statistics	52
Hypothesis testing	57
Summary of results	67
Implications for policy and practice	67
Implications for future research	68
General discussion	70
Policy and Practice Recommendations	77
References	80
Appendices	87
Appendix 1 – Interview matrix for the qualitative study	87
Appendix 2 – Survey for the qualitative study	90

Executive summary

Whistleblowing is considered an effective practice in fighting doping and protecting clean sport. However, it is not a common practice yet, and understanding the reasons why athletes decide to engage in this practice is of vital importance for the promotion of this practice as a mean to tackle doping use. Project Whistleblower 1.0 aims to address this gap and utilize evidence from prior behavioral models in doping literature, and identify the psychosocial variables that may lead to engagement into whistleblowing behaviors. Two empirical studies were conducted for this purpose.

The first study was a qualitative assessment of athletes' beliefs about whistleblowing behavior and the key drivers of this behavior. Focus groups were performed in the partner countries, Greece, Russia and the UK. Competitive athletes from team and individual sports ($n = 12$ for Greece, $n = 12$ for Russia and $n = 9$ for UK) aged between 18 and 25 years old took part in semi-structured interviews on the facilitators and deterrents of whistleblowing. The results of the thematic analysis revealed that athletes had limited awareness about whistleblowing procedures and opportunities, such as WADA's Speak Up and IOC's Integrity & Compliance Hotline. In addition, more than half of the athletes had limited knowledge on where and how to safely and effectively report doping misconduct. Furthermore, athletes perceived their coaches to be as the most trustworthy person to report ADRVs and other doping-related misconduct. However, almost all athletes who had witnessed doping misconduct in the past decided not to report it. Participants reported that morality and sustaining the Spirit of Sport would be important reasons to report a

doping misconduct, whereas both personal (i.e., negative stance, consequences etc) and social (i.e., knowing the doper, sport culture) reasons identified as deterrents of whistleblowing.

The second study was a quantitative assessment of the project's integrative model that emphasized the predictors of whistleblowing intentions. Competitive athletes from team and individual sports ($n = 480$ for Greece, $n = 512$ for Russia and $n = 171$ for UK) completed a survey measuring achievement goals, motivational regulations, sportpersonship orientations, theory of planned behavior variables (i.e., attitudes, subjective and descriptive norms, perceived behavioral control, and intentions), situational temptation, anticipated regret and sport identity. With respect to the predictors of intentions to report doping misconduct, a supportive social environment and higher sportpersonship were associated with stronger whistleblowing intentions. The findings of the project provide useful recommendations for policy and practice. More specifically, on the basis of our findings we propose the following actions and initiatives in order to further promote whistleblowing against doping misconduct in sport:

- a) Intensify awareness-raising campaigns and educational efforts to teach athletes how to safely and effectively report ADRVs;
- b) Emphasize the role of the coach and invest resources in training coaches on whistleblowing matters;
- c) Utilise behavioural science and behaviour change techniques to empower athletes to report doping misconduct.
- d) Develop positive culture and social norms towards whistleblowing in the athletes' micro-environment (e.g., team, coach interaction) (Figure 1).

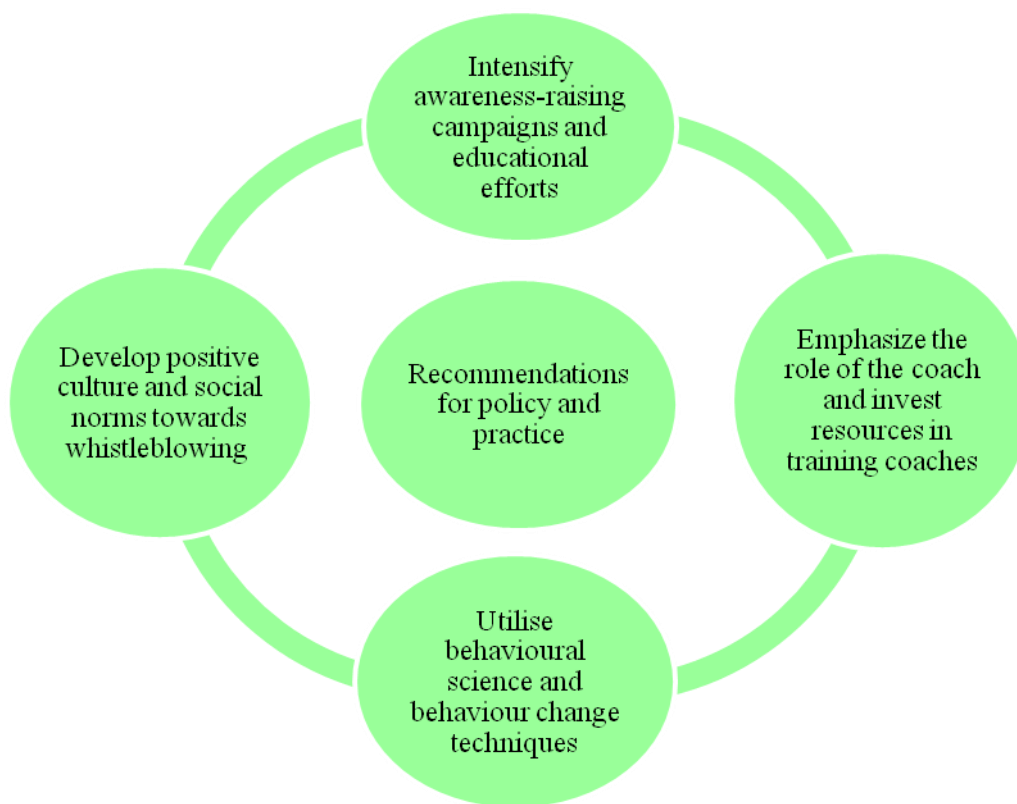


Figure 1. Actions and initiatives to further promote whistleblowing against doping misconduct in sport

Introduction

Whistleblowing against doping refers to the reporting of anti-doping rule violations (ADRVs) and related doping misconduct, and it plays an important role in de-normalizing doping use in sport, promoting a clean sport culture, and preserving sport integrity and reducing cheating behavior (Barkoukis et al., 2019; Verschuren, 2019; Zhang, 2018). Although whistleblowing behavior has been widely researched in organizations outside sport (e.g., Berndtsson et al., 2018; Mannion et al., 2015), little research has investigated the social and psychological drivers of whistleblowing in the context of doping misconduct. The available research has largely used qualitative and inductive approaches, exploring the lived experiences and opinions of sportspeople towards whistleblowing against doping misconduct. This research has shown that compared to track-and-field, rugby athletes may be reluctant to blow the whistle on doping and preserve a "code of silence" when it comes to ADRVs; thus, highlighting the role of sport-specific norms and expectations around reporting doping misconduct (Whitaker, Backhouse, & Long, 2014). Student athletes have also been reported to be unwilling to blow the whistle on ADRVs and, instead, choose to personally confront violators (Erickson, Backhouse, & Carless, 2017). This research shows that psychological and social barriers may impede athletes' speaking up and reporting doping misconduct, and further studies are needed in order to better understand what would motivate and drive athletes' intentions to blow the whistle against ADRVs and related behaviors in competitive sport.

Research on whistleblowing behavior can be informed by social cognitive theories of decision-making for two main reasons. Firstly, the extant research on

whistleblowing in non-sport settings has shown that understanding employees' attitudes, normative beliefs and intentions is important in predicting their engagement with whistleblowing against different types of misconduct (Brown et al., 2016; Rustiarini et al., 2017; Siallagan et al., 2017). Secondly, research on doping behavior has shown that social cognitive models, such as the Theory of Planned Behavior (TPB; Ajzen, 1991) and related models, have provided important insights into understanding how and why some athletes decide to engage in doping use (Ntoumanis Ng, Barkoukis, & Backhouse, 2014).

The TPB posits that intentional/volitional behaviors are the result of intention-formation, that is, concrete planning and determination to follow a specific course of action. Intentions, in turn, are said to be shaped by three key variables: attitudes (i.e., perceived pros and cons of the given behavior), social norms (i.e., perceived popularity/prevalence and social acceptance of a given behavior among referent others), and perceived behavioral control/PBC (i.e., beliefs of control over behavior or self-efficacy; Ajzen, 1991; Fishbein & Ajzen, 2011). However, additional variables may be incorporated in the TPB in order to better understand behaviors that may have distinctive elements that should be taken into consideration by relevant studies. Whistleblowing, for instance, appears to have a social/normative element that may reflect norms and expectations for a given team or sport (Whitaker et al., 2014). By this token, it is theoretically plausible that the social-moral atmosphere in a given sport or team can influence individual thoughts and choices (Ommundsen et al., 2003), particularly in the area of doping and whistleblowing against doping misconduct.

Furthermore, the research by Erickson et al. (2017) suggests that athletes can be differentially motivated to confront ADRVs, selecting more direct and face-to-

face confrontations with violators than blowing the whistle. Such a decision could be driven by affiliation and loyalty motives (i.e., "in-house" resolution of doping problems), as well as lack of knowledge of whistleblowing processes, an unsupportive culture, and moral reasoning of athletes towards doping and whistleblowing (Verschuuren, 2019). This means that, although a TPB approach can provide insights about the most immediate drivers of intentions to engage in whistleblowing, other variables should also be examined to obtain a more complete picture of the drivers of whistleblowing behavior. Therefore, an integrative model of whistleblowing, combining TPB variables with relevant theoretical constructs, can be used to predict athletes' intentions to engage in whistleblowing. Such integrative models have been already developed to predict health-related behaviors (e.g., Bleakley et al., 2011; Yzer, 2012) as well as doping in sport (Barkoukis et al., 2013; Lazuras et al., 2010, 2015). The theoretical constructs that could be incorporated in the TPB in the context of whistleblowing against doping are discussed as follows.

Achievement goal theory

An important tenet of this theory is that individuals in achievement contexts hold two independent achievement goals, namely, a task and an ego goal orientation. Individuals high in task orientation engage in an achievement activity to achieve mastery and personal improvement and they use self-referenced criteria to judge their ability. Individuals high in ego orientation engage in an activity to outperform others and demonstrate superior ability (Nicholls, 1989). These individuals use normative or comparative criteria to judge their perceived ability. Task orientation has been found to relate to more adaptive motivational outcomes such as greater effort and persistence, fair play, greater enjoyment, and lower anxiety (see Duda &

Hall, 2001, for a detailed review). Ego oriented athletes are expected to endorse any necessary action to obtain victory and display superiority. On the other hand, task oriented athletes that focus on self-improvement will show a more adaptive pattern of sportpersonship orientation.

Elliot and his associates (Elliot, 1997; Elliot & Church, 1997, Elliot & McGregor, 2001) showed that this dichotomous achievement goal approach does not address adequately the valence of achievement goals in a specific context. They suggested goal orientations should be divided into two distinct approach and avoidance dimensions. The, so called, 2 X 2 achievement goal model includes four achievement goals, mastery-approach, mastery-avoidance performance-approach and performance-avoidance goals. Mastery goals are conceptually similar to task orientation (Barkoukis, Ntoumanis & Nikitaras, 2007) denoting involvement with an activity for self-improvement and mastery. Performance-approach goals, similar to ego orientation (Barkoukis et al., 2007), refer to engagement in an activity to demonstrate superior competence relative to others, while performance-avoidance goals reflect the tendency to avoid showing low competence (Elliot, 1997; Elliot & Church, 1997). The mastery-avoidance goals reflect an individual's emphasis on avoiding lack of improvement and task failure. Research evidence has supported this approach-avoidance distinction in educational settings indicating that performance-approach and performance-avoidance goals have differential effect on several responses such as intrinsic motivation (Cury, Elliot, Sarrazin, Da Fonseca, & Rufo 2002; Elliot & Harackiewicz, 1996), competence valuation, state anxiety, and task absorption (Cury et al., 2002; Cury, Da Fonséca, Rufo, Peres, & Sarrazin, 2003) and academic performance (Elliot & Church, 1997). Further evidence with the 2 X 2 model indicated that mastery-avoidance goals were associated with negative

responses suggesting that they construe an avoidance orientation (Cury Elliot, Da Fonseca, & Moller, 2006; Elliot & McGregor, 2001).

Self-determination theory

A central element of self-determination theory is the distinction between intrinsic and extrinsic motivation (Deci & Ryan, 1985). The experience of intrinsic motivation is characterized by interest, enjoyment, satisfaction and a sense of choice. Intrinsically motivated behaviors are performed spontaneously and without extrinsic reinforcements. Several meta-analyses have illustrated that intrinsic motivation is associated with increased effort, persistence, and satisfaction among individuals engaging in tasks in achievement contexts (Deci, Koestner, & Ryan, 1999). Motivation is viewed on a continuum known as the *perceived locus of causality* (Ryan & Connell, 1989). Intrinsic motivation is situated at one pole or extreme of the continuum and is the only type of motivation that is truly intrinsic. All other types of motivation on the continuum are considered extrinsic to some extent. Adjacent to intrinsic motivation on the continuum is identified regulation, a dimension that refers to involvement in an activity because it furnishes a valued, important goal that is relevant to the self. Together identified regulation and intrinsic motivation are considered *autonomous* types of motivation. Adjacent to identified regulation lies introjected regulation, a dimension of extrinsic motivation that refers to involvement in an activity to gain non-contingent psychological states such as self-esteem or to avoid unpleasant feelings such as guilt and shame. Introjected regulation is considered more extrinsic relative to identified regulation. At the opposite pole or extreme of the continuum to intrinsic motivation lies external regulation. This form of motivation refers to the involvement in an activity to obtain

a reward or other external contingency and is the most extreme form of extrinsic regulation. Based on self-determination theory Vallerand and Losier (1999) proposed that athletes who are intrinsically motivated are more likely to show respect to their social surroundings than to cheat on a game. In contrast, the extrinsically motivated athletes compete for external rewards and show a clear tendency to outperform others in order to win.

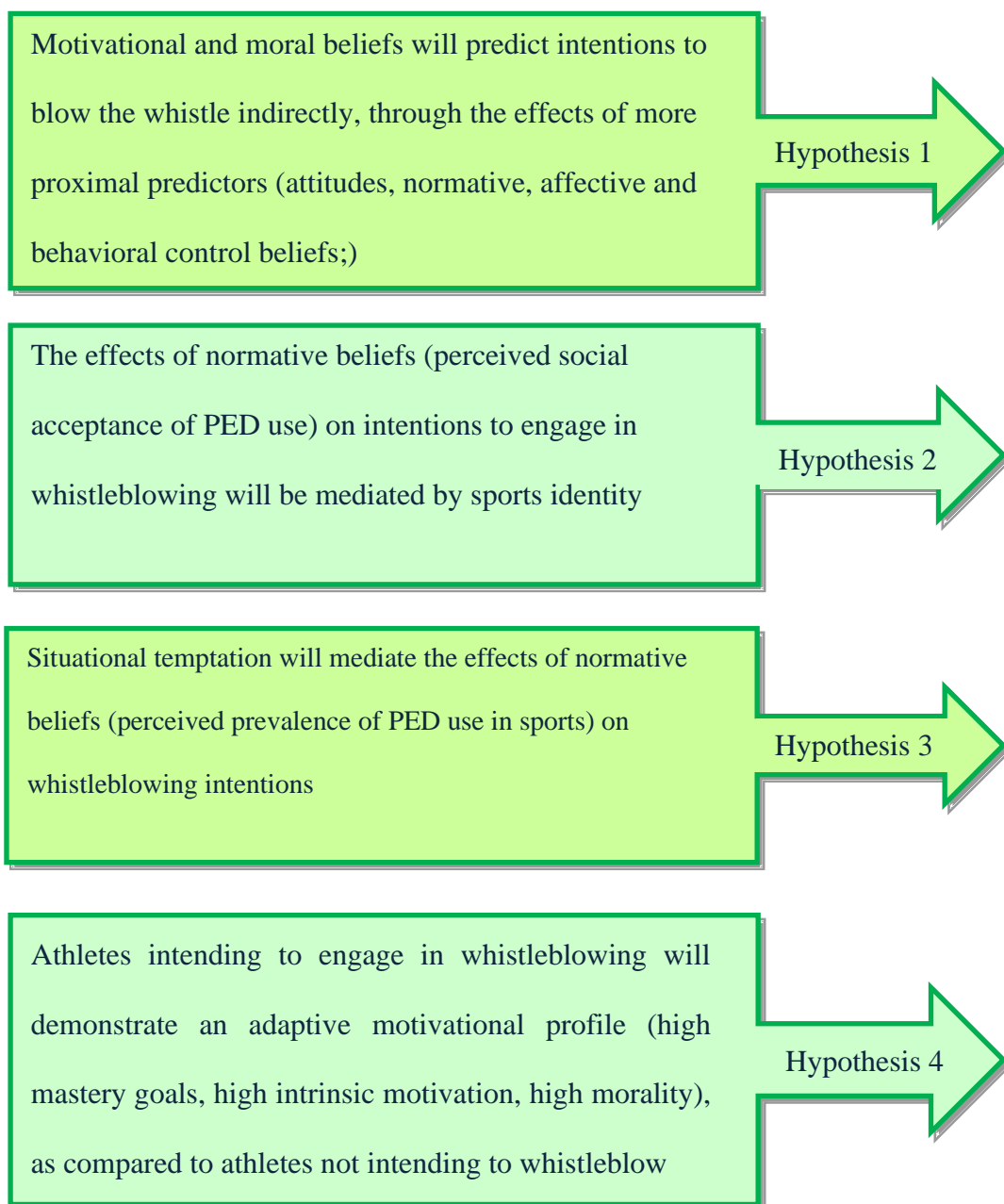
Project WHISTLEBLOWER 1.0

Project Whistleblower 1.0 was informed by recent theoretical developments and research on integrative models of doping behavior (Barkoukis et al., 2013; Lazuras et al., 2015), as well as recent studies about the drivers and contextual/normative influences on whistleblowing behavior against ADRVs (Ericksson et al., 2017; Whitaker et al., 2013, 2014; Verschuuren, 2019).

The **main objective** of the project (Whistleblower 1.0) was to develop and empirically examine an integrative model of whistleblowing intentions among competitive athletes that incorporated social cognitive variables from the TPB (i.e., attitudes, social norms, and PBC/self-efficacy beliefs) and motivational variables (e.g., self-determination and achievement goals for sport participation). A secondary objective was to explore whether differential scores in the measured psychological variables yield specific profiles/clusters of athletes who are more (or less) likely to engage in whistleblowing behavior.

Two empirical studies were conducted for this purpose. The first study was a qualitative assessment of athletes' beliefs about whistleblowing behavior and the key drivers of this behavior. The second study was a quantitative assessment of the study's integrative model, which emphasized the predictors of whistleblowing

intentions. Past evidence suggests that it is important to empirically examine whether the psychosocial processes underlying decisions relevant to doping behaviors can also help explaining whistleblowing intentions among athletes. Most importantly, additional variables causally associated with corruption in sport in the scientific literature, such as sports identity and anticipated regret, will be also included in the proposed model of intentions towards whistleblowing. Based on previous research on doping behaviors the following hypotheses were formed:



Study 1 – Qualitative evaluation of athletes' beliefs

Method

Sample

In each country a focus group was performed. In each focus group 9-12 competitive athletes participated. For participants to be eligible they should train regularly for at least 5 years and compete at national championships. In Greece, 12 athletes (6 males and 6 females) took part in the study. The age range of the participants was 20 to 24 years old. Participants were involved in both team and individual sports (7 from tennis, 3 from football, and 2 from basketball). In Russia, the participants were 12 male and 4 females involved in different sports (4 from track and field, 3 from football, 2 from volleyball, 3 from power-lifting, 3 from wrestling and 1 from, rowing). The age range of the participants in Russia was from 20 to 24 years old years. Their average sporting/competing experience was 7 years (SD= 2.3). Finally, in UK, the participants were 5 male and 4 female athletes, aged between 18-25 years, and competed in Triathlon, futsal and cycling, volleyball, rugby, equestrian and rowing. In line with international guidelines for research ethics with human participants, all participants were debriefed about the aims and purposes of the study, were informed about their participation rights (e.g., anonymity and confidentiality of responses, voluntary participation, unconditional right to withdraw from the study), and declared their informed consent.

Interview matrix and Data Collection

Face-to-face semi-structured interviews were used, which were audio-recorded and lasted approximately 45 min. An abductive approach was employed, combining

both inductive and deductive elements (Smith & Sparkes, 2016). Athletes were asked about their knowledge and beliefs about whistleblowing, using empathetic listening, and discussing current relevant experiences (e.g., through personal involvement in whistleblowing or by knowing others who engaged in this behavior) when appropriate to allow for the inductive exploration of unanticipated dialogue (Smith & Sparkes, 2016; Sparkes & Smith, 2014). All data was transcribed verbatim. The analysis was conducted in each language (Russian, Greek, and English) separately but then the Greek and Russian themes and relevant quotations were translated to English.

Data Analysis and Rigor

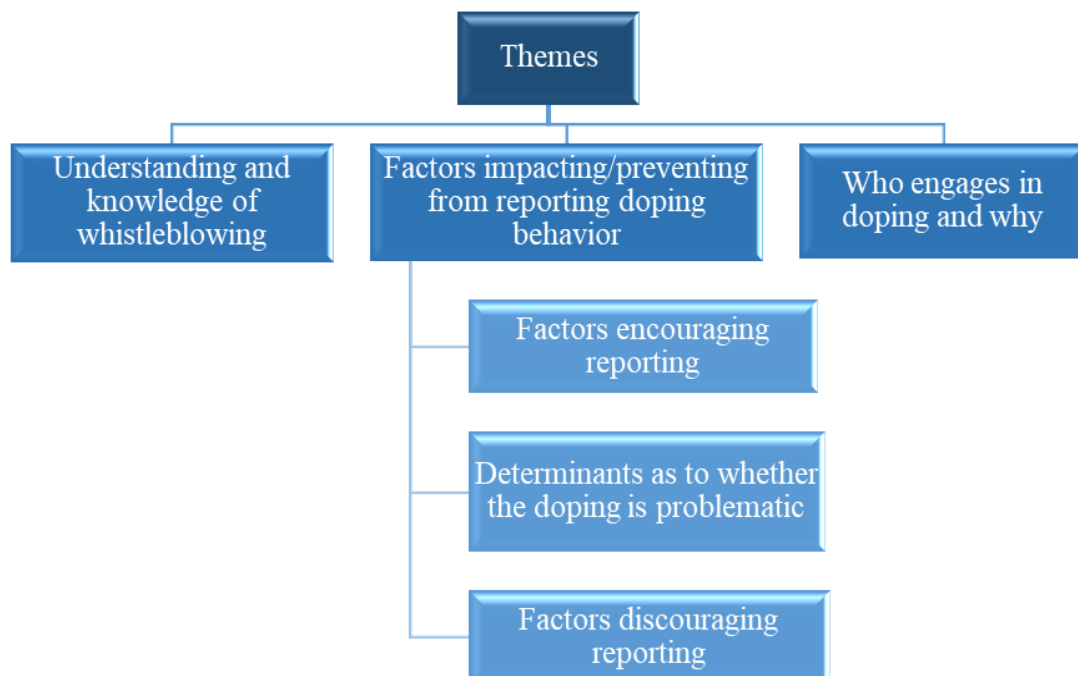
The data was managed with the aid of ATLAS software and analyzed using a thematic analysis as described by Braun, Clarke, and Weate (2016). Thematic analysis was chosen for its ability to generate key patterns in the data and create a rich and detailed picture of complex information, which was established through a six-part process: 1) familiarization with data, 2) initial code generation, 3) theme search, 4) theme review, 5) theme definition and naming, and 6) report production. First, the researchers immersed themselves in data by reviewing it empathetically and taking rough notes. Next, meaningful data segments were coded systematically and codes were collated and then organized into initial themes, allowing the data rather than the research questions to drive the process. These themes were then reviewed and compared against the transcripts and the original codes. Next, the themes were named and defined, with attention given to the language used within the motivational literature so as to offer links with existing work. Up until this point, the Greek, Russian and UK data were analyzed separately in order to enable the analysis of one data to set guide the other. The themes for the respective data sets were then shared and, with the other authors operating as critical friends (Smith &

McGannon, 2018), discussed and compared over multiple meetings. Overlapping themes were combined and differences noted. Themes were reviewed and renamed and/or redefined to represent the combined data sets. The two analysts attended multiple meetings with a qualitative research expert to ensure understanding of the steps in conducting thematic analysis. Furthermore, these authors followed the same analysis protocol and met several times to discuss challenges and processes, and to ensure continuity.

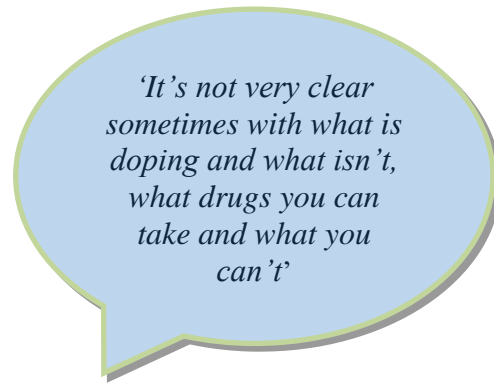
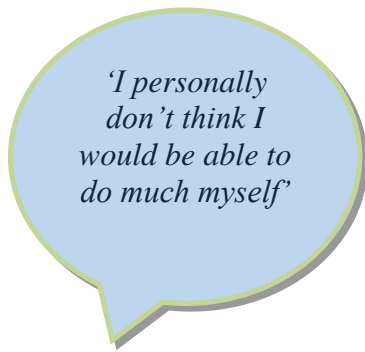
Guided by a relativist approach to conceptualizing rigor in qualitative research (Sparks & Smith, 2014), the criteria for judging the quality of the work here included the following: the worthiness of the topic (e.g., lack of understanding of motivational climate on doping in literature); the significant contribution of the work (e.g., unique perspective of athletes and coaches that can inform anti-doping education); the use of sufficient, appropriate, and complex theoretical constructs to make sense of data (e.g., self-determination theory); the use of critical friends during analysis to explore alternative interpretations and help promote reflexivity about researcher biases and choices over methods (e.g., reflexive group discussions with co-researchers who weren't directly involved in data collection or analysis); the coherence of the research, which refers to how well the study coheres in terms of the purpose, methods, and results (e.g., consistency between study's aim and interview matrix); fidelity, that is, the adequacy and comprehensiveness of the data presented (e.g., data saturation); credibility, which refers to the plausibility of the research findings; and the potential practical generalizability of results (e.g., guidelines for anti-doping education) (Smith, 2018).

Results and Discussion

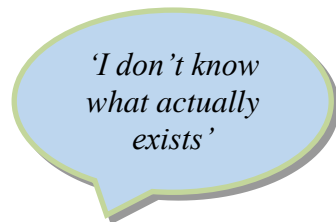
Thematic Analysis. The data comprising of a collection of athlete accounts on whistleblowing from a variety of sports (team and individual) and were analyzed using the inductive method of thematic analysis explained by Braun and Clarke (2006). A total of three main themes naturally emerged from the data: (1) Understanding and knowledge of whistleblowing, (2) Factors impacting/preventing from reporting doping behavior, and (3) Who engages in doping and why.



Understanding and knowledge of whistleblowing. It was clear from the focus groups that the athletes had little knowledge and understanding of both doping and whistleblowing resulting in this theme being created. There was a common belief of lack of ability to whistleblow as a result of not knowing what is allowed and how to identify doping behavior. Participants in the interviews across the three countries reported quotes such as:



It was also clear the individuals were unsure of how to whistleblow and did not know the processes or platforms currently available. This was clearly evidenced by participants saying:



The current understanding of whistleblowing surrounds a sport hierarchy, detecting difficulties in power to have a voice as well as a well-defined hierarchical structure in terms of control and pressure. This was clearly supported by an athlete saying 'relationship is slightly different of the dynamic between the hierarchies in the club'. The understanding that the individuals do have, acknowledges that the qualities of age and gender that impacts both doping and reporting behavior. Participants' quotations about this category mention:

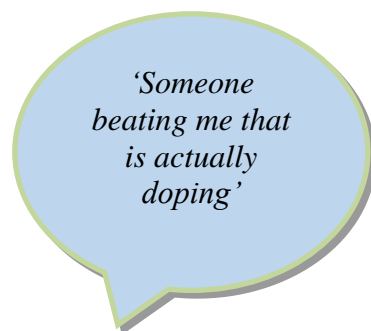


These findings suggest that anti-doping authorities should invest on education about whistleblowing. It is expected that as soon as athletes become more aware about the benefits of whistleblowing and the ways to engage in this behavior, they will be more likely to

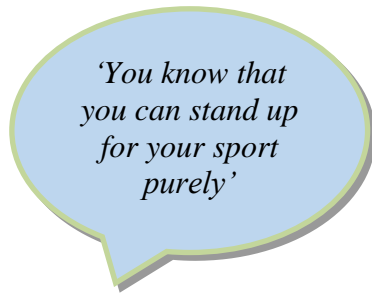
engage in the behavior. Importantly, anti-doping authorities should develop whistleblowing platforms and advertise their use in their countries, so as athletes are better informed on how to engage in whistleblowing.

1. *Factors impacting reporting doping behavior*, was a large group with many codes encompassing the different variables that impact whether or not the athletes believed they would report doping behavior. This further divided into 3 subthemes of (i) reasons encouraging reporting, (ii) determinants as to whether the doping is problematic and (iii) reasons not to report doping.

2 (i). *Factors encouraging reporting*. Athletes discussed the reasons they would disclose information about doping behavior. This sub-theme consisted of 7 codes with two codes that were significantly more consistent throughout all the focus groups. Sport equality and fairness, encompasses how the athletes felt they needed to report in order to get justice for themselves, their team and their sport. The athletes identified even-handedness as key due to how someone else doping could affect them negatively. Example quotes are:

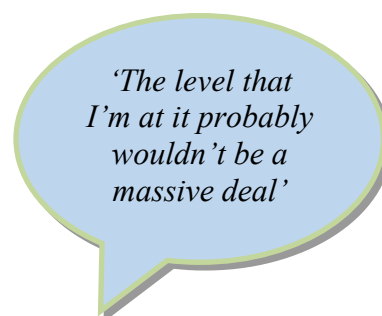


This emphasizes how the individuals are considered to the risk of themselves and so they would report in order to reduce their difficulties. Similarly, individuals felt as though to maintain sport and professional integrity they would feel the necessity to report doping behavior. Natural ability and pure sportsmanship were identified as the purpose of sport. This was evidenced in the participants' quotations stating:



Also it emerged that sport should be an enjoyment and therefore no one should need to take drugs in order to succeed ‘obviously it wouldn’t be as enjoyable’. These findings suggest that morality and sustaining the Spirit of Sport are among the most common mentioned factors that would make an athlete blow the whistle. In this sense, anti-doping authorities should emphasize in educational campaigns how whistleblowing helps in maintaining sport clean and preserving the core ideals of sport.

2 (ii). Understanding doping as threat to sport. This code acknowledges that for an individual to report doping behavior, they must believe it is wrong, various factors were brought up that indicated to the athletes whether they identified the doping behavior as problematic or wrong. The sport level of the athlete doping was clear to make a difference as to the opinion of other athletes. It was thought individuals doping who were not playing at national level or above were not seen as difficulties. Example quote of this code include:

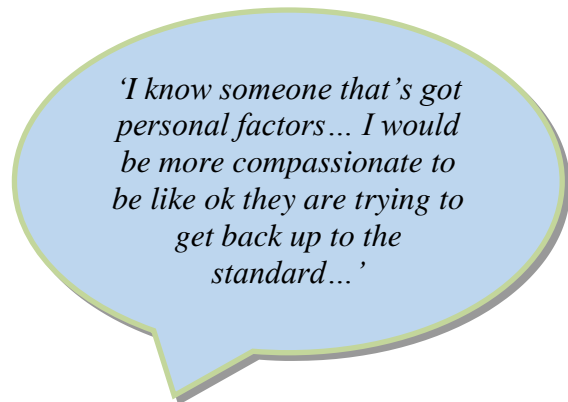


Whereas, individuals who invested their career into the sport and played at a level of national were expected not to dope for moral reasons. In this case participants reported ‘I don’t know if I’d report, it depends what level you’re

competing at... if you're just competing at university level, I don't think it's going to massively effect your career...if you're competing at international level then it is probably a bit different'. The other major factor influencing if doping is seen as problematic involves understanding the reasons behind the doping behavior, athletes showed compassionate that an individual may be using doping to help deal with other circumstances. This was evidenced in quotes such as:



'I think there is something more going on in most of the cases'

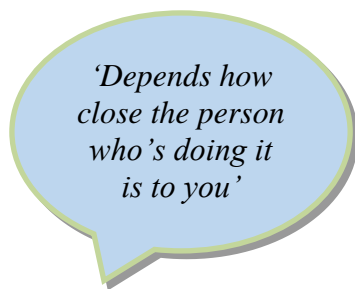


'I know someone that's got personal factors... I would be more compassionate to be like ok they are trying to get back up to the standard...'

These thoughts were strengthened by the other codes within the theme identifying the frequency, impact and intentions of doping behavior are similarly determinants as whether doping behavior is problematic. These findings suggest that athletes see whistleblowing as an act that does not involve them. Rather it involves athletes at elite levels only. This is an interesting finding that corroborates with previous evidence on doping suggesting that sports people do not wish to be involved in anti-doping efforts (Barkoukis, Brooke, Ntoumanis, Smith, & Gucciardi, 2019). This has been attributed by Barkoukis et al. to the stigma surrounding doping-related behaviors. In this sense, anti-doping authorities should aim to educate athletes on their important role in keeping sport clean and incorporate them into prevention and other educational activities.

2 (iii). Factors discouraging reporting. This sub-theme was heavily supported by the participants in the focus groups. Relationships with the doper were

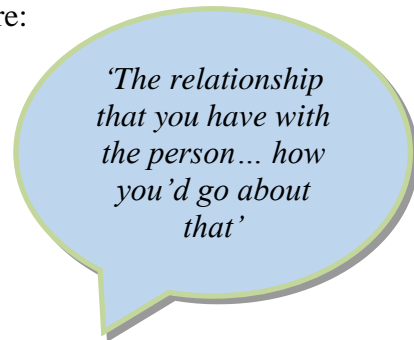
seen to be unanimously important and would impede someone to report doping behavior. The strong relationships built up within team sports were identified as critical as individuals did not want to break their relationships and recognized trust as a main component of the bonds. Example quotes are:



'Depends how close the person who's doing it is to you'



'If it's a competitor you're more likely to report'

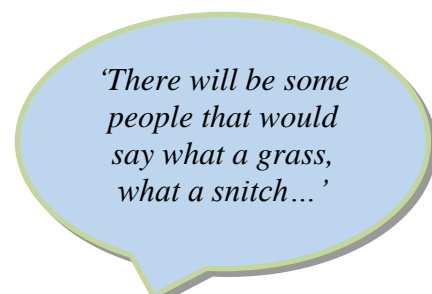


'The relationship that you have with the person... how you'd go about that'

Following closely from relationships is team spirit and impact on others in the team. Reporting has the reputation to make lots of changes and conflict within the team, which would disrupt the bonds and the dynamics of the team. The thought that reporting would influence more than just the individual doping reduces the inclination to report. Participants reported 'I think that the risk for me would be the dynamics of my team', 'cause a lot of unrest and conflict within the team'. Reputation of their team and sport is also important and the reputation of anything they are connected to. Participants supported this code by stating 'damages the reputation of the sport' 'of course it's going to affect the sport'. The athletes also expressed the negative attitude and unknown consequences on the reporter would hinder them reporting. Once again, individuals were concerned about the outcome for themselves in the process of reporting. Characteristic quotations from the participants include:

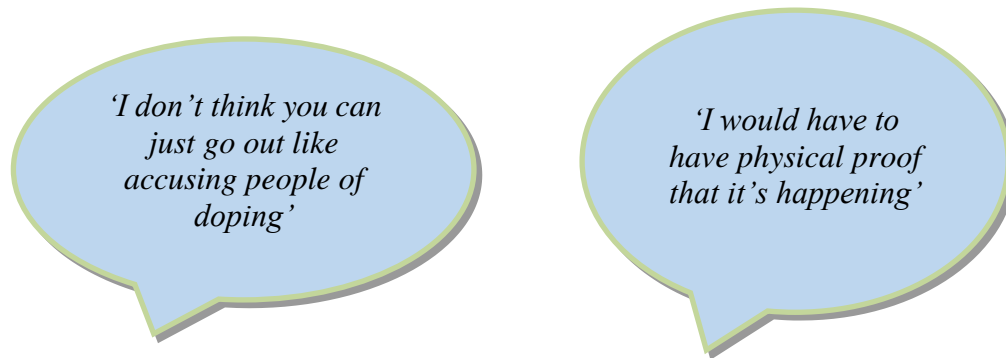


'Could reflect badly on you if you report something'



'There will be some people that would say what a grass, what a snitch...'

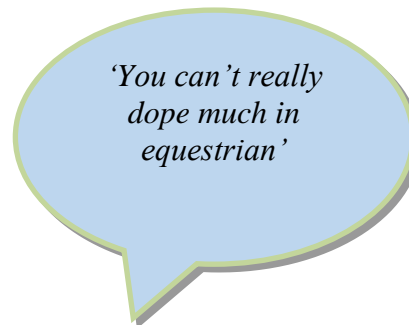
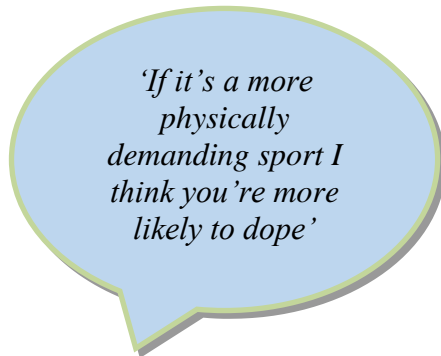
Alternative options to reporting was displayed commonly, the athletes admitted they would want to do something but they wouldn't want to report so would try and resolve situations by sorting it themselves. Example quotes are 'I would try and speak to them first'; 'I'd go up to them personally'. Having solid evidence is pertinent to the athletes despite being able to report suspected doping behavior; the athletes reported that this isn't the case for them. Participants claimed that:



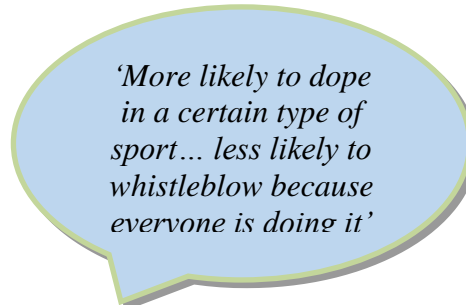
The findings of the analysis demonstrated that athletes see several barriers in reporting a doping misconduct. Both personal and social reasons have been identified and the findings show that engaging in whistleblowing is multifaceted behavior that requires both ways to facilitate whistleblowing as well as address the related barriers. Interestingly, several participants stated that they would prefer to resolve the issue personally, by talking to doping users, rather than reporting it to the authorities. This evidence suggests the important role the social environment plays, as a prohibiting factor of whistleblowing. In this line, this evidence may also suggest a lack of trust in anti-doping authorities in handling properly the report. In both cases, athletes are reluctant to report a doping misconduct. Anti-doping authorities should take these findings into account and develop robust, trustworthy and transparent whistleblowing systems that will enable athletes overcome their reservations and report doping misconducts.

2. *Who engages in doping and why.* The analysis highlights multiple

reasons why individuals would dope and who they believe are the people that do dope. Doping behavior is most commonly seen in contact and endurance sports due to the need for physical conditioning. Participants explicitly stated this by saying:



Within these sports, the role in the team is also deemed significant. Characteristic quotations include 'first row... they play the hardest game', 'players in a team maybe being pressured to do better'. As a result of certain sports and positions being more 'at risk' of doping behavior this consequently normalizes doping, making individuals think it is acceptable. In support of this code participants reported:



These findings again highlight the important role athletes' social environment play in the decision to blow the whistle. In a doping-supportive environment whistleblowing is an unacceptable behavior. Several participants associated doping with sport type and reported that for sports requiring physical abilities doping may be inevitable, undermining thus the usefulness of whistleblowing in tackling doping. If this is the case, educational activities should be arranged in these sports to highlight the need to maintain sport clean, de-stigmatize these sports from being considered doping-prone sports and, subsequently, promote whistleblowing as an effective way

to tackle doping.

Summary of results

The qualitative investigation provided an in-depth insight of the athletes' beliefs about whistleblowing. The athletes raised issues about the personal and social factors that may determine their decision to report doping misconduct and raised concerns about the whistleblowing procedures. More specifically, the athletes across the three samples indicated:

- Uncertainty over whistleblowing as a result of limited knowledge on how to identify and report doping misconduct.
- Lack of knowledge about whistleblowing processes or platforms currently available (e.g., WADA's Speak Up).
- Whistleblowing is perceived as a way of protecting clean sport and fighting injustice.
- Moral and Spirit of Sport values are important considerations in the decision to report doping misconduct.
- Perceived social stigma of the whistleblower is a barrier to whistleblowing.
- Perceived negative consequences of whistleblowing on the athletes and their team and fellow athletes, and the reputation of the sport, are barriers to whistleblowing.
- Anti-doping organizations and authorities in the countries that were studied were perceived to be untrustworthy in terms of effectively handling whistleblowing reports.

Implications for anti-doping policy and practice

The findings of the qualitative study of the project provide some useful

implications for policy and practice. More specifically, it is recommended that, in order to effectively promote whistleblowing as an effective deterrent of doping, anti-doping organizations should:

- Establish rapport and trust with athletes and coaches about whistleblowing.
- Ensure that athletes and coaches who decide to report doping misconduct will receive appropriate protection (legal and otherwise) and avoid retaliatory measures from inflicted parties.
- Identify and analyze the training needs of athletes and coaches with respect to whistleblowing.
- Invest resources to develop evidence-based training on whistleblowing, which is tailored to the needs of athletes and coaches.
- Invest resources to develop (or link with existing) whistleblowing platforms.

Implications for future research

On the basis of the qualitative findings of our study, future research should:

- Examine the micro (e.g., team norms, coach support, team moral climate) and macro-level (e.g., institutional support, legal protection) influences on whistleblowing decision-making.
- Examine the role of moral values and attitudes (e.g., the model of Lee, Whitehead, Ntoumanis, & Hatzigeorgiadis, 2008) on whistleblowing intentions and willingness.
- Examine whether message framing (e.g., perceived gains vs. losses) influences decision-making processes related to whistleblowing behavior.

Study 2 - Quantitative evaluation of athletes' beliefs and intentions to whistleblow

Method

Sample

A two-stage sample design will be used. At the first stage, sport clubs from cities covering the largest districts in Greece, Russia and UK were randomly selected. Athletes were selected at the second stage. Eligible participants should systematically participate in trainings and competitions. Doping is likely to occur across a range of sports, henceforth, athletes from both team and individual sports were eligible to participate. The age span of participants was between 16 to 30 years. A total of 1163 athletes from three countries, Greece, Russia and UK participated in the study. More specifically, in Greece 480 competitive athletes (283 males, $M_{age} = 19.88$, $SD = 1.70$) provided valid data. Athletes were recruited from both team and individual sports, such as athletics, gymnastics, basketball, football, handball, martial arts, swimming, racket sports, volleyball, and water sports. In Russia, 512 competitive athletes completed the full survey of the study (341 males, $M_{age} = 20.08$, $SD = 5.49$). Participants in Russia were recruited from a range of individual and team sports such as athletics, gymnastics, basketball, football, weight lifting, rugby, handball, martial arts, swimming and racket sports. In UK, 171 competitive athletes (121 males, $M_{age} = 20.31$, $SD = 1.95$) provided valid data. Participants in UK were competing in football, netball, athletics, weight lifting, and rowing.

Measures

To assess the theory-driven constructs of the project the following scales

formed the questionnaire of the study:

The measurement of the four achievement goals described by the hierarchical model was done via the Achievement Goal Questionnaire (AGQ; Conroy, Elliot, & Hofer, 2003) developed for sports. The original 12-item questionnaire was designed to measure achievement goals in the general undergraduate classroom context (Elliot & McGregor, 2001). Conroy et al. (2003) developed a modified for sport version of the scale. The scale assesses mastery-approach, mastery-avoidance, performance-approach and performance-avoidance goals (three items for each subscale). Responses are given on a 7-point scales ranging from 1 (not at all like me) to 7 (completely like me).

The revised Sport Motivation Scale (SMS-II; Pelletier, Rocchi, Vallerand, Deci & Ryan, 2013) was used to measure the motivational regulations proposed by the self-determination theory. This scale assesses athlete's motivation for engaging in sport activities. It assesses 6 types of motivational regulation: intrinsic motivation, integrated motivation, external regulation, introjected and identified regulations, and amotivation. It contains 18 items (3 items for each of the 6 sub-scales). Responses are given on a 7-point scale ranging from 1 (doesn't correspond at all) to 7 (corresponds exactly).

The athletes' sportpersonship orientation was measured via the Multidimensional Sportpersonship Orientation Scale (MSOS; Vallerand, Briere, Blanchard & Provencer, 1997). The MSOS assesses the sportsmanship orientations proposed by social-psychological theory. The scale assesses five different types of sportpersonship orientations, that is, concern and respect for opponent, for rules and officials, for one's engagement in sport, for social conventions, and a negative orientation towards sport participation. It contains 25 items (5 items per subscale).

Responses are coded on a 5-point scale ranging from 1 (doesn't correspond to me at all) to 5 (corresponds to me exactly).

Theory of planned behavior. The variables of the theory of planned behavior (attitudes, subjective norm, perceived behavioral control and intention) were measured based on the guidelines reported by Ajzen (2003). Three items measured behavioral intentions (e.g., "I intend to whistleblow if I become aware of a doping incident") on 7-point Likert-type scales anchored by "strongly agree" (7) to "strongly disagree" (1). Attitudes were assessed in response to the following question: "Whistleblowing is..." Responses were measured on four 7-point semantic differential scales with the following bipolar adjectives: *bad-good*, *harmful-beneficial*, *ethical-unethical*, and *useful-useless*. Subjective norms were measured by four items (e.g. "Most people I know/ my coach/other athletes in my team: would *approve* of me whistleblowing") on 7-point Likert-type scales from 1 (negative pole) to (7) (positive pole). Perceived behavioral control (PBC) were assessed through three items (e.g. "I feel in complete control over whether I will engage in whistleblowing if I become aware of a doping incident") measured on 7-point Likert-type scales ranging from (1) "no control" to (7) "complete control". An additional four-item measure reflected situational temptations to engage in whistleblowing (e.g., when my coach supports use doping; when I believe my colleagues use doping substances).

Descriptive norms were assessed by the following items "Out of 100%, how many athletes at your competitive level, do you believe would engage in whistleblowing?", "Out of 100%, how many elite athletes in Greece/Russia/UK do you think would engage in whistleblowing?", and "Out of 100%, how many elite athletes do you believe will engage in whistleblowing during the next 5 years to

report a doping incident?” These items were open-ended, and respondents indicated their estimates by marking a percentage from 0 to 100%. A similar item on whistleblowing prevalence at the team level (i.e., “out of 10, how many athletes in your team would engage in whistleblowing”) was employed.

Anticipated regret was assessed with a stem proposition (“If I engage in whistleblowing, I will...”) followed by four items (regret it; be disappointed with myself; feel sad; feel shame), scored on a 7-point Likert scale (1 = definitely not, 7 = definitely yes).

Sport-identity was measured through scales assessing group-identification and orientation. These subscales were assessed with items taken from past research (Norman, Clark, & Walker, 2005) on the interaction of self-identity and group norms (e.g., ‘I have a strong identity with my teammates’; scored on a 7-point Likert scale, 1= strongly disagree, 7 = strongly agree; ‘How much do you feel you identify with your teammates’? scored on a 7-point Likert scale, 1= not at all, 7 = very much; and ‘The values and beliefs of my teammates largely reflect my own values and beliefs’). A mean score was generated and higher scores reflected greater group identification. Following from research on the Theory of Normative Social Behavior (e.g., Lapinski, Rimal, DeVries, & Lee, 2007) two items assessed group orientation (e.g., ‘It is important to me to be in harmony with my team’ and ‘It is important to me to be in line with my team’). Responses were coded on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree), and higher scores will reflect stronger group orientation.

Procedure

Sports clubs were contacted and the aim of the project was described to the

administrative board and the coaches. In Greece, athletes completed a paper and pencil version of the survey. Once permission was obtained athletes were briefed about the project, and informed consent was requested from those wishing to participate, and their parents/caregivers. The athletes completed the questionnaire anonymously, in isolation, and returned the completed questionnaires into a sealed envelope to the researcher(s). Both oral and written instructions were given to participants regarding the completion of the questionnaire. Moreover, the athletes were informed regarding voluntary participation, anonymity, and confidentiality of their responses, and encouraged to ask any questions regarding the understanding/comprehension of the questionnaire items. In UK and Russia, athletes completed the survey online. Following the permission for the club, the coaches provided their athletes with a link to the survey. They informed the athletes that their participation was voluntary and they could withdraw any time they wished so.

Results

The results of the descriptive analysis are presented for the whole sample as well as separately for each partner country in order to provide a more clear presentation of the findings per country.

Full sample

Descriptive statistics – preliminary analyses

Means and standard deviations of the variables for the total sample are demonstrated in Table 1. Correlation analysis among all variables is reported in Table 2. According to the results, intention to report a doping misconduct correlates with all variables but performance avoidance goals.

Table 1

Means and standard deviations of the studied variables

	M	SD
Intention	5.01	1.69
Attitudes	5.25	1.48
PBC	5.04	1.68
Subjective norm	5.42	1.26
Temptation	3.87	.96
Regret	3.53	1.10
Behavior	1.34	.70
Identity	3.76	.74
Motivation	47.02	13.05
Respect for social conventions	4.06	.75
Respect for the rules and the officials	4.11	.62
Respect one's commitment	4.35	.58
Respect and concern for the opponent	3.71	.80
Negative approach	2.64	.71
Mastery approach	5.94	1.05
Mastery avoidance	4.88	1.44
Performance approach	4.78	1.58
Performance avoidance	3.64	1.61

Table 2
Correlates of Whistleblowing Intentions in the full sample

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Intention	.23	.57	.50	.44	.30	.19	-.09	.28	.06	.15	.16	.17	.23	-.09	.16	.07	.10	.04
2. Attitudes		.12	.24	.17	.32	.32	-.03	.16	.28	.14	.14	.09	.16	.00	.20	.11	.09	.07
3. PBC			.51	.41	.17	.04	-.07	.20	-.02	.15	.13	.19	.15	-.15	.10	.04	.08	.06
4. Subjective norm				.38	.31	.27	-.12	.33	.14	.24	.23	.22	.26	-.07	.16	.11	.08	.04
5. Descriptive norm					.23	.10	-.12	.17	-.09	.09	.13	.04	.14	-.11	.03	.06	.06	.07
6. Temptation						.44	-.02	.21	.22	.18	.22	.10	.21	.00	.21	.18	.15	.07
7. Regret							-.10	.18	.27	.10	.15	.05	.16	.12	.07	.07	.04	.06
8. Behavior								-.03	.02	-.02	-.04	-.01	-.08	.03	.00	.03	.10	.03
9. Identity									.34	.34	.28	.31	.33	-.06	.31	.11	.14	.07
10. Motivation										.30	.20	.41	.18	.05	.48	.16	.18	.05
11. Respect for social conventions											.58	.44	.52	-.11	.36	.09	.05	.00
12. Respect for rules												.40	.48	-.00	.31	.19	.13	.03
13. Respect one's commitment													.38	-.09	.59	.16	.24	.03
14. Respect for the Opponent														.08	.28	.13	.14	.15
15. Negative approach															.01	.18	.34	.37
16. Mastery approach																.38	.44	.17
17. Mastery avoidance																	.42	.39
18. Performance approach																		.58
19. Performance avoidance																		

Note. Scores between .07 and .16 are significant at $p < .05$, scores .17 and above are significant at $p < .001$

A Student's t-test was conducted to test for gender differences in the studied variables. The results of the analysis showed no significant differences between male and female athletes in the tested variables (Table 3).

Table 3

Descriptive statistics of the studied variables for male and female athletes

	Gender		t	p
	Male Mean (SD)	Female Mean (SD)		
Intention	5.06 (1.69)	5.01 (1.63)	.49	ns
Attitudes	5.27 (1.5)	5.18 (1.46)	.87	ns
PBC	5.11 (1.71)	5.01 (1.52)	.89	ns
Subjective norm	5.46 (1.25)	5.35 (1.28)	1.45	ns
Temptation	3.90 (.95)	3.81 (.99)	1.51	ns
Regret	3.54 (1.05)	3.48 (1.16)	0.84	ns
Behavior	1.35 (.70)	1.33 (.69)	.39	ns
Identity	3.79 (.74)	3.70 (.75)	1.82	ns
Motivation	47.29 (12.95)	46.06 (13.03)	1.45	ns
Respect conventions	4.07 (.73)	4.01 (.79)	1.33	ns
Respect rules and officials	4.12 (.61)	4.09 (.65)	.73	ns
Respect commitment	4.35 (.59)	4.36 (.57)	-.13	ns

Respect the opponent	3.71 (.78)	3.71 (.87)	-.02	ns
Negative approach	2.62 (.72)	2.64 (.67)	-.33	ns
Mastery approach	5.96 (1.07)	5.91 (1.04)	.60	ns
Mastery avoidance	4.84 (1.47)	4.9 (1.40)	-1.35	ns
Performance approach	4.77 (1.63)	4.82 (1.49)	-.44	ns
Performance avoidance	3.68 (1.63)	3.57 (1.60)	1.03	ns

Knowledge about whistleblowing opportunities and trust in reporting doping incidents

Regarding the knowledge of whistleblowing opportunities, the results showed that the overwhelming majority of athletes wasn't aware of either WADA's (74.9%) or IOC's (81.7%) available online resources for whistleblowing (Figure 2). Another remarkable finding was that only few participants knew how to report a doping misconduct (13.1%) as well as where to make a report (15%) (Figure 3).

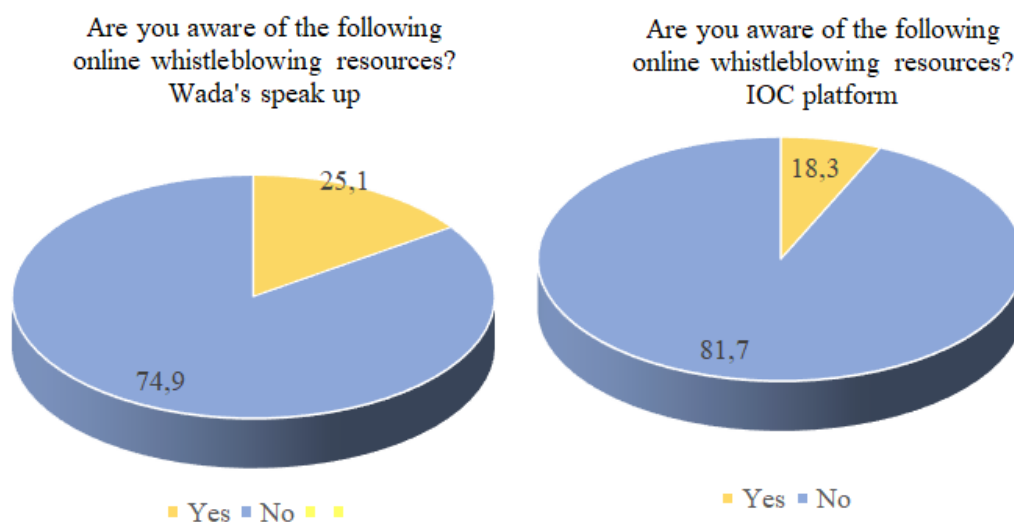


Figure 2. Knowledge of whistleblowing opportunities

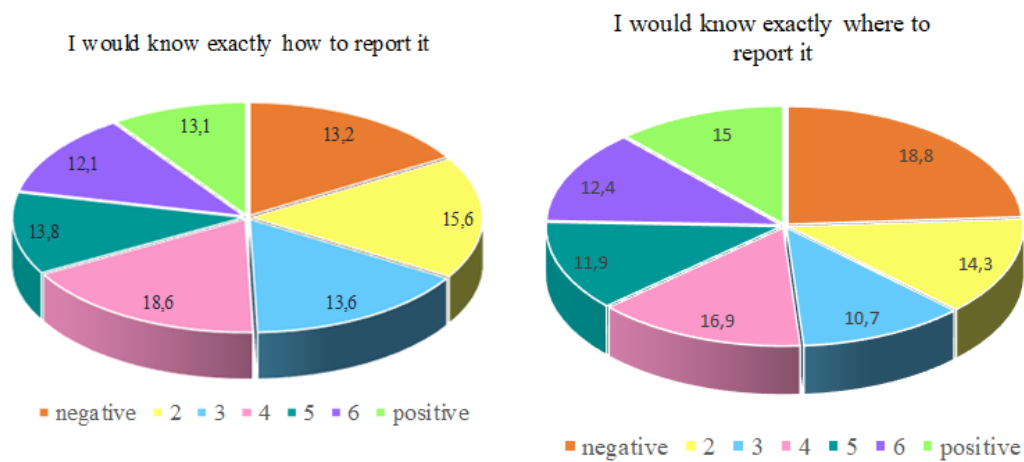
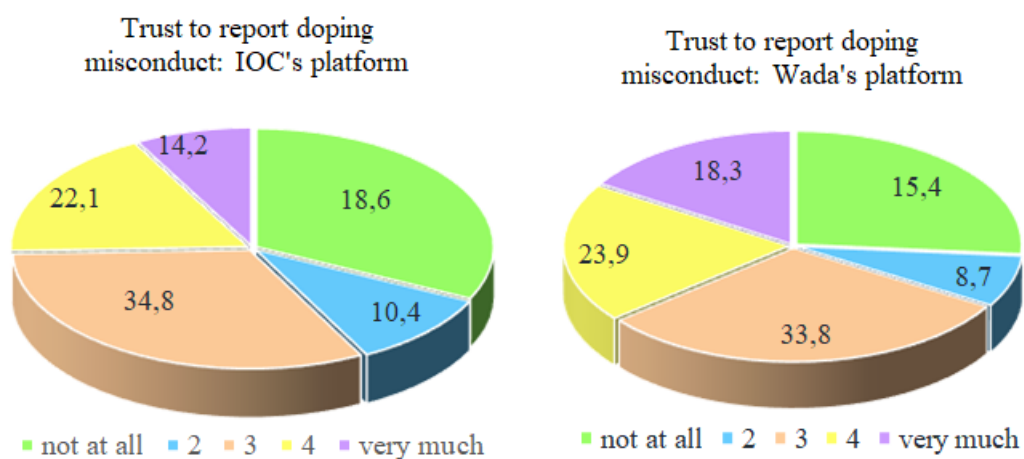


Figure 3. Knowledge about where and how to report a doping incident

Another aspect of the whistleblowing behavior studied in the project was athletes' trust to report a doping incident. Several actors have been identified where an athlete could report a doping incident. Coaches emerged as the most trustful actor for the report of a whistleblowing misconduct by athletes. On the other hand, athletes showed little trust in the police and in an anonymous online platform as a mean to report a misconduct (Figure 4).



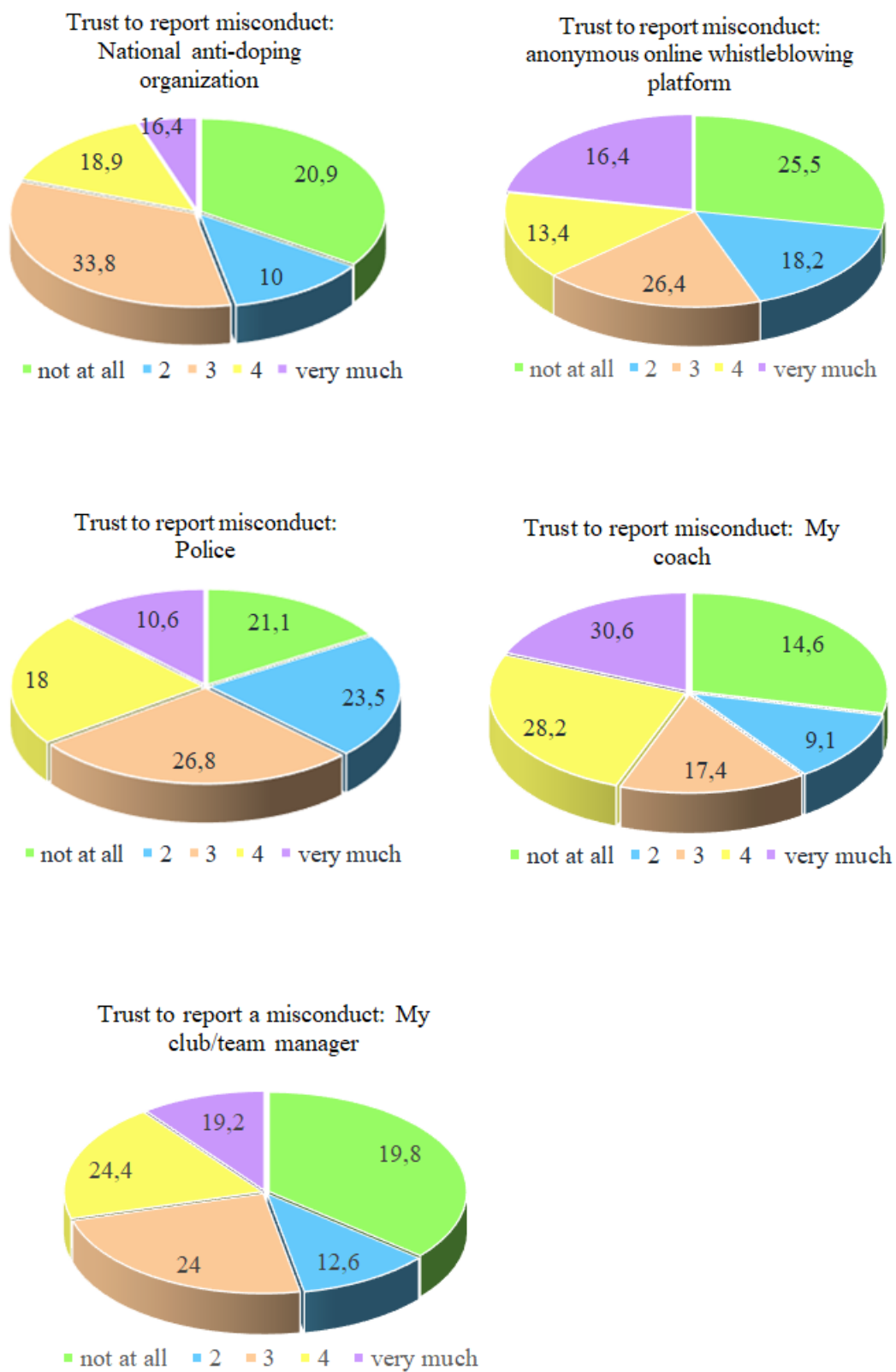


Figure 4. Trust in reporting doping incidents on different agents

Also, past whistleblowing behavior was investigated. The results of the analysis indicated that from the 21.1% of athletes who had been aware of a doping misconduct only the 7.9% reported the incident (Figure 5).

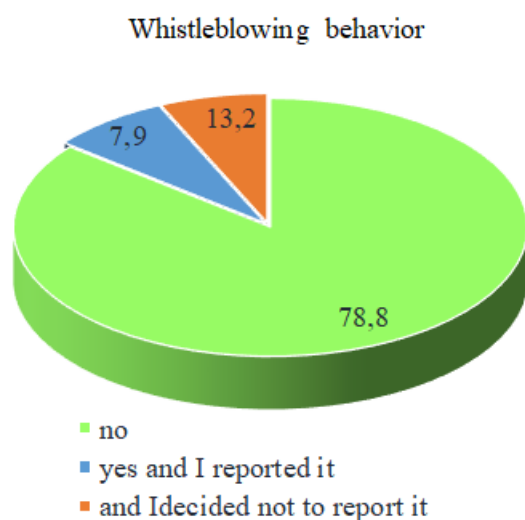


Figure 5. Whistleblowing behavior of participants in the full sample

Country-specific results

In the next sections, the descriptive analyses performed separately for each partner country are described in order to provide a more detailed information of possible differences in the knowledge and experience with whistleblowing across the countries.

Greece

Descriptive statistics

Means and standard deviations of the studied variables are reported in Table 4. The analysis of correlation among the variables under study is reported in Table 5. The results of the analysis demonstrated that intention to report a doping misconduct is correlated with all variables except from respect one's commitment toward sport

participation.

Table 4

Descriptive statistics of the variables under study for the Greek sample

	M	SD
Intention	4.53	1.76
Attitudes	5.43	1.53
PBC	4.33	1.83
Subjective norm	5.17	1.26
Temptation	3.94	.98
Regret	3.78	1.19
Behavior	1.40	.79
Identity	3.77	.71
Motivation	54.41	10.09
Respect for social conventions	4.16	.63
Respect for the rules and the officials	4.09	.55
Respect one's full commitment	4.44	.50
Respect and concern for the opponent	3.76	.73
Negative approach	2.70	.70
Mastery approach	6.21	.77
Mastery avoidance	5.00	1.21
Performance approach	4.75	1.38
Performance avoidance	3.75	1.47

Table 5
Correlates of Whistleblowing Intentions in the Greek sample

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1. Intention	.13	.63	.54	.43	.23	.16	-.10	.24	-.03	.14	.16	.14	.20	-.16	.20	.12	-.04	.06	
2. Attitudes		.07	.20	.15	.36	.35	-.04	.01	-.09	.05	.13	-.01	.16	.02	-.01	-.04	.07	-.02	
3. PBC			.42	.34	.15	.03	-.10	.18	.01	.07	.11	.16	.09	-.21	.12	.05	-.01	.05	
4. Subjective norm				.29	.22	.26	-.18	.26	.13	.26	.22	.14	.21	-.08	.07	.08	-.01	.01	
5. Descriptive norm					.22	.09	-.14	.08	-.01	.07	.11	.14	.06	.17	.23	.08	.01	.05	
6. Temptation						.51	-.04	.06	.15	.11	.13	-.05	.13	.06	.06	.06	.09	.07	
7. Regret							-.11	.11	.19	.07	.14	-.13	.13	.17	-.06	.01	.09	-.01	
8. Behavior								-.02	-.01	-.01	-.02	.01	-.08	.05	.04	.03	.11	.02	
9. Identity									.24	.21	.18	.14	.17	-.10	.16	.03	.06	.09	
10. Motivation										.21	.25	.25	.10	.02	.27	.09	.14	.07	
11. Respect for social conventions											.54	.33	.44	-.19	.19	-.07	-.06	-.02	
12. Respect for rules												.29	.35	-.08	.14	.01	-.04	-.01	
13. Respect one's commitment													.23	-.22	.44	-.01	.01	-.04	
14. Respect for the opponent														-.04	.14	-.04	.01	.04	
15. Negative approach															-.10	.09	.26	.20	
16. Mastery approach																.16	.22	.11	
17. Mastery avoidance																	.21	.33	
18. Performance approach																			.60
19. Performance avoidance																			

Note. Scores between .07 and .16 are significant at $p < .05$, scores .17 and above are significant at $p < .001$

Knowledge about whistleblowing opportunities and trust in reporting doping incidents

The analysis showed the vast majority of athletes weren't aware of WADA's (84.68%) and IOC's (93.29%) available online resources for whistleblowing (Figure 6). It is also noteworthy that only 9.55% and the 11.68% of the participants knew how and where they can report a doping misconduct (Figure 7).

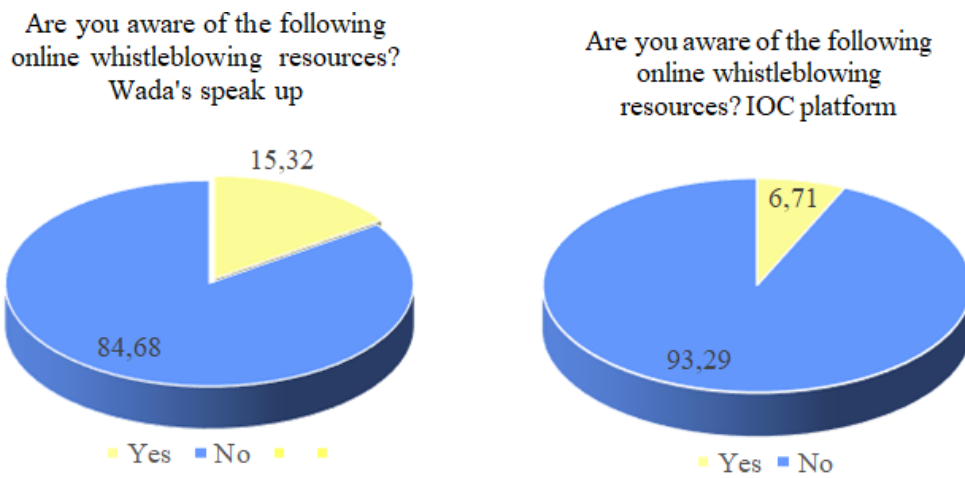


Figure 6. Knowledge of whistleblowing opportunities

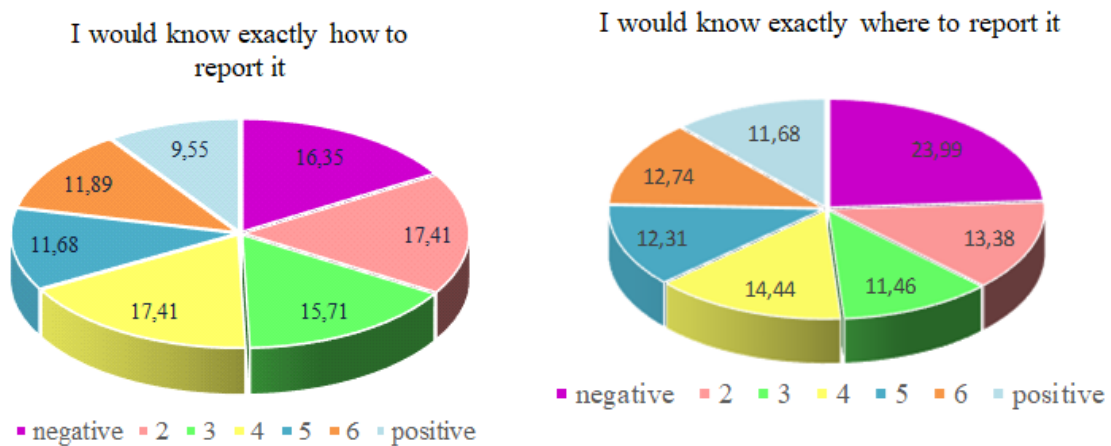
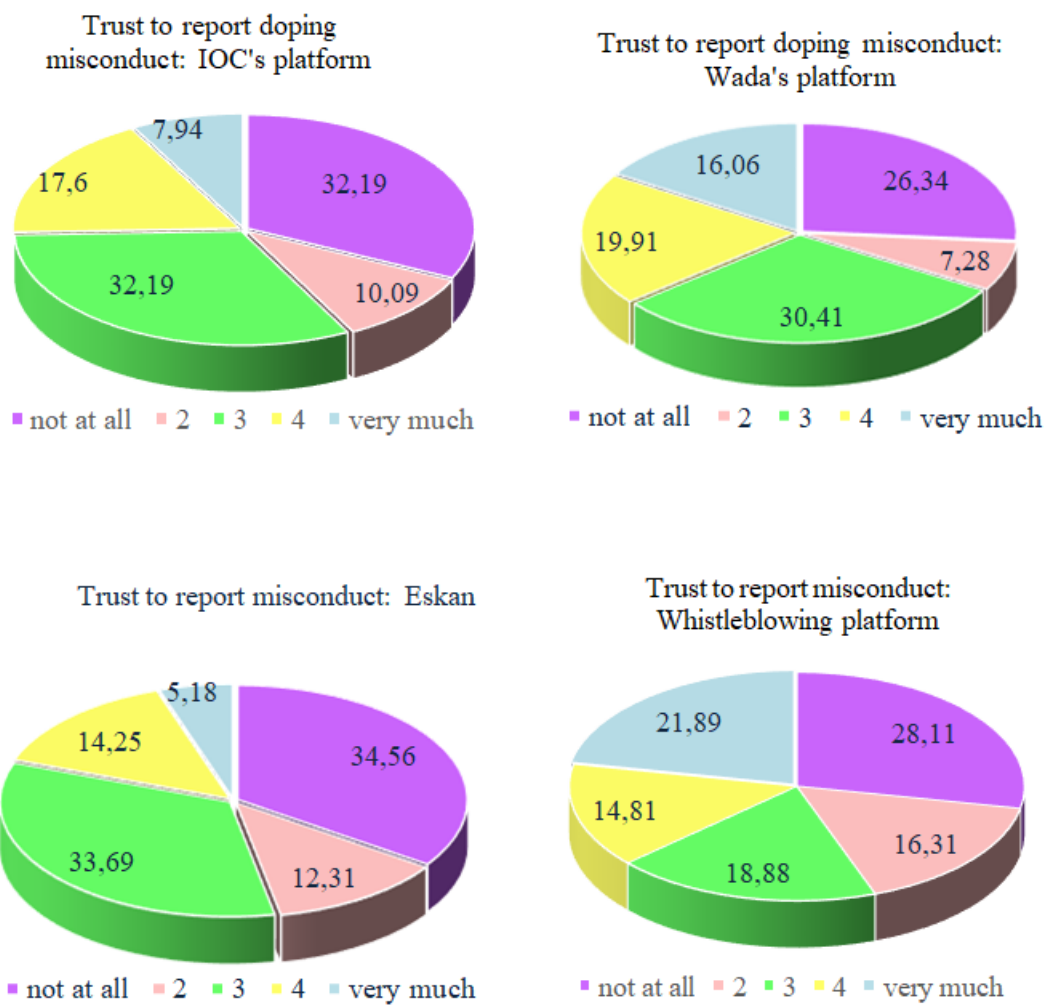


Figure 7. Knowledge about where and how to report a doping incident

Another aspect of the whistleblowing behavior studied in the project was athletes' trust to report a doping incident. Several actors have been identified where an athlete could report a doping incident. Overall participants indicated that they would mostly trust their coach to report an incident. To the contrary, results suggest that they don't trust the National Anti-Doping Organization (ESKAN) and their team manager (Figure 8).



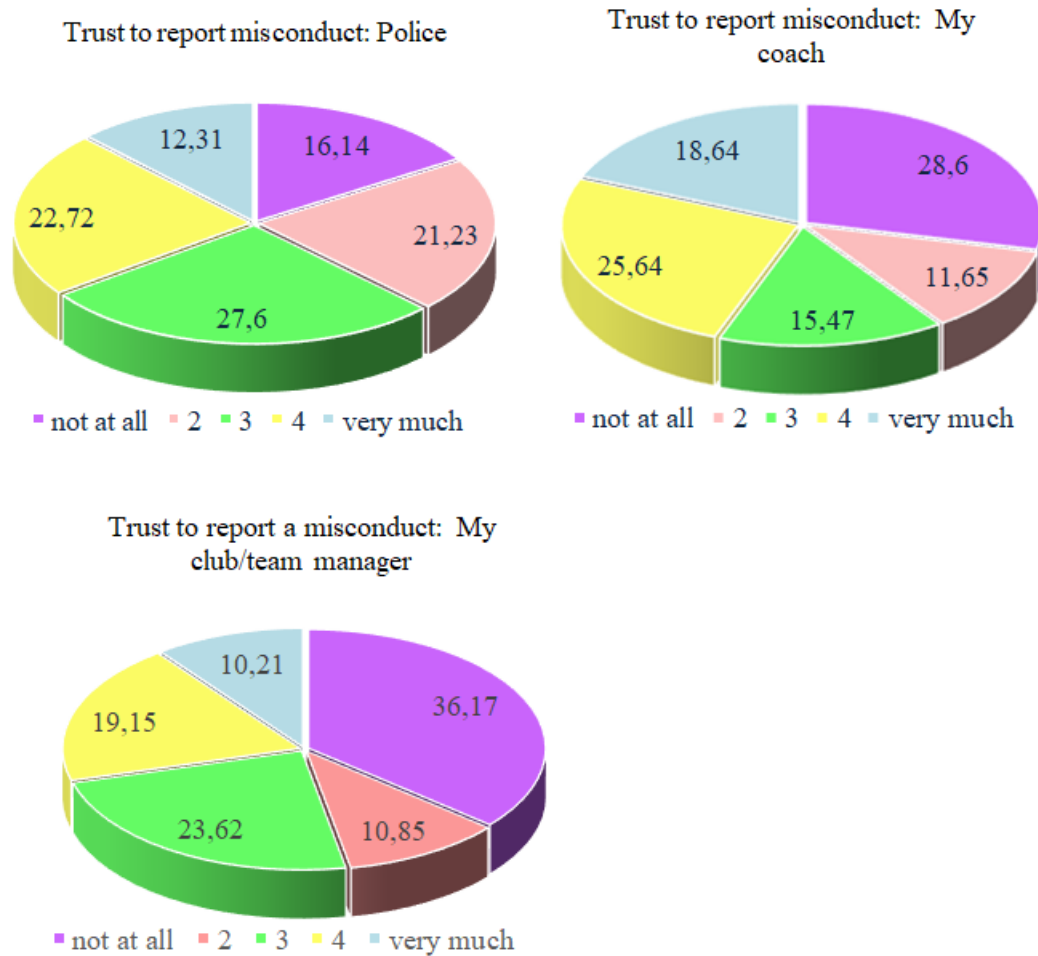


Figure 8. Trust in reporting doping incidents on different agents

Also, past whistleblowing behavior was investigated. The results of the analysis indicated that only a very small proportion of the participants had reported a doping incidence (1.47%) although they were aware of doping incidents (21.05%) (Figure 9).

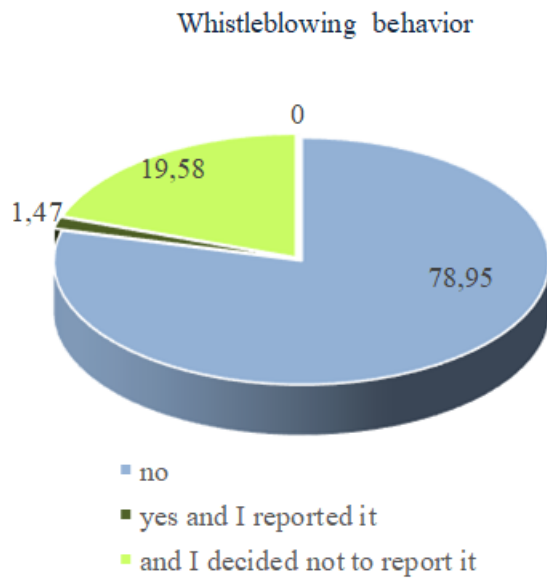


Figure 9. Whistleblowing behavior of participants in the Greek sample

Russia

Descriptive statistics

Means and standard deviations of the variables included in the study are presented in Table 6. The analysis of correlation among the studies variables is shown in Table 7. According to the results of the analysis, whistleblowing intentions were significantly correlated to all variables except from past behavior, negative approach toward the practice of sport as well as performance and mastery avoidance.

Table 6

Descriptive statistics of the variables under study for the Russian sample

	M	SD
Intention	5.22	1.58
Attitudes	4.76	1.39
PBC	5.53	1.37
Subjective norm	5.56	1.94
Temptation	3.76	.93
Regret	3.26	.94
Behavior	1.32	.63
Identity	3.70	.75
Motivation	39.64	11.86
Respect for social conventions	3.96	.83
Respect for the rules and the officials	4.12	.69
Respect one's commitment	4.28	.64
Respect and concern for the opponent	3.67	.87
Negative approach	2.58	.72
Mastery approach	5.69	1.20
Mastery avoidance	4.77	1.62
Performance approach	4.80	1.75
Performance avoidance	3.45	1.73

Table 7
Correlates of Whistleblowing Intentions in the Russian sample

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Intention	.31	.45	.41	.31	.30	.22	-.02	.30	.27	.24	.17	.27	.30	-.04	.22	.05	.07	.26
2. Attitudes		.31	.32	.30	.22	.18	.01	.23	.26	.17	.17	.12	.21	-.10	.15	.12	.12	.22
3. PBC			.70	.29	.21	.20	.02	.32	.34	.36	.18	.36	.28	-.10	.18	.15	.09	.30
4. Subjective norm				.41	.38	.32	-.03	.41	-.36	.25	.24	.33	.34	-.10	.16	.10	.15	.31
5. Descriptive norm					.27	.23	-.02	.28	.10	.24	.16	.05	.32	-.03	.10	.16	.15	.05
6. Temptation						.27	-.02	.30	.21	.19	.31	.20	.27	-.08	.21	.07	.24	.29
7. Regret							-.14	.17	.15	.05	.20	.15	.19	-.01	.01	.12	.09	.08
8. Behavior								.00	-.01	-.05	-.06	-.06	-.10	.03	.10	.04	.03	-.05
9. Identity									.47	.42	.37	.43	.45	-.09	.21	.06	.10	.40
10. Motivation										.33	.26	.50	.23	-.01	.27	-.01	.16	.51
11. Respect for conventions											.62	.51	.57	-.11	.15	.02	.15	.45
12. Respect for rules												.48	.57	.02	.24	.07	.29	.42
13. Respect commitment													.47	-.12	.39	.06	.23	.64
14. Respect for the opponent														.13	.23	.23	.22	.36
15. Negative approach															.31	.44	.14	-.02
16. Performance approach																.58	.47	.57
17. Performance avoidance																	.42	.19
18. Mastery avoidance																		.45
19. Mastery approach																		

Note. Scores between .09 and .11 are significant at $p < .05$, scores .12 and above are significant at $p < .001$

Knowledge about whistleblowing opportunities and trust in reporting doping incidents

The results of the analysis demonstrated that the higher proportion of participants wasn't aware of either WADA's speak up platform (67.86%) or the IOC platform (74.85%) (Figure 9). However, about half of the athletes reported that they knew where and how they could report misconduct (Figure 10).

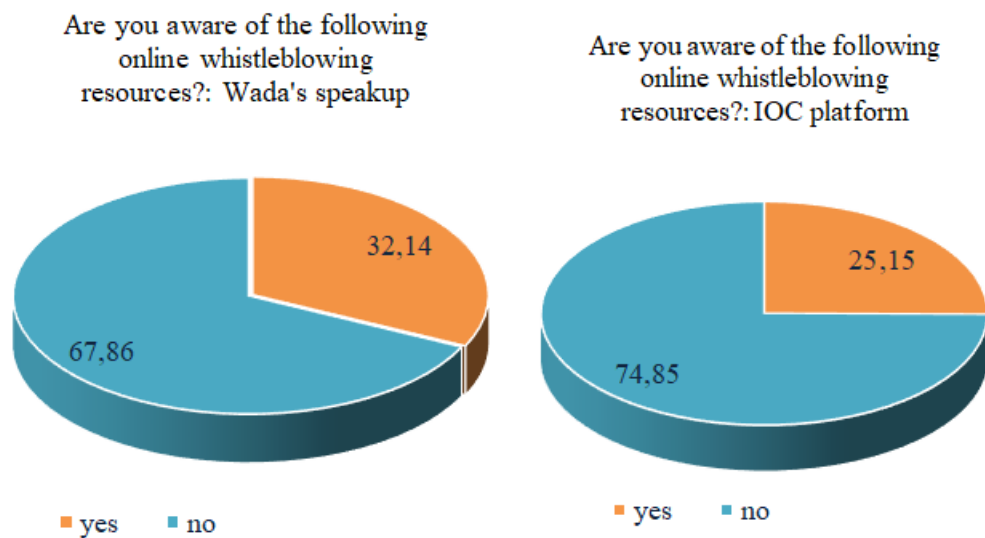


Figure 9. Knowledge of whistleblowing opportunities

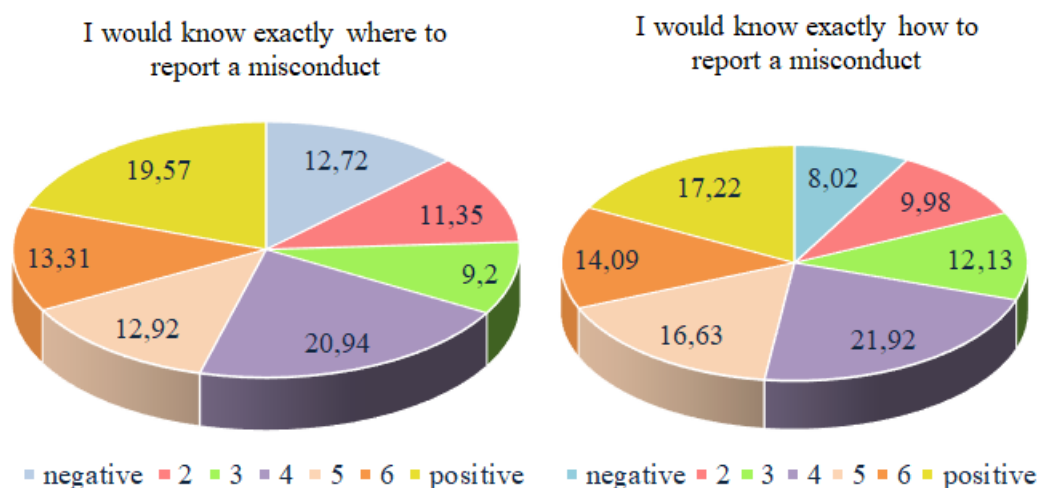
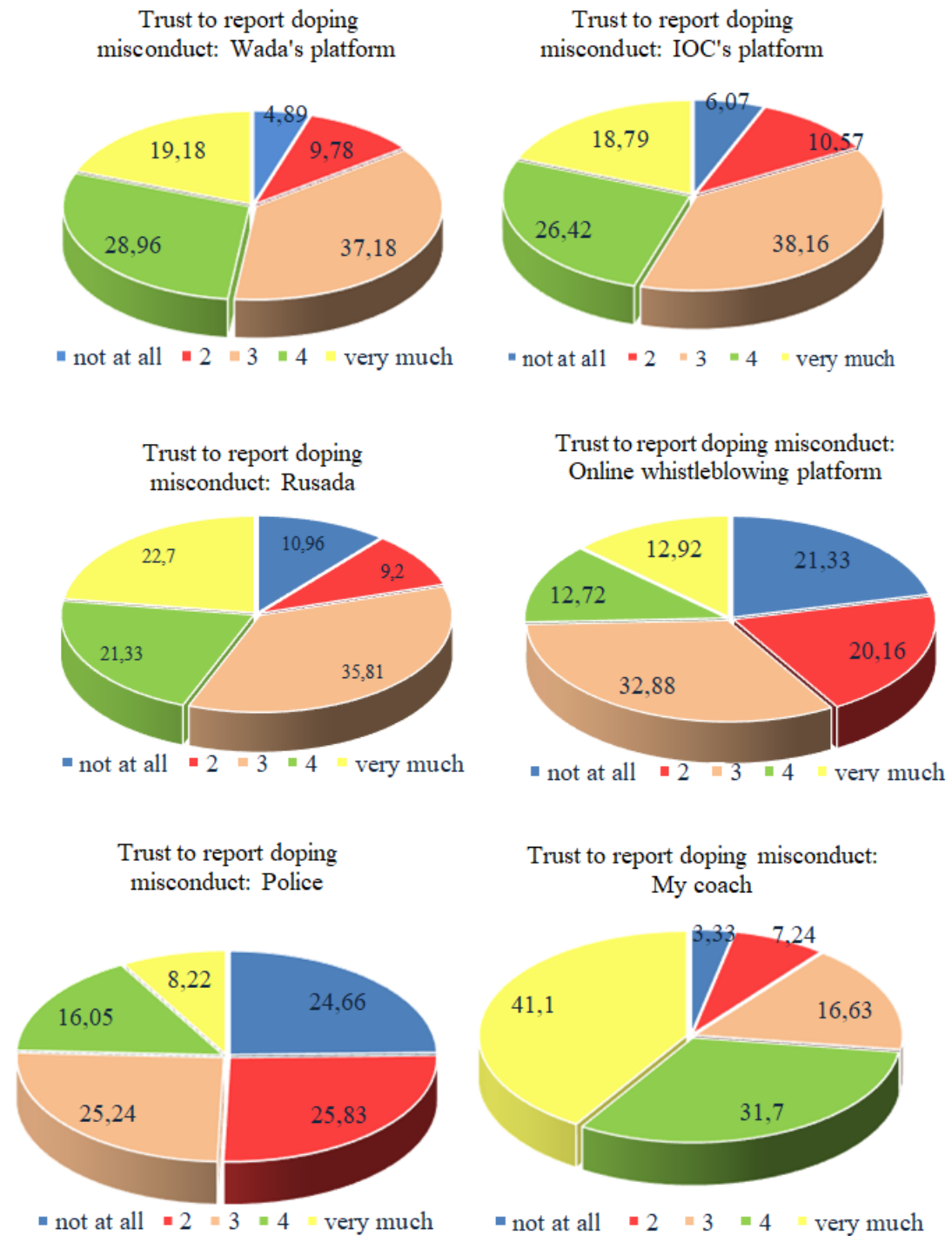


Figure 10. Knowledge about where and how to report a doping incident

Regarding trust to report a doping incident, Russian athletes seemed to have

more trust on their coach and then their team manager. Conversely, they didn't seem to trust the police or an anonymous online platform (Figure 11).



Trust to report doping misconduct:
My club/team manager

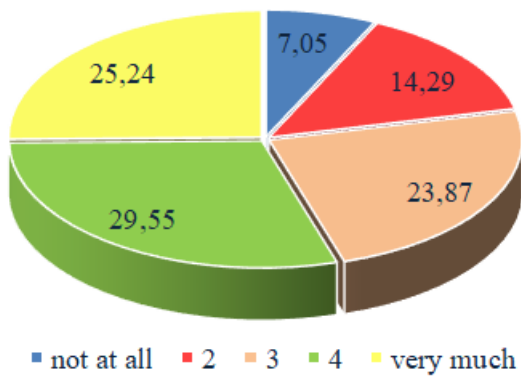


Figure 11. Trust in reporting doping incidents on different agents

Furthermore, the vast majority of the athletes (76.91%) reported that they haven't been aware of any misconduct in the past. Nevertheless, most of those who declared that they have been aware of an incident, didn't report it (Figure 12).

Whistleblowing behavior

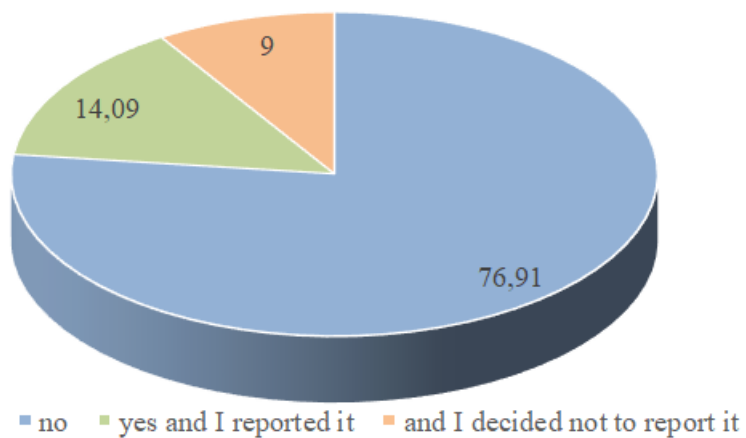


Figure 12. Whistleblowing behavior of participants in the Russian sample

United Kingdom

Descriptive statistics

Means and standard deviations of the variables included in the study are presented in Table 8. The analysis of correlation among the tested variables is shown in Table 9. Due to a technical error, the measurement of sportspersonship and achievement goals were excluded from the UK data. The results illustrated that whistleblowing intention is significantly correlated to all variables apart from past behavior and motivation.

Table 8

Descriptive Statistics of the variables under Study for the UK Sample

	M	SD
Intention	5.70	1.44
Attitudes	6.20	.97
PBC	5.57	1.33
Subjective norm	5.77	1.36
Temptation	4.00	1.00
Regret	3.69	1.06
Behavior	1.21	.55
Identity	3.97	.79
Motivation	48.88	10.82

Table 9

Correlates of Whistleblowing Intentions in the UK sample

	2	3	4	5	6	7	8	9	10
1. Intention	.62	.45	.50	.55	.78	.70	-.11	.46	.45
2. Attitudes		.35	.31	.38	.57	.49	-.17	.31	.29
3. PBC			.24	.43	.45	.33	.05	.21	.30
4. Subjective norm				.35	.51	.42	-.03	.37	.27
5. Descriptive norm					.51	.40	-.12	.29	.26
6. Temptation						.63	-.03	.38	.37
7. Regret							-.08	.40	.33
8. Behavior								-.18	.01
9. Identity									.33
10. Motivation									

Note. Scores between .07 and .16 are significant at $p < .05$, scores .17 and above are significant at $p < .001$

Knowledge about whistleblowing opportunities and trust in reporting doping incidents

The results of the analysis suggested that most of the athletes were not familiar with the online whistleblowing resources. More specifically, 53.85% of the UK athletes reported that they weren't aware of WADA's speak up platform and 59.70% of athletes weren't aware of the IOC platform. Moreover, participants didn't know where and how to report a doping misconduct (Figures 13 and 14).

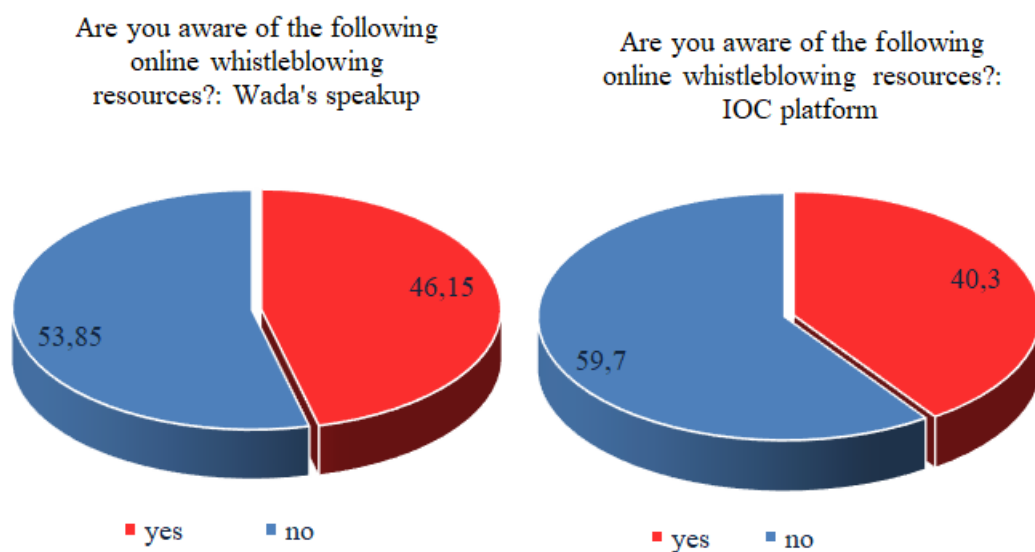


Figure 13. Knowledge of whistleblowing opportunities

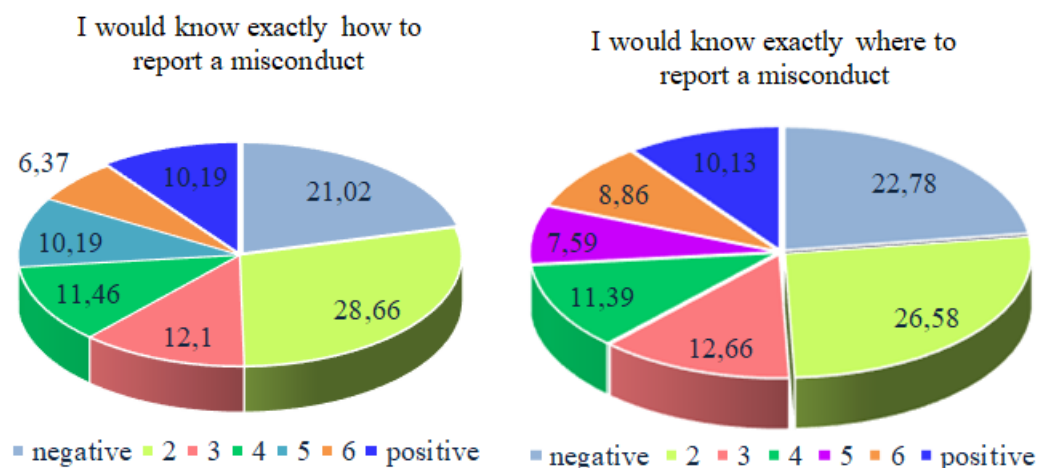
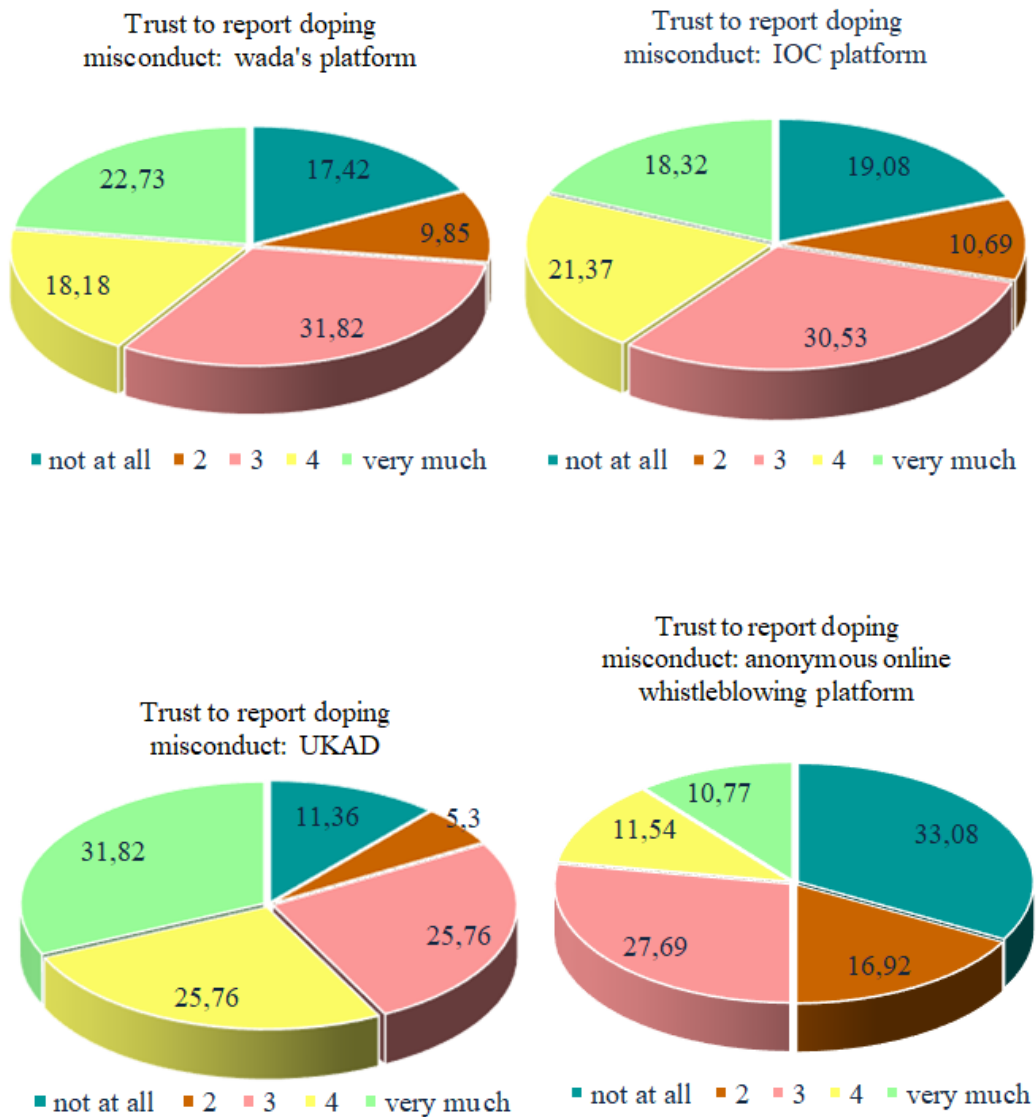


Figure 14. Knowledge about where and how to report a doping incident

With respect to trust to report a doping incident, athletes from the UK declared that they mostly trust UKAD, their coach and their team manager to report an incident. Conversely, the results suggest that they didn't trust the police and an anonymous whistleblowing platform (Figure 15).



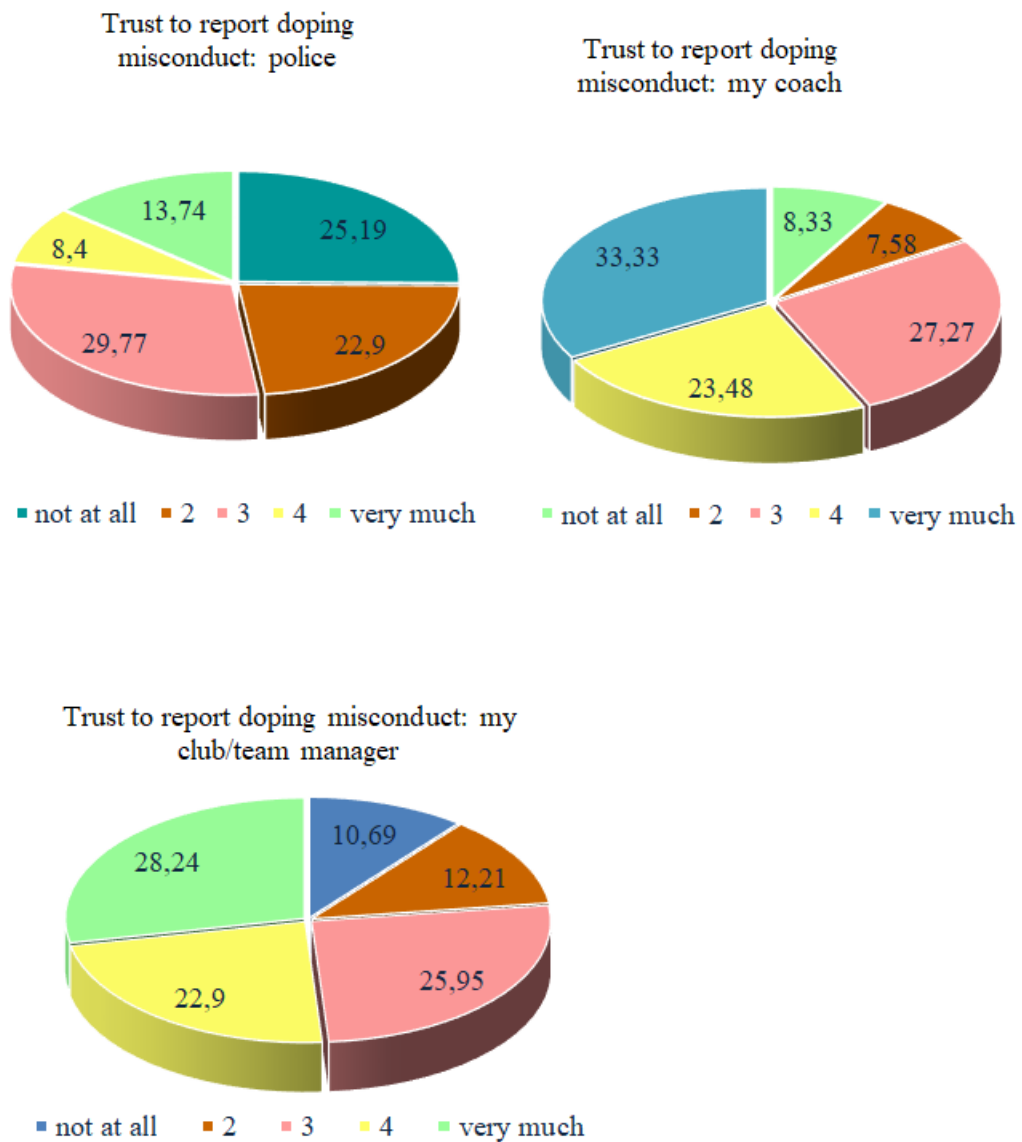


Figure 15. Trust in reporting doping incidents on different agents

As for the previous whistleblowing behavior, most athletes reported that they haven't been aware of any doping misconducts in the past. Of those who answered positively, 85.71% said that they didn't report it (Figure 16).

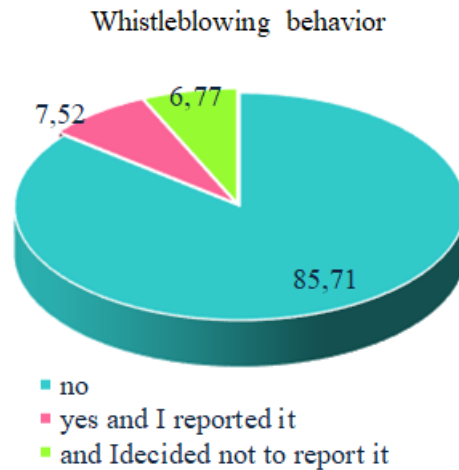


Figure 16. Whistleblowing behavior of participants in the UK sample

Hypothesis testing

Hypothesis 1: Motivational regulations, achievement goals and sportpersonship as predictors of intentions to blow the whistle

The first hypothesis of the project suggested that motivational and moral beliefs will predict intentions to whistleblow indirectly, through the effects of more proximal predictors (attitudes, normative, affective and behavioral control beliefs). A hierarchical regression analysis was performed. In the first step of the analysis RAI and the dimensions of sportpersonship were entered. The results showed that motivational regulations were not significant predictors of whistleblowing intentions; on the other hand aspects of sportpersonship orientation significantly predicted intentions to blow the whistle, $F = 13.17, p < .001, AdjR^2 = .07$. Respect and concern for the opponent, respect one's commitment toward sport participation, and negative approach emerged as significant predictors of intentions, *suggesting that athletes with higher levels of respect for their opponent and their commitment to sport, and a positive approach towards sport reported higher intention to blow the whistle*. In the second step the TPB variables and anticipated regret were entered.

The prediction of intentions was significantly improved, $F = 66.08$, $p < .001$, $AdjR^2 = .40$. Respect for opponent remained significant predictor of intentions. In addition, attitudes, subjective and descriptive norms, regret and perceived behavioral control mediated the effect of motivation and sportspersonship on intentions and significantly predicted whistleblowing intentions, *suggesting that athletes with positive attitudes, higher regret, more supportive environment, and believing they have the resources to whistleblow are more likely to blow the whistle against doping irregularities* (Table 10).

Table 10

Prediction of Whistleblowing Intentions by Motivation, Sportspersonship and Social Cognitive Variables

Step	Predictors	β	p	AdjR ²	F
1	Respect and concern for the opponent	.16	.000	.07	13.17
	Respect for commitment	.10	.008		
	Negative approach	-.09	.005		
2	Respect for the opponent	.09	.001	.42	65.89
	Attitudes	.05	.043		
	Subjective norm	.15	.000		
	Descriptive norm	.17	.000		
	PBC	.40	.000		
	Regret	.06	.020		

Note: Variables with significant findings are reported only

Furthermore, the combined effect of achievement goals and sportspersonship, and the mediating role of social cognition, on whistleblowing intentions were tested. A hierarchical regression analysis was performed. In the first step of the analysis the four achievement goals and the dimensions of sportspersonship were entered. The results showed that achievement goals and sportspersonship orientation significantly predicted intentions to blow the whistle, $F = 9.94, p < .001, AdjR^2 = .07$. Performance approach goals, respect and concern for the opponent, and negative approach emerged as significant predictors of intentions, *suggesting that athletes with high performance approach goals, higher levels of respect for their opponent and their commitment to sport, and a positive approach towards sport reported higher intention to blow the whistle*. In the second step the TPB variables and anticipated regret were entered. The prediction of intentions was significantly improved, $F = 5.19, p < .001, AdjR^2 = .43$. Mastery approach and performance avoidance goals and respect for opponent remained significant predictor of intentions. In addition, subjective and descriptive norms, regret and perceived behavioral control mediated the effect of achievement goals and sportspersonship on intentions and significantly predicted whistleblowing intentions, *suggesting that athletes with higher regret, more supportive environment, and believing they have the resources to whistleblow are more likely to blow the whistle against doping irregularities* (Table 11).

Hypothesis 2: Role of normative beliefs on the intentions to blow the whistle

The second hypothesis of the project suggested that the effects of normative beliefs (perceived social acceptance of PED use) on intentions to whistleblow will be mediated by sports identity. To test this hypothesis a hierarchical regression

analysis was performed.

Table 11

Prediction of Whistleblowing Intentions by Achievement Goals, Sportpersonship and Social Cognitive Variables

Step	Predictors	β	p	AdjR ²	F
1	Performance approach	.11	.011	.07	9.94
	Respect for the opponent	.19	.000		
	Negative approach	-.13	.000		
2	Mastery approach	.07	.037	.43	53.19
	Performance avoidance	-.07	.027		
	Respect for the opponent	.11	.000		
	Subjective norm	.15	.000		
	Descriptive norm	.18	.000		
	PBC	.41	.000		
	Regret	.06	.012		

Note: Variables with significant findings are reported only

In the first step of the analysis normative beliefs (i.e., subjective and descriptive norms) were entered. The results showed that they significantly predicted intentions to whistleblow, $F = 277.83$, $p < .001$, $AdjR^2 = .33$. Both variables emerged as significant predictors of intentions, *suggesting that when the athletes' social environment approves whistleblowing and considers it as an acceptable behavior athletes are more likely to blow the whistle against doping irregularities.*

In the second step sport identity was entered in the analysis. The prediction of

intentions was significantly improved, $F = 193.60$, $p < .001$, $AdjR^2 = .34$. Subjective and descriptive norms norm remained significant predictors. Furthermore, sport identity emerged as a significant predictor of intentions, *confirming the important role social environment can play in the decision to whistleblow* (Table 12).

Table 12

Normative influence on the intentions to blow the whistle

Step	Predictors	β	p	AdjR ²	F
1	Subjective norms	.39	.000	.33	277.83
	Descriptive norms	.29	.000		
2	Subjective norm	.36	.000	.34	193.60
	Descriptive norm	.28	.000		
	Identity	.10	.000		

Note: Variables with significant findings are reported only

Hypothesis 3: The role of self-efficacy on the intentions to blow the whistle

The third hypothesis of the project suggested that situational temptation will mediate the effects of normative beliefs (perceived prevalence of PED use in sports) on intentions to whistleblow. To test this hypothesis a hierarchical regression analysis was performed. In the first step of the analysis normative beliefs (i.e., subjective and descriptive norms) were entered. The results showed that they significantly predicted intentions to whistleblow, $F = 286.61$, $p < .001$, $AdjR^2 = .34$. Both variables emerged as significant predictors of intentions, *suggesting that when the athletes' social environment approves whistleblowing and considers it as an acceptable behavior athletes are more likely to blow the whistle against doping*

irregularities. In the second step perceived behavioral control and situational temptation were entered in the analysis. The prediction of intentions was significantly improved, $F = 224.97, p < .001, AdjR^2 = .44$. Subjective and descriptive norms remained significant predictor. Perceived behavioral control and situational temptation further contributed to the prediction of whistleblowing intentions, *suggesting that beliefs of high capacity to report a doping irregularity increase the willingness to engage in this behavior* (Table 13).

Table 13

Role of self-efficacy in predicting whistleblowing intentions

Step	Predictors	β	p	AdjR ²	F
1	Subjective norm	.39	.000	.34	286.61
	Descriptive norm	.29	.000		
2	Subjective norm	.21	.000	.44	224.97
	Descriptive norm	.18	.000		
	PBC	.37	.000		
	Temptation	.13	.000		

Note: Variables with significant findings are reported only

Hypothesis 4: Profile of athletes intending to blow the whistle

The fourth hypothesis of the project suggested that athletes intending to blow the whistle will demonstrate an adaptive motivational profile (high mastery goals, high intrinsic motivation, positive sportpersonship orientations), as compared to athletes not intending to blow the whistle. To test for this hypothesis three cluster analyses were performed separately for each construct (i.e, achievement goals,

motivational regulations and sportspersonship orientations).

With respect to motivation the results of the analysis indicated that a three-group solution was the most meaningful. This was also supported by the ANOVA. The three segments were defined as “Autonomous motivation”, “Controlled motivation”, and “Amotivation”. Autonomous motivation cluster (N = 409) *included the athletes who scored higher on the positive types of motivation (i.e., intrinsic motivation, and integrated regulation) (M = 60.57)*, whereas participants in the controlled motivation cluster (N = 503) *included athletes who demonstrated medium levels of intrinsic motivation and self-determination (M = 43.90)*. Lastly, Amotivation cluster (N = 202) *included athletes with low self-determination and high amotivation to participate in sports (M = 27.20)* (Table 14). An ANOVA was conducted to whistleblowing intentions in the three different self-determination clusters. The results demonstrated statistically significant differences among the clusters in whistleblowing intentions, $F(2, 1113) = 12.21, p = .000$. The post hoc analyses (Tukey’s test) indicated that *athletes with low self-determination had the lowest intentions to blow the whistle*. On the other hand, *athletes with high controlling motivation reported the higher intentions towards whistleblowing as they see personal benefits* (Table 15).

The same procedure was followed with respect to achievement goals. The results of the analysis indicated that a three-group solution was the most meaningful. This was also supported by the ANOVA. The three segments were defined as “Mastery approach oriented”, “Mastery oriented”, and “High achievers”. Mastery approach oriented cluster (N = 204) *included athletes with high scores on mastery approach and low scored on all other achievement goals*. Athletes in the Mastery oriented cluster (N = 389) *reported high scores on mastery approach and mastery*

avoidance goals but lower scores on performance approach and performance avoidance goals. Finally, participants in the High achievers cluster (N = 395) *showed high scores on all achievement goals* (Table 14). An ANOVA was conducted to whistleblowing intentions in the three different achievement goal clusters. The results demonstrated statistically significant differences among the clusters in whistleblowing intentions, $F(2, 987) = 7.18, p = .001$. Subsequent post-hoc analysis (Tukey's test) revealed that the *athletes being high on all achievement goals scored significantly higher compared to those endorsing a mastery approach goal suggesting that athletes who strive for success in sport are more susceptible to blow the whistle* (Table 15).

The same procedure was followed with respect to sportspersonship orientations. The results of the analysis indicated that a two-group solution was the most meaningful. This was also supported by the ANOVA. The two segments were defined as "High sportspersonship", and "Low sportspersonship". High sportspersonship cluster (N = 594) *included athletes who showed higher mean scores on all positive dimensions of sportspersonship and lower score on negative approach between the two clusters, thus demonstrating higher morality.* Athletes in the Low sportspersonship cluster (N = 393) *reported low scores on all positive dimensions of sportspersonship and higher score on negative approach between the two clusters, thus demonstrating lower morality* (Table 14). An ANOVA was conducted to test for differences in whistleblowing intentions in the two different sportspersonship groups. The results demonstrated statistically significant differences among the clusters in whistleblowing intentions, $F(1, 986) = 53.29, p < .001$. *Athletes who showed higher levels of sportspersonship had significantly higher intentions to blow the whistle as compared to those with lower levels of*

sportspersonship, suggesting that development of moral beliefs can facilitate the decision to whistleblow (Table 15).

Table 14

Cluster Analysis on Motivation, Achievement Goals and Sportspersonship

Variables	Profiles			F
Motivation				
<i>RAI</i>	Autonomous motivation	Controlled motivation	Amotivation	
	N = 409	N = 503	N = 202	
	60.57	43.90	27.40	2755.09**
Achievement goals	Mastery approach oriented	Mastery oriented	High achievers	
Mastery approach	4.99	6.07	6.31	140.97**
Mastery avoidance	2.99	5.23	5.53	411.37**
Performance approach	2.76	4.60	6.01	679.90**
Performance avoidance	2.17	2.84	5.20	870.06**
Sportspersonship	High Sportspershonship	Low Sportspershonship		
Respect for social conventions	4.48	3.42		880.37**
Respect for rules and officials	4.41	3.66		507.98**
Respect one's	4.63	3.95		454.65**

commitment			
Respect for the opponent	4.13	3.09	639.52**
Negative approach	2.60	2.71	5.34*

Note: * p < .05; ** p < .001

Table 15

Analysis of variance between motivation, achievement goals, sportpersonship and whistleblowing intention

Variables		Mean scores		F
Motivational regulations	Autonomous motivation	Controlled Motivation	Amotivation	12.10*
Intention	4.93	5.20	4.52	
Achievement goals	Mastery approach oriented	Mastery oriented	High achievers	7.13*
Intention	4.53	4.88	5.08	
Sportpersonship	High	Low		
Intention	5.20	4.41	53.29*	

Note: * p < .001

Summary of results

The analyses of the quantitative study described the determinants of athletes' intentions to engage in whistleblowing. Personal (e.g., motivation and sportpersonship) and social (normative beliefs) determinants of the decision-making process were examined. The results of the analyses indicated that:

- Athletes with higher levels of sportpersonship reported stonger intentions to report doping misconduct;
- Stronger intentions to report doping misconduct were significantly associated with more positive attitudes to whistleblowing, more anticipated regret from not reporting doping misconduct, perceiving more supportive social environment with regards to whistleblowing, and having the resources to report doping misconduct if the chance occurred;
- Athletes reporting higher scores in controlling motivation also reported the stronger intentions report doping misconduct;
- Athletes reporting higher scores on all achievement goals also reported stronger intentions to report doping misconduct.

Implications for policy and practice

On the basis of the findings from the quantitative study, the following implications are made for policy and practice. Specifically, anti-doping organizations that want to promote whistleblowing as an effective deterrent of doping in sport should:

- Provide athletes with the necessary resources and knowledge on how to effectively and safely report doping misconduct.
- Embed behavior change techniques in education programs and interventions to

promote whistleblowing behavior. To this end, the COM-B model (Michie, Atkins, & West, 2014) may provide an effective means for identifying the key social and psychological factors associated with whistleblowing and accordingly inform behavior change interventions.

- Develop social norms-based interventions and campaigns in favor of whistleblowing, as a way of empowering athletes to report doping misconduct when the situation arises.
- Tailor interventions and campaigns to promote whistleblowing to the needs and concerns of athletes.

Implications for future research

The findings from this study corroborate and further extend the qualitative findings presented in Study 1. Therefore, the following recommendations can be made for future research on the social and psychological drivers of whistleblowing behavior:

- Identify relevant theories that are useful for promoting whistleblowing behavior in sport. An application of the Theoretical Domains Framework (Atkins et al., 2017) may be especially useful in this course.
- Further investigate the role of moral attitudes, reasoning, and behavior in the decision-making process underlying whistleblowing behavior.
- Experimentally manipulate the effects of certain variables (e.g., expected outcomes of whistleblowing/message framing; manipulations of anticipated regret; achievement goals) on whistleblowing intentions.
- Develop and empirically examine whistleblowing simulation models - given that is hard to predict when doping misconduct may arise, focused simulated training

may strengthen athletes' skills and capacity to effectively engage in whistleblowing in a simulated environment.

Discussion

General Discussion

Project Whistleblower 1.0 built on, and further extends, previous research on whistleblowing behavior in the context of doping in sport (e.g., Erickson et al., 2017; Whitaker et al., 2014; Verschuuren, 2019) by empirically evaluating an novel integrative model of whistleblowing intentions among a large sample of athletes from three countries (Greece, Russia, and the UK). For this purpose, two studies, one qualitative and one quantitative, were conducted in each country. The qualitative study assessed athletes' beliefs and lived experiences with whistleblowing against ADRVs, whereas the quantitative study examined a social cognitive model of whistleblowing intentions that incorporated variables from the TPB (attitudes, social norms, and self-efficacy beliefs), anticipated regret from not blowing the whistle, perceived group identification and group orientation, motivation (i.e., self-determination, achievement goals), and sportspersonship orientations. In fact, Whistleblower 1.0 is the only quantitative study of whistleblowing intentions in a large international sample of athletes.

With respect to *the results of the qualitative analysis*, social environment emerged as an important factor influencing the decision to blow the whistle. Athletes were reluctant to report doping misconduct of teammates as this would potentially harm the reputation of their team and sport. These findings support previous evidence indicating that doping-related behaviors are heavily influence by the team culture (Barkoukis et al. 2019). Barkoukis et al. indicated that the team culture can influence an athlete about whether to dope or not; the present study extends this

finding and suggests that team culture influences the overall behavior of the athlete with respect to protecting clean sport. Therefore, anti-doping authorities should take in to account that for whistleblowing behavior to flourish a change is needed on the perceived social norms of whistleblowing.

Furthermore, morality, as indicated in higher scores in sportpersonship orientations, was positively associated with whistleblowing intentions. The results showed that athletes from different countries reported stronger intentions to report doping misconduct when they had with higher sportpersonship scores, believed that doping is morally wrong, and thought that whistleblowing can protect clean sport and preserve the Spirit of Sport. This finding suggest that future interventions to promote whistleblowing among athletes should incorporate moral values and moral reasoning elements in order to strengthen the moral impetus of the decision to report doping misconduct. According to the participants in the qualitative study, whistleblowing should be promoted as a means to protect clean sport and promote fairness and equality. However, in order to achieve this, anti-doping authorities implementing whistleblowing systems should build trust with the athletes. The lack of trust to the anti-doping authorities and the concerns about their legitimacy emerged as significant deterrents of whistleblowing. Therefore, anti-doping authorities should invest resources in order to establish rapport and trust with athletes.

Lastly, an important finding of the qualitative study was athletes' lack of the appropriate knowledge for reporting doping. According to a large proportion of participants, they couldn't identify a doping case; therefore solid evidence would be needed in order to proceed with a report. These findings indicated that whistleblowing education should be an integral part of any whistleblowing system.

In order to engage in whistleblowing athletes need to know where and how to safely report doping misconduct, and also be reassured of their safety and protection against potential retaliatory measures from the inflicted parties.

The results of the quantitative study corroborated and further extended the qualitative study findings, and provided further evidence on the social and psychological correlates of whistleblowing intentions. The analyses included two phases. In phase one, descriptive analyses were performed to investigate knowledge about whistleblowing to a larger sample of athletes across three countries. In phase two, the influence of specific determinants, which were found important during the qualitative study, on whistleblowing intentions was examined. Based on the *descriptive analyses* reported above, there are several conclusions that can be drawn with respect to athletes' readiness to reporting doping misconduct and ADRVs. First and foremost, the vast majority of athletes across the three countries were not aware of WADA's Speak Up platform or the corresponding whistleblowing platform of IOC, and did not know how to report doping misconduct even if they were willing to. A possible explanation of this finding is that those platforms are developed in English (or French) and, hence, do not readily appeal to non-English speaking athletes. This explanation is supported by the fact that the percentage of athletes in UK who were aware of these platforms was higher as compared to the other countries. This finding illustrates that National Anti-Doping Organizations (NADOs) in non-English speaking countries should take this into account and put effort into adopting information about WADA and IOC's whistleblowing platforms into their national languages, and more rigorously promoting WADA and IOC's platforms to their athletes. In addition, NADOs may invest resources to develop their own whistleblowing platforms in order to allow non-English speaking athletes

engage in whistleblowing without being concerned over language barriers. With respect to the British athletes, UKAD and Sport England may further intensify their efforts to raise awareness and promote whistleblowing against ADRVs. Conveying positive messages about whistleblowing is essential in developing a positive culture and norms towards this behavior, which, in turn, can lead to more athletes blowing the whistle against doping misconduct (Verschuuren, 2019).

Secondly, echoing the findings of the qualitative study the athletes across the three countries reported low trust to existing whistleblowing platforms, especially international and external platforms. This finding was consistent across the three countries. More specifically, Russian and Greek athletes reported that they did not trust external platforms or even their NADO and sport club officials. Rather, the coach appeared to be the most trusted person to disclose doping misconduct (or suspicions of ADRVs). Similarly, British athletes reported greater trust to UKAD and their coach, but less trust to external whistleblowing platforms, even if they were anonymous. Taken together, these findings suggest that the coach plays a central role in promoting whistleblowing behavior in athletes. Most importantly, athletes' subjective perceptions of trust on the coach emphasize the need to engage coaches in professional continuous development training on whistleblowing matters. This may include basic knowledge of whistleblowing processes (e.g., the "where" and "how" of whistleblowing), ways to motivate athletes to engage in whistleblowing, and norm communication about developing positive norms and culture towards whistleblowing behavior. However, for this effort to succeed, coaches must be committed to sport integrity. The recent 4-year ban to Alberto Salazar - one of the most prolific coaches in athletics - suggests that WADA, NADOs, sport governing bodies, and sponsors must make every effort to ensure that

coaches are ambassadors of clean sport both among their peers and their athletes alike. Otherwise, according to the present findings, athletes will be left without anyone to trust to report ADRVs.

Thirdly, almost all of the athletes who were aware of doping incidents or ADRVs said they did not report it. This finding validates the qualitative findings of previous research about an "unbroken code of silence" and athletes' lack of willingness to report doping misconduct (Erickson et al., 2017; Whitaker et al., 2014). Although our findings do not show whether such *inaction* is specific to certain sports, it is still worrying that ADRVs go unnoticed by regulatory authorities because athletes who are aware of them decide not to report them. One reason maybe that they do not trust their coach, or that they lack the knowledge and resources to effectively (and safely) engage in whistleblowing.

With respect to *the study's hypotheses about the psychological drivers* of intentions to engage in whistleblowing, the findings of our quantitative study showed that sportpersonship orientations (i.e., respect and concern for the opponent) were associated with whistleblowing intentions. This association was further corroborated by the cluster analysis findings, where athletes with high levels of sportpersonship reported significantly stronger intentions to engage in whistleblowing. The results of the analysis support our first and fourth hypotheses with respect to the role of moral beliefs on whistleblowing intentions. These findings echo those of the qualitative study and suggest that athletes with high moral values are more likely to engage in behaviors that protect clean sport. Therefore, moral related constructs, such as justice and fairness, Spirit of Sport, are important pillars of clean sport and should be addressed in educational interventions aiming to promote whistleblowing.

Similar findings were reported with respect to the combined effect of achievement goals and sportpersonship orientations. A mixed profile of achievement goals was found to influence whistleblowing intentions. In the first step, performance approach goals emerged as significant predictors whereas in the second step mastery approach and performance avoidance goals. These findings suggest that a mixture of achievement goals can result in high whistleblowing intentions. This finding was further corroborated by the results of the cluster analysis demonstrating that athletes pursuing multiple goals are more susceptible in blowing the whistle. These findings provide partial evidence on the first and fourth hypothesis and suggest that athletes who are willing to whistleblow may be driven from different reasons. For instance, mastery approach athletes may be driven from a wish to support clean sport and promote fair competition, whereas performance approach athletes in order to eliminate competition and increase their possibilities to excel. Being high in both, the high achievers profile found in the cluster analysis, was associated with higher intentions as both outcomes are achieved; excel in a fair competition. Therefore, it seems that achievement goals can influence the decision to blow the whistle, although the exact mechanism is not clear yet. Further research is needed to understand the mentality of athletes endorsing different achievement goals and how this influences their whistleblowing intentions.

An important finding of the analyses was that social cognitive variables consistently mediated and improved the prediction of whistleblowing intentions. These findings support our first hypothesis and are in line with previous research on doping suggesting that the proximal to intentions variables, such as attitudes, PBC, social norms and regret, influence intentions stronger than distal variables (Barkoukis et al., 2013; Lazuras et al., 2010; Lazuras et al., 2017). This is important

finding as it highlights that these variables significantly influence the decision to whistleblow and should be included in any educational effort aiming to promote whistleblowing. More specifically, such educational efforts should aim to develop positive attitudes towards whistleblowing, establish a supportive social environment where whistleblowing is an acceptable and common practice, and provide opportunities where athletes will be able to easily report doping cases. This is expected to establish the psychosocial mentality that will lead athletes in more often whistleblowing behaviors.

In support of the second hypothesis, social norms emerged as significant correlates of whistleblowing intentions. These findings echo participants' views in the qualitative study and highlight the important role of the social environment for whistleblowing. On the basis of these findings, we suggest that efforts to promote whistleblowing behavior in athletes should convey positive social norms towards this behavior, as well as emphasize the moral and "altruistic" dimensions of whistleblowing - such as respect for fair play rules. Norms-based campaigns have been widely used to promote behavior change in different domains (e.g., Cialdini, 2007; Miller & Prentice, 2016), but, thus far, there has been very limited research on the relationship of social norms with whistleblowing behavior, and on the effectiveness of norms-based campaigns to promote whistleblowing against doping misconduct in athletes.

Importantly, the athletes' temptation to report doping cases was positively associated with whistleblowing intentions and further empowered the effect of normative beliefs. This finding does not fully support our third hypothesis as the effect of social norms remained strong determinants of whistleblowing intentions. These findings highlight the strong influence of normative beliefs in determining

whistleblowing intentions. Athletes who interact in a supportive environment are more prompt in engaging to whistleblowing. Therefore, this evidence further suggests that education about whistleblowing should focus on the athlete's social environment, promoting positive social norms and aiming to change the mentality towards reporting irregularities.

Policy & Practice Recommendations

Taken together, on the basis of the two studies reported here, the following recommendations are made for anti-doping organizations, policy-makers, and practitioners of anti-doping.

1. WADA and NADOs/RADOs should support funded research on whistleblowing. Whistleblowing is a rather unexplored area and both basic and applied behavioral science research is needed. Basic research can build on and further extend the existing empirical evidence on whistleblowing behavior, and identify the variables that are most strongly associated with whistleblowing intentions and behavior in athletes and coaches. Applied research should focus on identifying methods and techniques (e.g., behavior change methods; norms-based campaigns; experimental manipulations) to change attitudes, intentions, and behavior in favor of whistleblowing. Interdisciplinary research should also be supported, especially in the fields of Big Data, behavioral and implementation science, and adult learning/education.
2. Resources should be invested for tailored and evidence-based training of athletes and coaches on whistleblowing matters. Given the importance of whistleblowing behavior for the protection and promotion of clean sport, it is recommended that whistleblowing education is incorporated in WADA's

International Standards of Education (ISE) framework. This will ensure that NADOs/RADOs complying with the ISE criteria incorporate whistleblowing training in their educational initiatives and resources.

3. Whistleblowing education must be evidence-based and tailored to the needs of athletes in different countries. To this end, it is recommended that WADA and/or NADOs/RADOs implement a comprehensive training needs analysis in different countries to identify and analyze specific needs with respect to whistleblowing education. This will establish benchmark criteria for the level of educational intervention needed in each region/area or country.
4. Given the importance of coaches in the whistleblowing process (i.e., athletes in our study reported that they would trust their coach as a first contact point for reporting doping misconduct), it is recommended that specific training is provided to coaches to enable them act as facilitators of whistleblowing behavior.
5. NADOs and RADOs should invest resources in establishing rapport and trusted relationships with athletes and coaches, in order to further promote whistleblowing. Cultivating a sense of "ownership" among athletes/coaches in relation to whistleblowing policies processes, and procedures can be particularly helpful in this direction, and provide an alternative bottom-up approach to whistleblowing policy implementation. Athletes and coaches who perceive policies as co-owned will be more likely to endorse and trust them, as compared to a top-down policy implementation approach.
6. Enable the exchange of knowledge transfer and valorization among NADOs/RADOs, coaches, and athletes with respect to whistleblowing experiences. This can significantly improve the sense of "ownership" among

athletes/coaches, and accordingly provide the means for sharing and generating new knowledge about whistleblowing. This is important for informing and updating existing policies and education initiatives/interventions in the longer-term. Developing "communities of practice" between NADOs/RADOs, athletes and coaches can effectively help in knowledge management, exchange, and valorization. Project IMPACT (<http://project-impact-eu.phed.auth.gr/>), for example, that is currently operating communities of practice for clean sport promotion and education can provide an example on the utility of "communities of practice" to promote whistleblowing in sport.

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Appendices

Appendix 1 – Interview matrix of the qualitative study

Doping whistleblowing may be defined as the disclosure of sensitive information about athletes and/or their entourage (e.g., coaches, managers, and trainers) with respect to any suspected:

- Anti-Doping Rule Violation
- World Anti-Doping Code (Code) non-compliance violation
- Act or omission that could undermine the fight against doping.

Anyone can report a doping misconduct, if they have detected, identified, witnessed or know of, or have reasonable grounds for suspecting that cheating through doping has occurred. With this definition in mind, please respond to the following interview questions.

Belief theme and definition	Interview question used to elicit beliefs about the whistleblowing themes
<p>Behavioral beliefs: This group of beliefs reflects perceptions of outcomes, desirable or undesirable, that are likely to occur as a result of whistleblowing. Those outcomes can be both instrumental/cognitive</p>	<ol style="list-style-type: none"> 1. What do you think are the benefits of doping whistleblowing for you personally? 2. What do you think are the benefits of doping whistleblowing for your sport? 3. What do you think are the risks of whistleblowing for you personally? 4. What do you think are the risks of

<p>and affective/emotional</p>	<p>whistleblowing for your sport?</p> <p>5. How would you feel if you became aware of a doping incident in your sport and you reported it through whistleblowing platforms?</p> <p>6. How would you feel if you became aware of a doping incident in your sport and you did not report it through whistleblowing platforms?</p>
<p>Normative beliefs: Perceptions of external pressure to engage (or avoid engaging) in whistleblowing; perceptions of the prevalence/frequency of whistleblowing amongst many and referent/similar others.</p>	<p>7. What do you think that most athletes of your level, age, and gender in your sport think about whistleblowing?</p> <p>8. What do you think that most athletes of your level, age, and gender would do if they became aware of a doping incident in their sport?</p> <p>9. What comes to mind when you think of people in your sport that have engaged in whistleblowing to report a doping incident?</p> <p>10. Who are the individuals or groups of people that would be more likely to engage in whistleblowing in your sport?</p>
<p>Controllability beliefs: Perceptions of the degree to which</p>	<p>11. What factors, conditions or situations would enable you to engage in</p>

<p>whistleblowing is under one's own control, and one feels capable of successfully (and safely) engaging in whistleblowing. This set of beliefs also reflects perceived situational contingencies and conditions that can facilitate or hinder whistleblowing.</p>	<p>whistleblowing?</p> <p>12. What factors, conditions or situations would hinder you from engaging in whistleblowing?</p> <p>13. What issues come to mind when you think about your ability (i.e., how easy or difficult it would be for you) to engage in whistleblowing?</p>
<p>Reasons for/against whistleblowing: Perceived reasons that motivate (facilitators of whistleblowing) or hinder whistleblowing (barriers to whistleblowing).</p>	<p>14. What are the five most important reasons that would motivate you to engage in whistleblowing to report a doping incident in your sport?</p> <p>15. What are the five most important reasons that would motivate you to avoid engaging in whistleblowing to report a doping incident in your sport?</p>

Appendix 2 – Survey of the qualitative study

Doping whistleblowing is defined as the disclosure of sensitive information about athletes and/or their entourage (e.g., coaches, managers, and trainers) with respect to any suspected:

- **Anti-Doping Rule Violation**
- **World Anti-Doping Code (Code) non-compliance violation**
- **Act or omission that could undermine the fight against doping.**

Anyone can report a doping misconduct, if they have detected, identified, witnessed or know of, or have reasonable grounds for suspecting that cheating through doping has occurred.

With this definition in mind, please respond to the following interview questions about your beliefs and attitudes towards whistleblowing/reporting doping misconduct.

If I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that doping misconduct had occurred in the next 12 months, then I would report it

Definitely not							Definitely yes
1	2	3	4	5	6	7	

If I detect, identify, witness or know of, or have reasonable grounds for suspecting that doping misconduct has occurred in the next 12 months, I am determined to report it.

Definitely not							Definitely yes
1	2	3	4	5	6	7	

If I detect, identify, witness or know of, or have reasonable grounds for suspecting that doping misconduct has occurred in the next 12 months, I expect that I will report it.

Definitely not							Definitely yes
1	2	3	4	5	6	7	

If I detect, identify, witness or know of, or have reasonable grounds for suspecting that doping misconduct has occurred in the next 12 months, it is highly likely that I will report it.

Definitely not							Definitely yes
1	2	3	4	5	6	7	

If I detect, identify, witness or know of, or have reasonable grounds for suspecting that doping misconduct has occurred in the next 12 months, I intend to report it.

Definitely not								Definitely yes
1	2	3	4	5	6	7	7	

In the next part, we are interested to know about your attitudes toward whistleblowing. Circle the number that best describes your answer.

I think that, if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that doping misconduct had occurred, then reporting it would be:

Bad	1	2	3	4	5	6	7	Good
Useless	1	2	3	4	5	6	7	Useful
Harmful	1	2	3	4	5	6	7	Beneficial
Unethical	1	2	3	4	5	6	7	Ethical
Inappropriate	1	2	3	4	5	6	7	Appropriate
Unfair	1	2	3	4	5	6	7	Fair
Wrong thing to do	1	2	3	4	5	6	7	Right thing to do
Risky	1	2	3	4	5	6	7	Safe

In this next part, we are interested in how much you think that whistleblowing is under your personal control.

If you had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that doping misconduct had occurred, how much control would you have over reporting it

Very little control							Complete control
1	2	3	4	5	6	7	

If I wanted to, I could report a doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Reporting a doping misconduct would be under my total control if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

If I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that doping misconduct had occurred, I would know exactly how to report it

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

If I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that doping misconduct had occurred, I would know exactly where to report it

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Now we would like to know about the thoughts and beliefs of other people who are important to you about the reporting doping misconduct through whistleblowing. These people may include friends, coach, team mates, parents, and other family members.

Most people who are important to me would want me to report doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Most people I know would *approve* of me reporting doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred.

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

People who are important to me would *expect* me to report doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

My teammates or fellow athletes that I respect would want me to report doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred.

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

My coach would want me to report doping misconduct if I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred.

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

Out of 100%, how many athletes at your competitive level, do you believe would report doping misconduct if they had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred?

_____%

Out of 100%, how many elite athletes in your country, do you believe would report doping misconduct if they had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred?

_____%

In your team or sport, how many athletes like you would report doping misconduct if they had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred?

None of them A few of them Some of them Most of them

<i>How much would you be tempted to report doping misconduct in the following situations...</i>	<i>not at all tempted</i>	<i>slightly tempted</i>	<i>somewhat tempted</i>	<i>very tempted</i>	<i>extremely tempted</i>
...if I had evidence that my opponents used doping?	1	2	3	4	5
...if I had evidence that the coach of my opponents promoted doping use?	1	2	3	4	5
...if I had evidence that my teammates or fellow athletes used doping?	1	2	3	4	5
...if I had evidence that my coach promoted doping use?	1	2	3	4	5

If I had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred, <u>and did not report it</u> then I would	Definitely not				Definitely yes
<i>...regret it</i>	1	2	3	4	5
<i>...be disappointed with myself</i>	1	2	3	4	5
<i>...feel sad</i>	1	2	3	4	5
<i>...feel shame</i>	1	2	3	4	5

Have you ever detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that a doping misconduct occurred and reported it?

- No, I never detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that a doping misconduct occurred
- Yes, I detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that a doping misconduct occurred, and I reported it
- Yes, I detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that a doping misconduct occurred, and I decided NOT to report it

What was the main reason for your decision? (Please provide a brief description)

If your reported doping misconduct in the past, to whom did you report? (Tick as many as they apply)

- I did not report doping misconduct in the past
- I used an official whistleblowing platform, such as WADA's Speak Up or IOC's Integrity and Compliance platform
- I reported it to UK Anti-Doping (UKAD)
- I reported it to my coach
- I reported it to my club/team's manager
- I reported it to law enforcement authorities (e.g., police)
- Other _____ (please specify)

Do you know other athletes who have engaged in whistleblowing to report a doping misconduct?

- Yes No

How much do you identify with an athlete who would report doping misconduct through whistleblowing?

Not at all										A great deal
1	2	3	4	5	6	7				7

How favourably would you evaluate an athlete who would report doping misconduct through whistleblowing if s/he had had detected, identified, witnessed or knew of, or had reasonable grounds for suspecting that it had occurred?

Extremely unfavourably										Extremely favourably
10	20	30	40	50	60	70	80	90	100	

Are you aware of the following online whistleblowing resources?

WADA's SpeakUp? Yes No

International Olympic Committee's Integrity and Compliance platform? Yes No

<i>If you wanted to report doping misconduct, how much would you trust each of the following sources?</i>	<i>not at all</i>	<i>a little</i>	<i>somewhat</i>	<i>a lot</i>	Very much
WADA's online Speak Up Platform	1	2	3	4	5
IOC's online Integrity & Compliance	1	2	3	4	5

platform					
UKAD	1	2	3	4	5
An anonymous online whistleblowing platform that is independent of sport	1	2	3	4	5
Police	1	2	3	4	5
My coach	1	2	3	4	5
My club/team manager	1	2	3	4	5

How much do you feel you identify with your teammates?

1	2	3	4	5
Not at all				Very much

<i>How much do you agree or disagree with the following statements?</i>	Strongly disagree	Disagree	Neither agree, nor disagree	Agree	Strongly agree
I have a strong identity with my teammates	1	2	3	4	5
The values and beliefs of my teammates largely reflect my own values and beliefs	1	2	3	4	5
It is important to me to be in harmony with my team	1	2	3	4	5
It is important to me to be in line with my team	1	2	3	4	5

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport.

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5

WHY DO YOU PRACTICE YOUR SPORT?

1. Because it gives me pleasure to learn more about my sport.	1	2	3	4	5	6	7
2. Because practicing sports reflects the essence of whom I am.	1	2	3	4	5	6	7

3. Because I have chosen this sport as a way to develop myself.	1	2	3	4	5	6	7
4. Because I would feel bad about myself if I did not take the time to do it.	1	2	3	4	5	6	7
5. Because people I care about would be upset with me if I didn't.	1	2	3	4	5	6	7
6. I used to have good reasons for doing sports, but now I am asking myself if I should continue.	1	2	3	4	5	6	7
7. Because I find it enjoyable to discover new performance strategies.	1	2	3	4	5	6	7
8. Because participating in sport is an integral part of my life.	1	2	3	4	5	6	7
9. Because I found it is a good way to develop aspects of myself that I value.	1	2	3	4	5	6	7
10. Because I feel better about myself when I do.	1	2	3	4	5	6	7
11. Because I think others would disapprove of me if I did not.	1	2	3	4	5	6	7
12. So that others will praise me for what I do.	1	2	3	4	5	6	7
13. Because it is very interesting to learn how I can improve.	1	2	3	4	5	6	7
14. Because through sport, I am living in line with my deepest principles.	1	2	3	4	5	6	7
15. Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
16. Because I would not feel worthwhile if I did not.	1	2	3	4	5	6	7
17. Because people around me reward me when I do.	1	2	3	4	5	6	7
18. It is not clear to me anymore; I don't really think my place is in sport.	1	2	3	4	5	6	7

	Not at all true of me					Very true of me						
	1	2	3	4	5	6	7					
1. It is important to me to perform as well as I possibly can						1	2	3	4	5	6	7
2. I worry that I may not perform as well as I possibly can						1	2	3	4	5	6	7
3. It is important to me to do well compared to others						1	2	3	4	5	6	7
4. I just want to avoid performing worse than others						1	2	3	4	5	6	7
5. I want to perform as well as it possible for me to perform						1	2	3	4	5	6	7
6. Sometimes I am afraid that I may not perform as well as I'd like						1	2	3	4	5	6	7
7. It is important for me to perform better than others						1	2	3	4	5	6	7
8. My goal is to avoid performing worse than everyone else						1	2	3	4	5	6	7
9. It is important to me to master all aspects of my performance						1	2	3	4	5	6	7
10. I am often concerned that I may not perform as well as I can perform						1	2	3	4	5	6	7
11 My goal is to do better than most other performers						1	2	3	4	5	6	7
12. It is important for me to avoid being one of the worst performers in the group						1	2	3	4	5	6	7

Indicate which sport you refer to while answering the next 25 questions (ex: baseball, hockey, badminton, etc.): _____.

For each of the following items, circle the number that best represents the extent to which the item corresponds to you with respect to the sport you identified above.

	Does not corresponds at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly		
	1	2	3	4	5		
1. When I lose, I congratulate the opponent whoever he or she is.			1	2	3	4	5
2. I obey the referee.			1	2	3	4	5
3. In competition, I go all out even if I'm almost sure to lose.			1	2	3	4	5

4. I help the opponent get up after a fall.	1	2	3	4	5
5. I compete for personal honors, trophies, and medals.	1	2	3	4	5
6. After a defeat, I shake hands with the opponents' coach.	1	2	3	4	5
7. I respect the rules.	1	2	3	4	5
8. I don't give up even after making many mistakes.	1	2	3	4	5
9. If I can, I ask the referee to allow the opponent who has been unjustly disqualified to keep on playing.	1	2	3	4	5
10. I criticize what the coach makes me do.	1	2	3	4	5
11. After a competition, I congratulate the opponent for his good performance.	1	2	3	4	5
12. I really obey all rules of my sport.	1	2	3	4	5
13. I think about ways to improve my weaknesses.	1	2	3	4	5
14. When an opponent gets hurt, I ask the referee to stop the game so that he or she can get help.	1	2	3	4	5
15. After a competition, I use excuses for a bad performance.	1	2	3	4	5
16. After a win, I acknowledge the opponent's good work.	1	2	3	4	5
17. I respect the referee even when he or she is not good.	1	2	3	4	5
18. It is important to me to be present at all practices.	1	2	3	4	5
19. If I see that the opponent is unjustly penalized, I try to rectify the situation.	1	2	3	4	5
20. When my coach points out my mistakes after a competition, I refuse to admit that I made those mistakes.	1	2	3	4	5

21. Win or lose, I shake hands with the opponent after the game.	1	2	3	4	5
22. I respect an official's decision even if he or she is not the referee.	1	2	3	4	5
23. During practices, I go all out.	1	2	3	4	5
24. If by misfortune, an opponent forgets his or her equipment, I lend him my spare one	1	2	3	4	5
25. If I make a mistake during a crucial time of the match, I get angry.	1	2	3	4	5
