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RESEARCH ARTICLE



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The good, the bad, and the ugly: A qualitative secondary analysis into the impact of doping and anti-doping on clean elite athletes in five European countries

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ABSTRACT

Protecting clean sport, and the rights of athletes to a clean sport environment, is at the centre of anti-doping policies. To better support and enable clean athletes and sport, an understanding of the clean athlete lifeworld is required. The current study explored the ways that clean athletes are personally affected by others' actual or suspected instances of doping and anti-doping rule violations, and by aspects of the anti-doping system. Qualitative Secondary Analysis (QSA) was used to re-analyse and interpret 13 focus group transcripts generated from the 'Research-Embedded Strategic Plan for Anti-Doping Education Clean Sport Alliance Initiative for Tackling Doping' (RESPECT) project (see Petróczi et al., 2021b). The sample in the parent study included 82 self-declared clean elite athletes, from Germany, Ireland, Netherlands, Slovenia, and the UK. Reflexive thematic analysis generated three overarching themes: The harm done by clean athletes having to coexist with dopers, how clean athletes are undermined by a disingenuous interest in clean sport, and the anxiety experienced by clean athletes over mistakes that could lead to anti-doping rule violations. The impacts of doping on clean athletes – direct or indirect – are experienced by all clean athletes in some way. The results indicate that current approaches to anti-doping rule compliance frequently undermine clean athletes and the perceived legitimacy of the anti-doping system.

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Introduction

The latest Anti-Doping Code (WADA 2021a) and its associated International Standards brought new tools to the anti-doping arsenal. On the testing side, following the 2021 International Standard for Testing and Investigations mandate for signatories to have a written strategy for storage and further analysis as part of their testing programs (WADA 2021b), the International Testing Agency (ITA) has established a highly secured Centralized Long-Term Storage Facility (CLTSF) on behalf of the International Olympic Committee (ITA, 2020). Storing samples for up to 10 years at no additional cost aimed to assist National Anti-Doping Organisations (NADOs) and International Federations to retain and retest the samples collected leading up to any Olympic events. Alongside the samples collected at the Olympic events by the ITA, this move extends the threat of detection beyond the

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currently available methods and thus is expected to deter athletes from using prohibited substances and/or methods, as well as from experimenting with new, not-yet-prohibited and often risky substances. Preventive measures also include the new International Standard for Education (WADA 2021c) which sets mandatory components for anti-doping education offered for athletes globally. These new, along with existing, anti-doping measures place further pressure on organisations responsible for anti-doping, leading to a situation where organisations increasingly focus on their compliance-driven performance indicators to secure resources needed for maintaining their level of existence. This process has been described as a change in goals among the negative consequences of highly rule-driven bureaucratic organisations, where the set of rules and regulations are often given greater importance than the end result (Merton 1963). This is increasingly so in what Petróczi and Boardley (2022) explain is a 'wicked' context, where the success of the ongoing management is more satisfactory than achieving a solution (Read *et al.*, 2019), thereby nudging organisations towards evaluating performance in terms of compliance which is handy and easy to measure in comparison with achievement which is convoluted and ill-defined. Disadvantages of a highly bureaucratic, rule-driven system, also labelled as bureaucratic red tape in the cognate literature, is felt by people who work in or are affected by the system (Bozemann, 2000, Hattke *et al.* 2020).

In sport, the employees are the anti-doping managers, intelligence officers, doping control officers and educators, whereas the client group comprises of athletes and members of their entourage. The impact of dealing with bureaucratic red tape is felt in everyday practices and has an affective quality which in turn has implications for organisational performance and member engagement (George *et al.*, 2021), as well as perceptions of legitimacy of the system with its complex rules and regulations that may not be followed equally by all stakeholders. Indeed, perception of anti-doping legitimacy stems from multiple sources, among which procedural legitimacy, the perceived fairness in the processes and outcomes, includes the balance between efforts, inconvenience and sacrifices, and the results achieved (Tyler and Jackson 2014, Woolway *et al.*, 2020).

Through the lens of ethical and legal perspectives, the impact of anti-doping rules and measures on athletes' lives, rights to privacy, and workers' rights, along with the legitimacy of these measures, has been extensively debated in the literature (e.g., McGregor *et al.* 2013, Borry *et al.* 2018, Allen *et al.* 2019, Loland and McNamee 2019, Reed *et al.* 2020, van der Sloot *et al.* 2020, Gleaves 2021, Qvarfordt *et al.* 2021). Empirical studies on athletes' perceptions of these measures indicate that athletes are aware of inequalities in global implementation of the anti-doping rules, are concerned about competing against athletes from countries with a less rigorous anti-doping regime (Overbye 2016, 2017, Efvérström *et al.* 2016a, 2016b), are discontent with the practicalities of the whereabouts system (Overbye and Wagner 2014, Valkenburg *et al.* 2014), and face the conundrum of limited scope for action yet full responsibility (Qvarfordt *et al.* 2019), as well as the potential misuse of the Therapeutic Use Exemption (TUE) system (Overbye and Wagner 2014). Athletes also appear to agree that clean sport behaviour is not resulting from the deterring effect of testing and sanctions which are considered as ineffective to prevent doping (Overbye *et al.* 2014, Overbye 2017, Westmattmann *et al.* 2018). Rather, as recent studies (e.g., Barkoukis *et al.*, 2022, Clancy *et al.* 2022) suggest, perceived legitimacy of anti-doping impacts athletes' views on 'clean sport' as promoted by anti-doping organisations and athletes' trust in the anti-doping system, leading to frustration around its demands and infringements on athlete privacy for the greater good, and keeping reactions within the realm of anti-doping compliance. Following clean sport principles and being committed to clean sport behaviour is more deeply rooted in personal values and integrity, stemming from their early life experiences and upbringing and is formed prior to any interaction with anti-doping. This is in line with the combined models of legitimacy (e.g., Jackson *et al.* 2012, Tyler and Jackson 2014) which propose complimentary pathways to rule compliance, partly stemming from moral values (i.e., respect for the authority, the law and rules) and partly from shared goals (i.e., importance of clean sport for all in the current and for the next generations).

The collective sentiment in studies on anti-doping legitimacy suggests that athletes feel that they are an integral part of sport, and clean sport, therefore their views should matter, and they should be more involved in anti-doping in a positive sense (Efverström *et al.* 2016a, Macedo *et al.* 2019, Petróczy *et al.* 2021b), which starts with listening to their views and concerns. Reviewing different sources (i.e., Gleaves and Christiansen 2019) captures athletes' views about WADA and 'The Code' and concludes with a strong argument for involving athletes in anti-doping based on empirical evidence from previous investigations (e.g., Valkenburg *et al.* 2014) and existing examples of collaborative efforts between athletes and policy makers. Although many anti-doping organisations invite athlete representatives to their respective boards, their roles vary widely across the field.

Alternatively, academic research can give voice to a much larger group of athletes. Their uncut views, captured by Petróczy *et al.* (2021b), offer a complex picture. On the one hand, athletes are appreciative of anti-doping efforts and speak positively of their own system. On the other hand, they voice frustration about the daily dealings with various elements of the system such as ADAMS, the whereabouts requirements, and are concerned about accidentally making a mistake that might be construed as an anti-doping rule violation, as set out in the World Anti-Doping Code (WADA 2021a). Furthermore, the disparity in doping control they experienced or witnessed during their sporting career as high-performing athletes, along with perceived unjust instances of leniency in how sanctions are handled for anti-doping rule violations, undermine their trust in global anti-doping and temper their hopes for the future.

Another, and less explored, avenue taken to understand the lifeworld (i.e., subjective everyday experiences and the physical surroundings that make up one's world), of clean athletes and enquire about the ways they are or have been personally affected by others' use of prohibited performance enhancing drugs. For instance, creative non-fiction work by Erickson *et al.* (2016) offers first-person accounts of four athletes in two 'life stories' to show the ways active and retired clean athletes can be impacted by doping. Athletes' experiences due to others around them doping were complex and included financial, emotional, and relational effects that can last during – as well as after – a career as an elite athlete. These impacts, collectively, could include missing out of qualifiers, positions, medals and sponsorship, being consistently fearful for reputation, and exercising extreme caution to ensure nothing sinister can happen. The latter can stem from distrust in nations with bad reputations for doping and/or anti-doping compliance, having a lax approach to doping control, or a great degree of uncertainty around food. Losing out on a medal is not purely based on a (doped) better performance but can also result from the mindset that focuses more on the opponent (and guessing whether he/she doped) than on one's own performance. Participating athletes reported shock and disillusion when someone they (thought they) knew turned out to be a doper. At the same time this experience, albeit difficult to process emotionally and intellectually, serves as a reality check for clean athletes, making them acutely aware that one does not have to be a bad person to dope. Association with a doper who is or was a friend is a conflicting and emotionally painful experience for athletes who are committed to and advocating clean sport (Erickson *et al.* 2019). The (perceived or real) need to constantly defend a 'clean' status and living – unjustly – under the cloud of suspicion is exhausting and a source of persisting frustration. The impact of doping on the reputation of the sport, team, and country is recognised, against which clean athletes feel powerless.

Similarly, Shelley *et al.* (2021) recently reported on the ways that self-declared clean athletes had been affected by doping. On the one hand, athletes interviewed were unequivocally and intrinsically motivated to follow clean sport behaviour, not because of fear of sanctions and repercussion if they do otherwise but because they wanted to be true to the values and morals they have been raised with. They valued honest and authentic sport achievement above everything else. On the other hand, they also spoke at length about the negative consequences they suffer from both doping around them and the daily demands of anti-doping. Noting the lack of trust in the global anti-doping system due to international inconsistencies, athletes also highlighted the dearth of support or recognition of athletes committed to clean sport by the system. Furthermore, participants spoke at length about how doping by others (i.e., competitors, fellow athletes, or even teammates) can

have a detrimental impact on athletes' emotional and psychological wellbeing, motivation and performance goals, and earning potential, underscoring the need to take the impact of doping as well as anti-doping on the lives of clean athletes into account when devising and implementing anti-doping policies for the sake of protecting clean sport and clean athletes. However, because this study exclusively focused on British track and field athletes, further research is needed on the impact of (anti-) doping with more geographically diverse samples including a variety of sports.

Drawing upon two complementary theories – the Incremental Model of Doping Behaviour (Petróczi 2013) and Personal Integrity Theory (Gardiner *et al.*, 2017) – Clancy *et al.* (2022) re-analysed life-story interviews with 14 elite athletes from three European countries. Although all participants were deemed to be a 'clean athlete' by the regulatory definition, their individual conceptions of clean sport and commitment to personal integrity presented on a continuum from a strict position of not using any substances through to the carefully managed use of non-prohibited substances and/or methods for performance-enhancement. For the first time, a clear distinction between commitment to clean sport principles and anti-doping rule compliance was evidenced. Doping was seen as the consequence of a lapse in, or a lack of, personal commitment to clean sport. Among the factors that could push athletes towards doping (e.g., medical, financial, performance concerns, perceived prevalence of doping in the environment), perceptions of legitimacy of the anti-doping system featured strongly. On the other hand, acceptance of doping in their personal environment, anti-doping environment, motivation for sport and meeting personal performance goals with permitted means helped athletes to build and maintain personal commitment to clean sport.

With the more athlete-centred focus of anti-doping outreach and education and the noticeable (and welcome) shift from catching the cheats to protecting clean sport (Petróczi *et al.* 2017, Qvarford *et al.* 2019), it is timely that research also shifts its focus to clean sport to explore how doping and anti-doping impact the lives of those who chose to follow clean sport behaviour. If anti-doping is striving for a high degree of legitimacy, its policies must address the needs of those who make personal contributions to the much-desired clean sport culture by choosing to be a 'clean athlete'. Being a clean athlete may come naturally to them, but it does not mean that it is easy, nor should they be taken for granted as being non-problematic cases. Exploring how doping and anti-doping impact the lives and careers of clean athletes is therefore long overdue (Petróczi 2018, 2019). In addition, a sector-wide Delphi study among stakeholders set a research agenda for the next ten years (Boardley *et al.* 2021), which then informed WADA's social science research programme (WADA 2022). Among the research areas of importance, 'clean athletes' perception of their representation and support within the anti-doping system was identified and agreed upon (Boardley *et al.* 2021). The purpose of the current study was aligned to this research priority and examined the ways clean athletes have been and continue to be personally affected by doping and anti-doping. Specifically, secondary qualitative analysis was used to examine the following research question: In what ways are clean athletes personally affected by others' actual or suspected instances of doping and anti-doping rule violations, and by aspects of the anti-doping system?

Method

The current study was conducted from an interpretivist philosophical position, which emphasises the understanding and meaning people (i.e., self-declared clean elite athletes) create for, and attribute, to their experiences (i.e., others' actual or suspected doping; Poucher *et al.* 2020). Interpretivism is based on a relativist ontology (i.e., multiple individual realities) and a subjectivist epistemology (i.e., knowledge is constructed and subjective; Poucher *et al.* 2020). Within the current study, the authors co-constructed knowledge and interpreted the meaning of the lived experiences outlined within a parent dataset (i.e., Petróczi *et al.* 2021b) through a process of secondary analysis.

Research design: secondary analysis

Qualitative secondary analysis (QSA) is a research methodology which involves the re-use of pre-existing qualitative data to either investigate *new* questions or *verify* the findings of previous work (Heaton 2019). QSA has grown in popularity within social sciences alongside more general shifts towards promoting openness, transparency, and sharing of qualitative research data (see Ruggiano and Perry 2019). The current study re-uses '*self-collected data*' (Heaton 2008) to investigate additional questions to those used in a primary research study (i.e., Petróczi *et al.* 2021b). Specifically, secondary analysis was conducted on a parent dataset from a 3-year Community-Based Participatory Research (CBPR) study which explored the meaning and importance of 'clean sport' and 'clean athlete identity'. This study was conducted as part of the 'Research-Embedded Strategic Plan for Anti-Doping Education: Clean Sport Alliance Initiative for Tackling Doping' (RESPECT) project funded by the European Union under the Erasmus + Collaborative Partnerships programme. All authors were part of the RESPECT project and parent study, however the authorship order changed based on relative contributions.

QSA was chosen to address the research question for the following reasons: Firstly, during the original analytical process, it was noted that participants had spoken about the ways doping and anti-doping personally impacted them and other clean athletes. However, these 'impact meanings' were not closely linked to the original research questions. Secondly, in line with the semi-structured and thus flexible open-ended nature of the focus groups, unanticipated discussions about life as clean athletes were allowed and facilitated, hence it was agreed that there was sufficient depth and breadth of data addressing impact meanings to warrant a new and more focused secondary analysis. Thirdly, based on the richness and uniqueness of the dataset, the authors highlighted the need to re-analyse the dataset with a specific focus on the impact of doping on how clean athletes experience being in a 'dopogenic' environment and experience staying clean in such environments (Backhouse *et al.* 2018). Dopogenic environments represent those that entice doping via favourable conditions, opportunities, real or perceived pressures, and normalisation. Finally, the secondary analysis maximised participation and avoided over-burdening this hard-to-reach sample of elite clean athletes (Heaton 2004).

Sample

The sample in the parent study included 82 self-declared clean elite athletes (Male = 50, Female = 32) between 18 and 46 years of age ($M_{\text{age}} = 25.76$, $SD = 5.53$) (see Petróczi *et al.* 2021b). Participants were from five European countries including: Ireland ($n = 14$), Netherlands ($n = 15$), Germany ($n = 23$), Slovenia ($n = 14$), and the United Kingdom ($n = 16$) and competed in 36 different sports. At the point of data collection, participants were either competitive athletes ($n = 72$) or had recently retired from competitive sport ($n = 10$). Nineteen had participated and won medals at the Olympics/Paralympics ($n = 1$), World Championships ($n = 13$) or European championships ($n = 5$). In addition, 47 had participated at either the Olympics/Paralympics ($n = 10$), World Championships and/or European Championships ($n = 35$), or Commonwealth Games ($n = 2$). Furthermore, 16 participants had competed at the highest level within their age group and/or sport (e.g., national leagues, international competitions, world cups). Finally, 61% of the participants were in Registered Testing Pool (RTP). Specifically, 74% had been tested at least once, 34% had been tested more than ten times during their athlete career, and 89% had received formal anti-doping education.

Focus groups (parent dataset)

The parent dataset analysed for the current study consisted of twelve national focus groups and one international follow-up focus group. National focus groups were conducted with a total of 77 athletes in Germany ($k = 3$), UK ($k = 3$), Ireland ($k = 2$), Netherlands ($k = 2$), and Slovenia ($k = 2$) in

the respective native languages. The national focus group guide was divided into four main sections that explored participants' views regarding: (a) The definition and personal importance of 'clean sport' and being a 'clean athlete'; (b) The challenges to clean sport and being a clean athlete; (c) hopes and possibilities for the future; and (d) an open discussion in relation to clean sport. The national focus groups were semi-structured and lasted between 22:27 and 90:34 minutes ($M = 61:02$, $SD = 20.54$).

The international focus group was conducted in English with nine athletes, four of which also took part in the national focus groups. The international focus group lasted 151:23 minutes and was based on themes and sub-themes generated by an initial analysis of the national focus group data (see [Petróczy et al. 2021b](#)). Participants were encouraged to reflect on the themes identified and to challenge the researchers' interpretations of the analysis. All focus groups were transcribed and professionally translated and produced 352 pages of text.

Ethics

Following institutional ethical approval, informed consent was attained from participants during the parent study. This included their permission for anonymised transcripts to be stored securely and used for scientific purposes (e.g., primary and secondary analysis). The anonymised transcripts are not publicly available and are only accessible to the authors due to the high-profile nature of some of the participants. It is important to note that formal ethical approval for the secondary analysis was also obtained from a UK based university ethics committee.

Data analysis

Due to its flexibility as a method (rather than a fully embedded methodology), the parent dataset was secondary analysed using thematic analysis (Braun and Clarke 2006, 2020). Specifically, reflexive thematic analysis was used because of its emphasis on the subjectivity of the researcher and its concerted engagement with the data during interpretation (Braun and Clarke 2020). The six-steps of reflexive thematic analysis were conducted by the first author using NVivo. In phase one, clean transcripts were re-read and written notes were made about key 'impact meanings' that could be interpreted from each focus group. These initial thoughts, ideas, interests, and interpretations were discussed with the third author who acted as a *critical friend* (Smith and McGannon 2018). Specifically, the third author was able to draw upon contextual experiences of being present and involved in the UK and international focus groups, as well as offering subject expertise, personal experience as an elite athlete, and recent case studies in the media to assist interpretation of the data. In phase two, the transcripts were inductively coded to identify important features within the data that were relevant to the research question. During phase three, these initial codes were subsequently organised into initial sub-themes (e.g., *Denied Medals, Money, and Memories, Altered Perceptions and Expectations of Self*) and themes (e.g., *A Harmful Coexistence with Dopers*) and based on patterns of shared meaning. At this point, a set of provisional themes, theme definitions, theme names, and an accompanying thematic map were discussed by the first, second, and sixth author who had also read all the focus group transcripts (Phase 4). Following this, in phase five the authors reviewed the themes and considered whether they were forming a coherent pattern across the whole data set. In phase six, an analytical commentary was constructed, refining the arrangement of themes and theme definitions, and selecting appropriate extracts (i.e., quotes) to help illustrate the different 'impact meanings' that had been interpreted. This analytical commentary was then read by all other authors, with their suggestions for any further refinement being discussed and actioned where appropriate.

Quality criteria & methodological rigour

Drawing upon a 'relativist approach' (Sparkes and Smith 2009), the current study can be evaluated using existing criteria which has been used to judge the quality of QSA (i.e., Ruggiano and Perry 2019). In line with our philosophical position, the QSA criterion acts as a starting point for judging the current study and includes the following categories: a) the relationship of the researchers with the parent study (i.e., the current study involved re-examining qualitative data, from the parent study that the authors were involved with, to explore a new research question); b) ethical considerations in secondary study (e.g., authors provided information on ethical approval for the parent study and QSA); and (c) attention given to methods and rigour of the parent study and secondary studies. Specifically, the current study provides a detailed description of the parent study and dataset (i.e., project, funding source, aims, design, sample, data collection, and analysis). In addition, methodological rigour was maintained during the process of QSA by including research team members from the original study, conducting QSA on un-coded transcripts, and use of audit trails. Furthermore, the second, third, and sixth authors acted as '*critical friends*' throughout the analysis, offered different perspective, and challenged the first authors interpretations of the data. As a final point, athlete researchers from the parent study were provided with the opportunity to offer their reflections on the results but none did.

Results

Secondary analysis led to the generation of three themes (i.e., a harmful co-existence with dopers, undermined by a disingenuous interest in clean sport, and clean anxiety) that address different ways in which clean athletes have been and are affected by doping and anti-doping. These themes, and further sub-themes, are described and illustrated below.

A harmful coexistence with dopers

Participants felt that clean sport was an unachievable ideal whereby dopers would always be 'out there' unless a zero-tolerance approach was taken to any anti-doping rule violation or a positive test result. Hence, participants spoke of what this realisation had been like for them and how it had affected them or other clean athletes they knew of. Three distinct sub-themes that exemplify the harm done by having to coexist with dopers (i.e., denied medals, money, and memories, altered perceptions and expectations of self, and incite suspicion) are presented below.

Denied medals, money, and memories

One recurrent sub-theme that centred on the harmful impact of coexisting with dopers was the way that the presence of dopers denied clean athletes of something they otherwise deserved to have had or experienced that may have contributed to a more prosperous athletic career. This was about clean athletes being personally and directly negatively affected by another athlete who had doped. Clean athletes were believed to be regularly denied normative performance achievements by dopers that would have otherwise led to clean athletes qualifying for, progressing through, and/or winning competitions (and medals) and therefore securing funding. In turn, dopers denied clean athletes of experiences and thus memories connected to these performance achievements that would constitute a more rewarding time in their sport. These experiences and memories could not be recreated or made up for. In addition, the sense of having been denied something was worsened by the way anti-doping authorities were seen to poorly manage, and unnecessarily delay, the process of amending the records (e.g., lack of PR to ensure recognition of the 'true' winner) and reallocating prize money or medals if relevant (e.g., making replica medals instead of recalling and redistributing the original medals). This is illustrated in the following excerpts taken from a [Country Removed for

Anonymity] focus group in which a participant, who was several years into their retirement from professional sport, spoke of learning that they would soon be retrospectively awarded a World Championship medal:

[At the time of the competition] I was quite pleased with making 5th place, of course I wanted the medal, everybody goes for that, but I did not get it. . . . the other then-competitors tested positive for doping, and I reached the 3rd place. When something like this happens, you start thinking “what would have happened if . . . if I had a medal in my pocket, I would have been more relaxed, secure, and self-confident and maybe ended up winning another one. Things would be rather different financially”. I worked hard for 20 years for those 5 minutes of glory in front of [Number Removed for Anonymity] people at the stadium, not to mention the party with your friends because you made it. I did not have this party. Actually, this has completely changed the course of my career. . . . I will go to the stadium and stand there by myself, probably, at the ceremony . . . get a copy of a medal which looks like our state championship medal. What angers me the most is that they do not have to return the money or the medal after 10 years . . . So what is the message here? You should just get drugged up and then after 10 years, when you have already stopped competing, you will not have to return anything.

Altered perceptions and expectations of self

Like the way that dopers denied clean athletes' moments of success, co-existing with dopers was harmful because of the impact it has on clean athletes' perceptions and expectations of the self. There were inferences in the data that because of the presence of dopers in sport, clean athletes developed certain perceptions about what was necessary to achieve in their sport and lesser perceptions of themselves. In this way, dopers set unrealistic or even dangerous standards for clean athletes to work towards in training and competition, with some athletes questioning their capability to work towards and meet such standards. As stated by a participant in a UK focus group whilst talking about a fellow competitor who had previously served a doping ban:

He's done 17 meets in four weeks. I can't even do that in a season. I almost don't think, “I want him to get banned,” but I look at him and think, “What can I do to make myself better?” You then start questioning yourself and asking, “Why am I not as robust? Should I be doing this?” . . . Sometimes, it does get to me and I question myself and think, “Am I just a crappy athlete who can't do all these meets like these other people do?”

Dopers were also said to impact clean athletes' expectations of the self, whereby the realisation that dopers were 'out there' competing had prompted a change in clean athletes' ambitions and goals. Unfortunately, some participants were able to envisage scenarios in which they would change their expectations of the self in ways that meant they were no longer interested in being a clean athlete or competing in sport altogether. Fortunately, dopers were perceived to be in the minority and so this had not been the case. Instead, a common actual change to the expectations they had of the self was that many clean athletes were doubtful of experiencing certain normative performance achievements and therefore 'moving the goalposts'. In accepting that they had to coexist with dopers, participants spoke of coming to terms with the eventuality that winning a medal at an international competition (or indeed winning it at the time of the competition rather than being retrospectively awarded it) was unlikely to be within their reach and capabilities; the latter being more defined by what they are prepared or unwilling to do for a 'better performance' than their talent and hard work.

Incite suspicion

A third sub-theme addressing the harmful coexistence with dopers was the way that learning of doping acts incited suspicion in and of clean athletes. Finding out that another athlete had doped had prompted participants to feel suspicious about other athletes and to question the legitimacy of others' competition performances by speculating whether they had been enabled by banned substances. As stated by a participant in an Irish focus group: 'We talk about doping regularly, I suppose. We see results from an international race, and we question each other and say, “Do you reckon that athlete is on the juice?” We do that regularly.' Furthermore, because of the presence of dopers in sport, clean athletes also had to live with the prospect that they could be subjected to the same speculation from others. Although most participants were able to interpret this as

a compliment or to give such speculation little attention or significance, some athletes did find this speculation problematic. As an example of this, a participant in a Netherlands focus group shared the following story of seeing speculative responses about her on social media:

I remember that when I first joined [the] elite team, my first year at the highest level, I won the World Cup, so that was very unexpected and of course I started reading people's opinions. And from 100 reactions there was one who, for the fun of it, posted an emoji with an injection. I was upset for so long with the idea that people think [that]. I do this my whole life, since I was ten years old, skipping birthday parties because I want to [Sport Removed for Anonymity] and then I achieve that and then someone says something like that.

Dealing with a shadow of doubt about them and/or their achievements leads to several actions they employ to distance themselves physically and mentally from known dopers. As one participant in the Irish focus group explained how she would react if an athlete in her environment was found doping: 'I wouldn't really want to train with them and I wouldn't want to really interact with them'. Furthermore, it was highlighted during the international focus group that the prospect of being the target of others' suspicions was related to why many clean athletes were not willing to publicly promote themselves or their sport as clean. As stated by a participant:

I feel like sometimes if you speak out and say, "I'm clean. I'm clean," and you're doing all these posts about clean sport, people think, "Why is she posting all this about clean sport? I'm sure there's something hiding behind it." . . . when you start talking about a topic and start justifying yourself for no reason, people always suspect that the opposite is true.

Undermined by a disingenuous interest in clean sport

Being a clean athlete involved experiences of anti-doping and their sport organisations that were perceived at times as not serving or prioritising the interests and needs of clean athletes. In these moments, participants questioned how genuine and committed their sport and the anti-doping system was in making the training and competition environment clean, thus participants were cynical that clean sport was a top priority. As these experiences accrued, participants increasingly felt undermined by the very system that purports to protect clean athletes and clean sport. Participants' experiences related to this theme centred around two sub-themes, namely, the poor treatment of clean athletes and being clean is invisible.

Poor treatment of clean athletes

Alongside the undermining nature of the way dopers were perceived to be leniently treated, clean athletes felt undermined by experiences of poor treatment themselves. Rather than working with clean athletes and having structures or procedures in place to support and respect clean athletes, the anti-doping system was more regularly experienced as unfair, demanding, inflexible, non-cooperative, and even unsafe. Although participants were willing to comply with doping controls, this was on the basis that they were being administered in a fair and respectful manner. Yet the disparity sensed in the anti-doping system meant that athletes who were from nations or sports where anti-doping was more stringent were perceived as unfairly having to endure something negative. These meanings are illustrated in the following quotation spoken by a participant in a UK focus group:

I've had ten years of it [being tested]. That's why I'm so passionate about having more out-of-competition testing. I feel like there is a lot [of testing] in competition but for me, it just seems only fair that everyone else in the world is getting tested out-of-competition. They're not getting tested, so they're potentially doping which is an advantage. Whereas I'm getting tested at home at 10 o'clock at night or 7 o'clock in the morning. That's not fair. It's so skewed. I don't care about doing it but when you think about what happens . . . a total stranger comes to your house, they're there for an hour and watches you pee. It's actually weird . . . it's so invasive.

In a poignant example of inflexible testing conditions that failed to accommodate the accepted pre-competition practices within a specific sport, a participant in a Netherlands focus group recalled the following:

A day before a match you stop drinking [because we are trying to lose liquids], so when the doping authorities show up you've got a problem. Should we start to drink, we would get too heavy and wouldn't be able to compete . . . [Name of an athlete] was approached by the doping authorities before a tournament, and although she opened the door, she refused to drink. . . . she got suspended for three months. In our sport this way of testing is a problem. Their response was that if she hadn't opened the door, it would have been a 'missed test', without any consequences.

Another inference of the poor treatment of clean athletes was participants' perceptions that they were insufficiently resourced and supported to meet anti-doping expectations. Hence, despite clean athletes' willingness to comply with anti-doping, compliance was at times considered to be unnecessarily challenging because of a failure to invest in resources and support that would otherwise make compliance easier. For some, such poor treatment of clean athletes was spoken about in relation to the need for greater financial investment by the anti-doping system that would enable a move away from relying on the collection of urine samples that were experienced by several as personally invasive, to the collection of blood samples to test for banned substances. Athletes were clear about the distinction between being a clean athlete, which came naturally to them, and being anti-doping rule compliant, which requires conscious and sustained effort on the athletes' part, and comes at costs financially, mentally, and emotionally.

Being clean is invisible

A final meaning regarding feeling undermined by a disingenuous interest in clean sport was the lack of recognition and reward they received for their compliance with anti-doping rules, doping controls, and the work required by athletes to uphold and promote the values that underpin clean sport. As such, this created a sense of resentment for the anti-doping system because athlete's efforts and willingness to comply with anti-doping rules and procedures to uphold clean sport was typically taken-for-granted or had gone unacknowledged. Mostly discussed at the international focus group, the key issue was that athletes felt that they give up so much to be anti-doping rule compliant, but they have nothing to show for it. They expressed a great deal of frustration about not being able to project their clean status, which they were proud of, in any way. Reflecting on the fact that negative doping test results were unpublished or publicised, one Irish athlete said: 'It annoys me that I don't get an email saying, "Test taken on such a date has been returned and it was negative. Thank you for your commitment to the sport." I think that is something that we should be getting'. Findings also showed how funding systems in sport were exclusively focused on normative performance achievements, and how athletes were not financially supported in their activities to promote clean sport. In relation to this last point, a participant in the international focus group stated:

You don't get paid to speak up, or run a workshop with kids, or show up at events and maybe have a [inaudible] banner with leaflets. I'm willing to do that but, at the same time, I need to make a living . . . Maybe in smaller countries like ours [Slovenia], that is an issue because athletes say, "Okay, I'm passionate about this but I need something substantial so I can make a living. I can't be spending hours and hours on something that doesn't pay my bills at the end of the month."

Clean anxiety

A third overarching meaning was labelled as clean anxiety. The clean athlete experience was characterised by varying levels of psychological angst about ingesting or putting something into their body that could result in them jeopardising their personal sense of being a clean athlete as well as unintentionally breaching anti-doping rules. Participants indicated that much of this clean anxiety was derived from their awareness of anti-doping rules, as well as perceptions that these rules were

both stringent and ambiguous. Consequently, athletes found themselves anxious about making an anti-doping rule violation, thus time and energy was taken up by worrying and avoiding something that they had no intention of doing. Specific examples of things they became anxious about included unknowingly or accidentally taking a banned substance (perhaps because of lack of knowledge, momentary inattention, or external tampering) or accidentally missing a doping control test. In all instances, athletes were acutely aware of the damage that these things could do to their reputation as a clean athlete (e.g., make them the target of negative press and social media) and to their career aspirations (e.g., receive sanctions that banned them from sport). The experience of anxiety could be heightened at or near to the time of consuming something, and at the time of being tested and waiting for the test result. For example, a participant in a Netherlands focus group said, 'So I got tested a while back, but even though I knew I did not take anything it was still stressful to receive the result.'

Clean anxiety was a contributing factor as to why participants were vigilant and careful in nature and why some chose to take a conservative approach to the use of supplements and substances that would support or enhance their performance. There was also evidence that clean anxiety prompted medication hesitation or 'aversion'. Indeed, psychological angst could be experienced by clean athletes when unwell and faced with the prospect of taking something to relieve their illness, and this was spoken about by one participant at the international focus group: 'I didn't even take nose drops when I was sick because I was so paranoid and thought, "What's going to happen when I get tested and maybe these nose drops will test me positive?"' Similarly, another participant at the international focus group said:

I'm not sure exactly what illness it would be but in case you're ill, you get a prescribed drug that would possibly enhance your performance ... but issues could arise here as well. Where is the fine line? "Am I genuinely being fair?" With an illness that you have, you're thinking, "Am I taking advantage of the system because I'm ill? I have this medically backed up drug to help me get better but then at the same time, is it helping my performance as well?"

There were different opinions as to whether this clean anxiety was a good or bad by-product of the existence of doping and anti-doping in sport. A mixed opinion about the necessity of clean anxiety was highlighted in a UK focus group, as illustrated in the following quotation spoken by a participant:

Should clean athletes be paranoid about going to have a drugs test? Because obviously like you know you said like you get really nervous, you're convinced you're going to fail ... at the same time just to kind of contradict that a little bit, like sometimes I think it's a really like rigorous process but then when you remember what goes on [i.e., that dopers are out there] you think yes it needs to be like that.

Discussion

As the 'protecting clean sport' and athletes' rights to 'clean sport' mission takes a stronghold in anti-doping, shifting the spotlight on to clean athletes (as opposed to dopers) becomes both timely and inevitable. This study employed a QSA approach with our previous study data (Petróczy *et al.* 2021b) to highlight the ways athletes are affected by doping in their personal, sub-cultural, and broader environment, which then led to differentiating between direct and indirect impacts. In support for the indirect impact aspect, we also identified areas where clean athletes feel that they are let down and/or neglected by the anti-doping system and its mission to protect clean sport by catching the perpetrators.

Harm done by doping

Findings highlight how athletes' direct and vicarious experiences with doping affected them in many ways. Direct impact through losing a medal to a doped opponent is profound. As also highlighted by Erickson *et al.* (2016) and Shelley *et al.* (2021), retrospectively awarded medals are not highly valued,

nor do they feel real. However, the impact of doping on clean athletes is multifaceted and goes beyond the obvious bitterness of being cheated out of opportunities such as medals, sponsorship deals, or better lives in an economic sense. Contrary to the tacit belief that only athletes who lose a medal or a position to a doper are affected, athletes' accounts made it clear that the impact of doping is not limited to these relatively infrequent situations. Indirect impacts are felt on a daily basis through the ever-present suspicion that surrounds them and good performances, common and frequent anxiety about making a mistake and being labelled as a doper, or being seen as guilty by association. For clean athletes, doping is also experienced as an act against the sport they love.

Although there is a great deal of resemblance between how athletes experienced the impact of doping with other studies (e.g., Erickson *et al.* 2016, Shelley *et al.* 2021, Petróczi *et al.* 2021b, Clancy *et al.* 2022), the present study also offers unique points for consideration by anti-doping authorities. One such issue is the impact of doping on self-expectations. Doping through 'doped' performances and training loads sets the bar of what is achievable at an unrealistic level. Besides the obvious impact on qualifying requirements which may prevent some athletes from participating in major events, doping indirectly affects perceptions about training levels and methods. Athletes in the current study questioned their own talent and training because they feel that they cannot keep up, or tried to mimic a training level that was impossible without drugs or acquiring injuries. Collectively these affect self-expectations, motives, and career goals. Seeing unreasonable reference points and being committed to clean sport performance leads to a belief that one cannot be at the top without doping, whereby a response is not doping but staying focused on self and valuing the individual journey, the process, and celebrating self-referenced incremental improvement. Future research is required to elucidate this issue further, but it appears that for clean athletes having to shift goal posts and expectations of the self is a way of coping with doping via coming to terms with and accepting that doping is present in their environment and focusing on the self instead.

As evidenced in the literature already (e.g., Woolway *et al.* 2020, Petróczi *et al.* 2021b), athletes echoed the concerns over unequal implementations of the anti-doping rules across sports and nations, and showed a great deal of frustration about how the local applications of the rules and sanctions result in being 'too lenient' towards some high-profile athletes. The current study also highlights how the time for processing and prosecuting doping takes too long and even so, retrospective correction does not bring back the moment of standing on the podium or knowing how close one was to a medal position. Athletes in the current study felt that the post-award results management following positive tests and sanctions is not part of the anti-doping system but an ad-hoc afterthought with no importance. The problem is further amplified by conflicting interests between the involved parties in doping control sample re-analysis. Athletes are acutely aware that re-analysis and results adjustments can take up to ten or more years (Kolliari-Turner *et al.* 2021), which means that it is very likely that medal or position re-allocation due to re-analysis of stored samples will most likely take place after their retirement from sport. Furthermore, in contrast to athletes' best interest (i.e., get the results as fast as possible, preferably when they are still active competitive athletes), testing authorities aim to maximise their chances to find positive cases and reap the maximum benefits from advances in analytical methods, thus using the maximum time of ten years. Furthermore, redistribution of medals is normally left to the International Federations or National Governing Bodies for the sport affected. If a global organisation (e.g., WADA) was to produce policy (or an international standard) on the ad-hoc 'compensation' to athletes harmed by drug cheats that could go a long way to building athletes' confidence in the system.

Undermined and overlooked by lenient and poor treatment of dopers and clean athletes

The impact of doping and anti-doping on clean athletes is overwhelmingly negative, which undermines (procedural) legitimacy perceptions of anti-doping (Woolway *et al.* 2020). As a start, organisations with direct and indirect responsibility for protecting clean sport need to explore how instances of doping can be managed and communicated in ways that reassure and give athletes confidence

that their sport is being 'cleaned up' and its integrity is being protected (instead of doping instances fuelling more suspicion). Anti-doping which is perceived as superficial and slogan-driven without action or aiming for image management instead of actions (i.e., following a scandal, instead of implementing changes, only speak of the desire of the system to protect sport) angers athletes and leads them to question if the system is really in place to protect athletes' rights to a clean sport environment, or just showing the extent of measures against doping to the stakeholder and the public through compliance (Gray 2019) but without evidence of their effectiveness (Houlihan and Hanstad 2019).

Clean athletes believe in clean sport for the love of sport and the example they believe it sets for future generations of emerging athletes and non-athletic young people alike. They fully support anti-doping and evidence strong, positive normative legitimacy for anti-doping (Woolway *et al.* 2020), but at the same time, they are disillusioned about the anti-doping system. Athletes' frustration is heightened by the fact that their 'good behaviour' is not only taken for granted but it is invisible. Although it is true that clean status cannot be proven, only the opposite (Petróczi *et al.* 2021a), athletes feel that there is room in the anti-doping system to make clean athletes more present and visible without relying on clean athletes having to speak up and publicise their clean efforts. For example, athletes can show their personal commitment to clean sport through multiple evidence for anti-doping rule compliance. This could take many forms including sending confirmation of a negative test (the same way it is done in health screening) and making testing retrospectively transparent. Considering the results about athletes fearing that others suspect them of doping, transparent evidence for anti-doping rule compliance can also alleviate some of athletes' fear of being accused by others as a doper. Clean athletes do not see doping testing as a threat but as a reassurance – for the athlete and the general public – but for this, negative results must be visible. However, this approach would require making changes to testing plans to ensure that all athletes at, or above, a certain competitive level are periodically tested, or at least provide a doping control sample for storage and potential analyses at a later date. It should be noted that some athletes may be reluctant to do this for reasons other than hiding doping behaviour. An alternative is for testing organisations to make such information public. Whilst this would raise issues around general data protection, and most likely not be universally supported, this option should not be denied to those who wish to make their testing regime public.

Athletes in the current study were also clear about their view that the anti-doping system should be more proactive in recording and publicising individual athlete's compliance with anti-doping rules and that the system should give equal attention to recording the clean side of sport as it is currently given for anti-doping rule violations, rather than assuming that sports and athletes are seen as clean by the general public until it is proven otherwise. Suspicion of doping is ever-present, especially doping of athletes with extraordinary performance, those associated with doping through coaches or teammates found guilty of anti-doping rule violation, or simply being from a country with poor reputation for anti-doping.

Clean athlete vulnerability

Findings also suggest that being a clean athlete comes naturally for most athletes, but anti-doping rule compliance is something different altogether. The latter requires constant effort and vigilance which was evident in athletes' accounts of their daily practices they employ to avoid accidentally ingesting something that could produce a positive doping test or make a mistake otherwise that would constitute anti-doping rule violation. This heightened level of vigilance and dutiful compliance was also showcased in previous qualitative studies with elite athletes (e.g., Shelley *et al.* 2021, Qvarfordt *et al.* 2021). In athletes' narratives in this study, there is also tension between the undermining nature of what they perceive as lenient treatment of some notorious dopers and full-on sanctions for others, perhaps for a lesser and potentially accidental anti-doping rule violation. Clean

athletes want dopers to be punished more harshly yet the prospect of making a mistake that leads to a hard sanction is a constant source of anxiety.

On the one hand, as also showed elsewhere (e.g., Shelley *et al.* 2021), athletes in the current study agree that they need to be ‘professional’ about everything they do, which includes anti-doping compliance. For example, they see dutifully logging their whereabouts, checking supplements, keeping record of the batch numbers, taking their own supplies abroad, or not eating in restaurants not pre-approved for ‘safe’ food consumption as part of being a ‘professional’ (elite) athlete. On the other hand, they feel that this is burdensome, and the lengths that athletes are willing to go to make sure that there are no accidents is worrying. Even if they accept that it is part of being an athlete, they feel that it should not be.

Impact on legitimacy perception

Legitimacy-focused studies among elite athletes attest to athletes’ support for doping control and testing even if it is burdensome (e.g., Efverström *et al.* 2016a, Henning and Dimeo 2018, Shelley *et al.* 2021), and the athletes in the present sample are no different. Yet, similar to Shelley *et al.* (2021), athletes are also acutely aware that this side of competitive sport is completely hidden from the public, and athletes do not fully realise the extent of this until they reach elite level and become part of the system. Anti-doping education aims to prepare athletes when it sets the goal that every athlete’s first experience with anti-doping should be through education (as opposed to testing), but this is not the case for everyone and even with awareness, the reality hits hard. This shock is amplified when they start competing internationally and realise that the strict system they are accustomed to does not necessarily apply to everyone. Even so, athletes are supportive of the strict system and want strict rules with harsh punishment and are willing to take the burden that comes with it which appears to be a consistent pattern arising from research interviews with elite athletes (e.g., Efverström *et al.* 2016a, Henning and Dimeo 2018, Qvardfordt *et al.* 2021, Shelley *et al.* 2021). However, from the organisational point of view it is debatable how effective the system is for fostering clean sport culture if it is built on fear and anxiety. In line with previous findings, anti-doping education (e.g., MacNamara and Collins 2014, Hallward and Duncan 2019, Hurst *et al.* 2020, Woolf 2020) and threat of sanctions alone (e.g., Overbye 2017, Westmattmann *et al.* 2018) play a role in anti-doping but athletes’ personal commitment to clean sport in the present study also appears to be independent of the anti-doping rules and system (see more in Petróczi *et al.* 2021b).

Theoretical contribution

Although the current study was applied in nature and sought to answer research questions with direct practical relevance, some of the results can make a modest contribution to related theories. Elements in athletes’ lifeworld resonate with theories in organisational types and behaviour. For example, bureaucratic structures and procedures are established to get things done in a standardised, efficient, and professional manner, free of emotions or compassion, but sometimes they become ends in themselves. Scholars criticising bureaucracy (e.g., Merton 1963, Crozier and Friedberg 2010) observed that in highly bureaucratic organisations – which are strongly rule- and procedure-based and compliance driven – the obsession with forms and following set procedures can lead to a lack of flexibility to deal with cases and situations that fall outside of standard categories within the set rules and procedures. Furthermore, because bureaucratic organisations put so much stress on compliance, following the established rules and procedures can become an end in itself, even when the rules get in the way of achieving the goals of the organisation (Merton 1963). Interpreting athletes’ frustration about the time typically taken for sample re-testing and retrospective result adjustments within organisational theory framework, one can argue that it represents an unwanted consequence of bureaucracy. Although NADOs and re-testing rules are in place to serve the ultimate goal of protecting athletes’ rights to compete in a clean sport

environment (WADA 2021a), the delivery on organisational goals of catching as many dopers as possible leads to adopting a strategy (e.g., delaying re-testing as long as is legally allowed) that no longer serves the need of the population for which the procedure was put in place for (e.g., athletes are concerned with result adjustments and any medal re-allocations occurring within their sport career). Another example, that can also be found in the media and was discussed by the participants in the current study, is prosecuting an athlete for being unable to produce a urine sample and refusing to drink when the athlete is close to weighing in for a weight-class sport, then telling the same athlete – off the record – that if they did not open the door to the doping control officer, it would have only been a missed whereabouts requirement. In these examples one can argue that organisations, which were established to protect athletes' rights to clean sport, act more in self-interest and not in the interest of their clients, the athletes.

Through the lens of legitimacy, the results from this study offer contributions to legitimacy models aiming to explain the link between legitimacy and behavioural choices with two observations: (a) clean sport behaviour and anti-doping code compliance are not one and the same; and (b) legitimacy perceptions are likely to impact voluntary *cooperation* with anti-doping organisations for clean sport based on shared values and ideals, not *compliance* with anti-doping regulations. Although combined models of legitimacy (e.g., Jackson *et al.* 2012, Tyler and Jackson 2014) posit that people comply with the rules either because they value being law-abiding and have a personal commitment to rule-following (i.e., genetic predisposition), and/or because they share the same values and ideals that justify having the rules and regulations in place, which is domain specific (e.g., clean sport, gender equity, etc.). As proposed by Jackson *et al.* (2012), a new definition of legitimacy considers two complimentary pathways based on internalisation and perceived obligation to obey, as well as personal identification with the authorities based on shared moral values (i.e., moral alignment) and goals (i.e., clean sport for all), both of which play a role in compliance with the rules and procedures. Results from the current study resonate closely with this definition, and with two recent studies that support this conceptualisation of legitimacy perception for anti-doping. Interviews with elite athletes from Germany, Italy and the UK provided strong evidence that anti-doping rule compliance and voluntary adherence to the clean sport principles are two different goals with different motivational underpinning (Clancy *et al.* 2022). Athletes in both the present study and that of Clancy *et al.* (2022) expressed a great deal of frustration about the anti-doping system and questioned 'clean sport' as it is promoted by the anti-doping movement, but they remained committed to clean sport on a personal level, independent of what anti-doping does or does not do for them. Linked to anti-doping specifically, Barkoukis *et al.* (2022) also showed that perceptions of legitimacy had both direct and indirect effects on intentions to support anti-doping policies (i.e., the cooperative element) but this should not be conflated with the compliance element.

Combined with the previous literature (e.g., Shelley *et al.* 2021, Petróczi *et al.* 2021b, Barkoukis *et al.* 2022, Clancy *et al.* 2022), results from this study support the notion that athlete 'buy-in' to the system is not necessary for code compliance but it may make coping with its demand easier; yet it is necessary for actively co-operating with anti-doping authorities and advocating for anti-doping. Some other results such as the prolonged negative impact of doping and anti-doping on athletes fall short on making a contribution to a specific theory just yet, but offer strong rationale for future studies framed on a number of different theories. These include research into prolonged coping strategies for undesirable but uncontrollable conditions (e.g., dopogenic environment), and the role of trust and trustworthiness in clean sport behaviour, anti-doping compliance, and legitimacy perception.

Limitations

The current study and findings should be considered in light of two main limitations. The results present a unique and privileged perspective of western European athletes who, by and large, compete for the love of it with less pressure on making a living from sport. These athletes also represent countries with rigorous anti-doping testing systems and comprehensive anti-doping education provisions are available (Gatterer *et al.* 2020, 2021). Due to these circumstances, and

even setting cultural differences aside, the way doping impacts them directly and indirectly, and how they cope with it, are conceivably different than the impact on clean athletes in other countries. Although athletes in the present study exhibits a good degree of awareness of this, and speak emphatically about other athletes, it is not a substitute for exploring the impact of doping on clean athletes in other countries. It is important to note that 'clean' status in the sample is self-declared, although we have no reason to question the accuracy of this. For further details on recruitment, see the parent study (Petróczi *et al.* 2021b). In addition, a limitation associated with QSA is a potential mismatch between the research question and the relevant information richness of the data which limits the analysis or diverges from the original questions. Although none of the athlete researchers took the opportunity to provide member reflections in the current study, the third author was able to provide the athlete perspective on developing themes and formulating the discourse.

Future recommendations

Through learning from athletes' first-hand experiences and insights, we were able to distil the key issues and make actionable recommendations for both future research and practice. One key challenge for protecting clean sport, and the integrity of clean sport is that anti-doping must not only fit into the broader context of sport integrity to maintain its relevance and contextual importance, but to make effort directly, actively, and explicitly for the clean athletes. 'Clean sport integrity' might be yet another chimera, but it could be a new concept that embraces all forms of cheating in their rightful context, and a pragmatic and practically useful designation for anti-doping. Either way, earning the integrity label demands fairness for 'victims' of doping, measures for mitigation and compensation for the lost opportunities, and education which helps athletes cope with the pressure they are under because of the constant surveillance and suspicion.

The results also have implications on how anti-doping legitimacy is perceived by athletes (Woolway *et al.* 2020). If clean athletes constitute much of the elite athlete community, as it appears to be the case, the problem is not with the anti-doping policies *per se*, but the implementation of anti-doping policies. Despite the experienced difficulties and frustration, clean athletes are supportive of anti-doping (leading to strong normative legitimacy for anti-doping). However, the day-to-day operational decisions and practices athletes described in this study can undermine the procedural legitimacy of anti-doping. To address clean athletes' concerns, organisational level changes are needed, which may have to start with the mindset of those setting and implementing anti-doping policies. To facilitate this, future research into the views of anti-doping personnel about clean sport and clean athletes could be insightful and facilitate the much-needed positive changes for anti-doping (Englar-Carlson *et al.* 2016, Petróczi *et al.* 2017, Englar-Carlson 2018). Finally, future research is warranted to address the limitations of this study. Specifically, a new empirical study with the same research questions would allow for a more in-depth exploration of the impact of doping and anti-doping on clean athletes. In doing so, including athletes from countries where opportunities and resources are limited is needed to fully understand the impact on a global scale. For such future research, we do not promote seeking active verification of the self-declared 'clean' status, but if information is available on testing records of the participants, including this information in aggregated form among the demographic details could offer reassurance for the readers. Simultaneously, future research may construct Creative Non-Fictions from the themes in the current study and disseminate these to stakeholders such as anti-doping personnel for the purpose of empirically examining their reactions and reflections (Cavallerio 2021). In doing so this will offer insight into inter-pretivist forms of generalisability (Smith 2018).

Conclusion

In conclusion, clean athletes are the foundation of clean sport. Despite being the majority, to date they have received little attention from anti-doping researchers or policy makers. Secondary analysis of in-depth and detailed qualitative data generated in a large group of elite athletes from five European countries showed that clean athletes are impacted by doping in a multiple way, even in the absence of

being cheated out of medals and opportunities by dopers directly. Coping with the indirect but persistent impacts of doping in athletes' environment puts pressure on clean athletes, along with the daily demands of anti-doping rule compliance. The results further revealed that being a clean athlete and being anti-doping rule compliant are not synonymous. Each finding leads to a unique set of ways clean athletes are impacted by doping and presents unique demands on anti-doping education. Whilst clean athletes are supportive of anti-doping and harsh punishments for rule violations, they are concerned about the way these rules are implemented, which undermines their perception of procedural legitimacy of anti-doping. In summary, issues highlighted in this study by the athletes show areas for improvement and directly actionable points, many of which only require small changes in the ways anti-doping tests and results are handled or how athletes can be better supported in their daily efforts to be anti-doping rule compliant. Athletes' experiences from the data crystallised into practical issues that organisations responsible for anti-doping should pay attention to: (a) address clean athletes' perception that their efforts for being anti-doping code compliance is taken for granted and neglected amidst a concentrated focus on 'catching the cheats' in testing and 'stopping cheating' in education; (b) recognise and meet clean athletes' need for fast justice and correction when they are cheated out of medals, prizes, and opportunities; (c) acknowledge that athletes do not have to lose out on a medal to be negatively affected by doping in their environment, and mitigate against its detrimental impact on athletes' lives by actively helping athletes to cope with this chronic impact; (d) recognise the difficulties and challenges inherent in how athletes cope with the demands of anti-doping policies and practices that are honed in and optimised for catching and sanctioning a minority group of athletes; (e) be aware that being a clean athlete and anti-doping rule compliant are not synonymous, which has implications for anti-doping education; and finally (f) be aware of and mitigate against the impact that athletes' distrust in the system might have on anti-doping legitimacy perceptions. Future research is warranted into the impact of doping on athletes from different countries and cultures, along with exploring the views of anti-doping personnel on the role of clean athletes.

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References

- Allen, H., et al., 2019. Anti-doping policy, therapeutic use exemption and medication use in athletes with asthma: a narrative review and critical appraisal of current regulations. *Sports Medicine*, 49 (5), 659–668. doi:10.1007/s40279-019-01075-z
- Backhouse, S.H., Griffiths, C., and McKenna, J., 2018. Tackling doping in sport: a call to take action on the dopogenic environment. *British Journal of Sports Medicine*, 52 (23), 1485–1486. doi:10.1136/bjsports-2016-097169
- Barkoukis, V., et al., 2022. The role of comprehensive education in anti-doping policy legitimacy and support among clean athletes. *Psychology of Sport and Exercise*, 60, 102173. doi:10.1016/j.psychsport.2022.102173
- Boardley, I.D., et al., 2021. Co-creating a social science research agenda for clean sport: an international Delphi study. *International Journal of Drug Policy*, 92, 103161. doi:10.1016/j.drugpo.2021.103161
- Borry, P., et al., 2018. Geolocalisation of athletes for out-of-competition drug testing: ethical considerations. Position statement by the WADA Ethics Panel. *British Journal of Sports Medicine*, 52 (7), 456–459. doi:10.1136/bjsports-2017-098299
- Bozeman, B., 2000. *Bureaucracy and red tape*. New Jersey, USA: Prentice Hall.
- Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77–101. doi:10.1191/1478088706qp063oa
- Braun, V. and Clarke, V., 2020. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 1–25. doi:10.1080/14780887.2020.1769238
- Cavallerio, F., 2021. *Creative Nonfiction in Sport and Exercise Research*. London, UK: Routledge.
- Clancy, S., et al., 2022. The role of personal commitment to integrity in clean sport and anti-doping. *Performance Enhancement & Health*, 10 (4), 100232. doi:10.1016/j.peh.2022.100232
- Crozier, M. and Friedberg, E., 2010. *The Bureaucratic Phenomenon*. 1st. New York, USA: Routledge. doi:10.4324/9781315131092
- Efverström, A., et al., 2016a. Anti-doping and legitimacy: an international survey of elite athletes' perceptions. *International Journal of Sport Policy and Politics*, 8 (3), 491–514. doi:10.1080/19406940.2016.1170716
- Efverström, A., et al., 2016b. Contexts and conditions for a level playing field: elite athletes' perspectives on anti-doping in practice. *Performance Enhancement & Health*, 5 (2), 77–85. doi:10.1016/j.peh.2016.08.001
- Englar-Carlson, M., et al., 2016. What about the clean athletes? The need for positive psychology in anti-doping research. *Performance Enhancement & Health*, 4 (3–4), 116–122. doi:10.1016/j.peh.2016.05.002
- Englar-Carlson, M., 2018. *The clean corrective: can thinking about clean cyclists enhance anti-doping?* London, UK: Routledge.
- Erickson, K., Backhouse, S.H., and Carless, D., 2016. "The ripples are big": storying the impact of doping in sport beyond the sanctioned athlete. *Psychology of Sport and Exercise*, 24, 92–99. doi:10.1016/j.psychsport.2016.01.010
- Erickson, K., Patterson, L.B., and Backhouse, S.H., 2019. "The process isn't a case of report it and stop": athletes' lived experience of whistleblowing on doping in sport. *Sport Management Review*, 22 (5), 724–735. doi:10.1016/j.smr.2018.12.001
- Gardiner, S., et al., 2017. Integrity and the corruption debate in sport: where is the integrity? *European Sport Management Quarterly*, 17 (1), 6–23. doi:10.1080/16184742.2016.1259246
- Gatterer, K., et al., 2020. An evaluation of prevention initiatives by 53 national anti-doping organizations: achievements and limitations. *Journal of Sport and Health Science*, 9 (3), 228–239. doi:10.1016/j.jshs.2019.12.002
- Gatterer, K., et al., 2021. *The status quo before the International Standard for Education: elite adolescent athletes' perceptions of anti-doping education*. Performance Enhancement & Health. doi:10.1016/j.peh.2021.100200
- George, B., et al., 2021. Red Tape, organizational performance, and employee outcomes: meta-analysis, meta-regression, and research agenda. *Public Administration Review*, 81 (4), 638–651. doi:10.1111/puar.13327
- Gleaves, J., 2021. A moral examination of the therapeutic use exemption in anti-doping. *Journal of Olympic Studies*, 2 (1), 53–71. doi:10.5406/jofolypmstud.2.1.0053
- Gleaves, J. and Christiansen, A.V., 2019. Athletes' perspectives on WADA and the code: a review and analysis. *International Journal of Sport Policy and Politics*, 11 (2), 341–353. doi:10.1080/19406940.2019.1577901

- Gray, S., 2019. Achieving compliance with the World Anti-Doping Code: learning from the implementation of another international agreement'. *International Journal of Sport Policy and Politics*, 11 (2), 247–260. doi:10.1080/19406940.2018.1550798
- Hallward, L. and Duncan, L.R., 2019. A qualitative exploration of athletes' past experiences with doping prevention education. *Journal of Applied Sport Psychology*, 31 (2), 187–202. doi:10.1080/10413200.2018.1448017
- Hattke, F., Hensel, D., and Kaluczka, J., 2020. Emotional responses to bureaucratic red tape. *Public Administration Review*, 80 (1), 53–63. doi:10.1111/puar.13116
- Heaton, J., 2004. *Reworking qualitative data*. London, UK: Sage.
- Heaton, J., 2008. Secondary analysis of qualitative data: an overview. *Historical Social Research*, 33 (3), 33–45. doi:10.12759/hsr.33.2008.3.33-45
- Heaton, J., 2019. Secondary Analysis of Qualitative Data. In: P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams, eds. *SAGE Research Methods Foundations*. Sage. <https://dx.doi.org/10.4135/9781526421036849600>
- Henning, A. and Dimeo, P., 2018. *Perceptions of legitimacy, attitudes and buy-in among athlete groups: a cross-national qualitative investigation providing practical solutions*. World Anti-Doping Agency. Montreal, Canada: University of Stirling.
- Houlihan, B. and Hanstad, D.V., 2019. The effectiveness of the world anti-doping agency: developing a framework for analysis. *International Journal of Sport Policy and Politics*, 11 (2), 203–217. doi:10.1080/19406940.2018.1534257
- Hurst, P., Ring, C., and Kavussanu, M., 2020. An evaluation of UK athletics' clean sport programme in preventing doping in junior elite athletes. *Performance Enhancement & Health*, 7(3–4). doi:10.1016/j.peh.2019.100155
- International Testing Agency, 2020. The ITA rolls out large-scale sample long-term storage re-analysis program for Tokyo 2020 and beyond. 2020. [Accessed 13 June 2022].<https://ita.sport/news/the-ita-rolls-out-large-scale-sample-long-term-storage-re-analysis-program-for-tokyo-2020-and-beyond/>
- Jackson, J., et al., 2012. Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology*, 52 (6), 1051–1071. doi:10.1093/bjc/azs032
- Kolliari-Turner, A., et al., 2021. Analysis of anti-doping rule violations that have impacted medal results at the summer Olympic games 1968–2012. *Sports Medicine*, 51 (10), 2221–2229. doi:10.1007/s40279-021-01463-4
- Loland, S. and McNamee, M.J., 2019. The 'spirit of sport', WADAs code review, and the search for an overlapping consensus. *International Journal of Sport Policy and Politics*, 11 (2), 325–339. doi:10.1080/19406940.2019.1581646
- Macedo, E., et al., 2019. Moral communities in anti-doping policy: a response to Bowers and Paternoster. *Sport, Ethics and Philosophy*, 13 (1), 49–61. doi:10.1080/17511321.2017.1371791
- MacGregor, O., et al., 2013. Anti-doping, purported rights to privacy and WADA's whereabouts requirements: a legal analysis. *Fair Play*, 1 (2), 13–38.
- MacNamara, Á. and Collins, D., 2014. Why athletes say no to doping: a qualitative exploration of the reasons underpinning athletes' decision not to dope. *Performance Enhancement & Health*, 3 (3–4), 145–152. doi:10.1016/j.peh.2015.09.001
- Merton, R.K., 1963. Bureaucratic structure and personality. In: N.J. Smelser and W.T. Smelser, eds. *Personality and social systems*. New Jersey, USA: John Wiley & Sons Inc, 255–264. doi:10.1037/11302-024
- Overbye, M., et al., 2014. Athletes' perceptions of anti-doping sanctions: the ban from sport versus social, financial and self-imposed sanctions. *Sport in Society*, 18 (3), 364–384. doi:10.1080/17430437.2014.982539
- Overbye, M., 2016. Doping control in sport: an investigation of how elite athletes perceive and trust the functioning of the doping testing system in their sport. *Sport Management Review*, 19 (1), 6–22. doi:10.1016/j.smr.2015.10.002
- Overbye, M., 2017. Deterrence by risk of detection? An inquiry into how elite athletes perceive the deterrent effect of the doping testing regime in their sport. *Drugs Education, Prevention and Policy*, 24 (2), 206–219. doi:10.1080/09687637.2016.1182119
- Overbye, M. and Wagner, U., 2014. Experiences, attitudes and trust: an inquiry into elite athletes' perception of the whereabouts reporting system. *International Journal of Sport Policy and Politics*, 6 (3), 407–428. doi:10.1080/19406940.2013.791712
- Petróczi, A., 2013. The doping mindset—Part I: implications of the functional use theory on mental representations of doping. *Performance Enhancement & Health*, 2 (4), 153–163. doi:10.1016/j.peh.2014.06.001
- Petróczi, A., 2018. Research on athletes' perspectives on clean sport. *WADA 2nd Global Education Conference, Beijing* (), 24–25 October 2018. Beijing, China. https://www.wada-ama.org/sites/default/files/global_education_conference_agenda_21-6-2018.pdf
- Petróczi, A., 2019. There must be more to protecting clean sport than catching the 'cheats': moving anti-doping policy and practice forward. *Becoming an Olympic Athlete with Doping – A Holistic approach*, *International Olympia Symposium*, Olympia, 23–25 June 2019.
- Petróczi, A., et al., 2021a. 'Clean athlete status' cannot be certified: calling for caution, evidence and transparency in 'alternative' anti-doping systems. *International Journal of Drug Policy*, 93, 103030. doi:10.1016/j.drugpo.2020.103030
- Petróczi, A., et al., 2021b. Understanding and building clean (er) sport together: community-based participatory research with elite athletes and anti-doping organisations from five European countries. *Psychology of Sport and Exercise*, 55, 101932. doi:10.1016/j.psychsport.2021.101932

- Petróczi, A. and Boardley, I.D., 2022. The meaning of “Clean” in anti-doping education and decision making: moving toward integrity and conceptual clarity. *Frontiers in Sports and Active Living: Anti-Doping Sciences*, 4. doi:10.3389/fspor.2022.869704
- Petróczi, A., Norman, P., and Brueckner, S., 2017. Can we better integrate the role of anti-doping in sports and society? A psychological approach to contemporary value-based prevention. In: Y. Pitsiladis and O. Rabin, eds. *Acute topics in anti-doping*. Basel, Switzerland: Karger Publishers, 160–176.
- Poucher, Z.A., et al., 2020. Thinking through and designing qualitative research studies: a focused mapping review of 30 years of qualitative research in sport psychology. *International Review of Sport and Exercise Psychology*, 13 (1), 163–186. doi:10.1080/1750984X.2019.1656276
- Qvarfordt, A., et al., 2019. From fighting the bad to protecting the good: legitimation strategies in WADA’s athlete guides. *Performance Enhancement & Health*, 7 (1–2), 100147. doi:10.1016/j.peh.2019.100147
- Qvarfordt, A., et al., 2021. Limitations and duties: elite athletes’ perceptions of compliance with anti-doping rules. *Sport in Society*, 24 (4), 551–570. doi:10.1080/17430437.2019.1681404
- Read, D., et al., 2019. Legitimacy driven change at the world anti-doping agency. *International Journal of Sport Policy and Politics*, 11 (2), 233–245. doi:10.1080/19406940.2018.1544580
- Read, D., et al., 2020. Balancing mission creep, means, effectiveness and legitimacy at the World Anti-Doping Agency. *Performance Enhancement & Health*, 8 (2–3), 100175. doi:10.1016/j.peh.2020.100175
- Ruggiano, N. and Perry, T.E., 2019. Conducting secondary analysis of qualitative data: should we, can we, and how? *Qualitative Social Work*, 18 (1), 81–97. doi:10.1177/1473325017700701
- Shelley, J.G., Thrower, S.N., and Petróczi, A., 2021. Racing clean in a tainted world: a qualitative exploration of the experiences and views of clean elite distance runners on doping and anti-doping. *Frontiers in Psychology*, 12, 2689. doi:10.3389/fpsyg.2021.673087
- Smith, B., 2018. Generalizability in qualitative research: misunderstandings, opportunities and recommendations for the sport and exercise sciences. *Qualitative Research in Sport, Exercise and Health*, 10 (1), 137–149. doi:10.1080/2159676X.2017.1393221
- Smith, B. and McGannon, K.R., 2018. Developing rigor in qualitative research: problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11 (1), 101–121. doi:10.1080/1750984X.2017.1317357
- Sparkes, A.C. and Smith, B., 2009. Judging the quality of qualitative inquiry: criteriology and relativism in action. *Psychology of Sport and Exercise*, 10 (5), 491–497. doi:10.1016/j.psychsport.2009.02.006
- Tyler, T.R. and Jackson, J., 2014. Popular legitimacy and the exercise of legal authority: motivating compliance, cooperation, and engagement. *Psychology, Public Policy, and Law*, 20 (1), 78. doi:10.1037/a0034514
- Valkenburg, D., de Hon, O., and van Hilvoorde, I., 2014. Doping control, providing whereabouts and the importance of privacy for elite athletes. *International Journal of Drug Policy*, 25 (2), 212–218. doi:10.1016/j.drugpo.2013.12.013
- van der Sloot, B., Paun, M., and Leenes, R., 2020. Looking at the anti-doping regime through a human rights lens. In: B. van der Sloot, M. Paun, and R. Leenes, eds. *Athletes’ human rights and the fight against doping: a study of the European legal framework*. The Hague, Netherlands: TMC Asser Press, 189–243.
- WADA, 2020. The Athletes’ Anti-Doping Rights Act. [Accessed 13 June 2022]. https://www.wada-ama.org/sites/default/files/resources/files/athlete_act_en.pdf
- WADA, 2021a. *World Anti-Doping Code 2021*. [Accessed 13 June 2022]. https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf
- WADA, 2021b. International standard for testing and investigation. [Accessed 13 June 2022]. https://www.wada-ama.org/sites/default/files/resources/files/international_standard_isti_-_2021.pdf
- WADA, 2021c. International standard for education. [Accessed 13 June 2022]. https://www.wada-ama.org/sites/default/files/resources/files/international_standard_ise_2021.pdf
- WADA, 2022. Social science research grant program [Accessed 13 June 2022]. https://www.wada-ama.org/sites/default/files/2022-01/2022%20SSR%20Grant%20Program%20Guidance%20Document_%20.pdf
- Westmattmann, D., et al., 2018. Perception of the current anti-doping regime—A quantitative study among German top-level cyclists and track and field athletes. *Frontiers in Psychology*, 9, 1890. doi:10.3389/fpsyg.2018.01890
- Woolf, J.J.R., 2020. An examination of anti-doping education initiatives from an educational perspective: insights and recommendations for improved educational design. *Performance Enhancement & Health*, 8 (2), 100178. doi:10.1016/j.peh.2020.100178
- Woolway, T., et al., 2020. “Doing what is right and doing it right”: a mapping review of athletes’ perception of anti-doping legitimacy. *International Journal of Drug Policy*, 84, 102865. doi:10.1016/j.drugpo.2020.102865