The role of personal commitment to integrity in clean sport and anti-doping

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Highlights:

- Commitment to clean sport and anti-doping compliance are two different things.
- Clean sport concepts are individualized and differently situated along a continuum.
- The way personal values are operationalized and enacted is both complex and fluid.
- Clean sport mindset among athletes extends beyond the sporting environment.
- Personal integrity and commitment to clean sport matter in values-based education.

Abstract

Background

Despite widespread reference to protecting 'clean sport' and the rights of 'clean athletes' in anti-doping, to date very little attention has been paid to athletes who are, in majority, committed to clean sport. Understanding elite athletes' conceptions of 'clean sport' and integrity, the psychosocial factors related specifically to athletes' commitment to personal integrity and clean sport behaviour (as opposed to factors influencing anti-doping rule-breaking) provides a crucial, but currently missing, piece for anti-doping education.

Methods

Drawing upon two complimentary theories (the Incremental Model of Doping Behaviour, and Personal Integrity) for coding frame, we employed a qualitative secondary analysis (QSA) approach to re-analyse in-depth life-story interviews of 14 elite athletes (9 males/5 females) from Germany, Italy, and the UK, representing 11 sports across high (n = 8), medium (n = 3) and low risk (n = 3) categories for doping. Interview data were originally collected for the SAFE YOU+ project to underpin illustrative case studies produced as educational material. QSA was conducted on this evidence within the constructivist research paradigm using thematic analysis through adductive reasoning.

Results

Elite athlete's conceptions of clean sport and commitment to personal integrity presented on a continuum from a strict position to use no substances at all through to the carefully calibrated use of non-prohibited substances/methods for the purpose of enhancing performance. There was a clear distinction between commitment to clean sport and anti-doping. Factors that threaten elite athletes' personal commitment to clean sport, and thus could push them towards doping included intrinsic concerns (medical, financial, performance), perceptions of legitimacy in the anti-doping system, descriptive doping norms and identity. Factors that may help athletes build and maintain personal commitment to clean sport, and their personal commitment to a clean sport environment, involved acceptance, anti-doping environment, motivation, permitted means to enhance performance and multi-dimensional identity. Doping was seen as the consequence of lapse in, or a lack of, personal commitment to clean sport.

Conclusion

For the first time, empirical evidence has differentiated between commitment to clean sport, and anti-doping. Results from this investigation highlighted that the process by which abstract values are operationalized into personal value-systems and priorities, and enacted, are complex and fluid.

Values-based, anti-doping education therefore should adopt a holistic and broad approach to reach beyond the values of sport within the context of anti-doping and consider the complex role of personal integrity and commitment to clean sport. Emphasis on the impact of anti-doping rule breaking on peers, society and culture is recommended in addition to greater awareness of one's responsibility for performance-enhancement related actions, and a clean sport mindset among athletes which extends beyond the sporting environment.

Keywords: athlete, anti-doping, integrity, virtue, clean sport, qualitative secondary analysis

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1. Introduction

Despite considerable advances in education and prevention, doping still poses a problem in sport, and remains one of the most controversial issues in sport psychology (Boardley et al., 2021; Petróczi, 2021). Research into the psychology behind doping has progressed significantly to offer better insight into how and why athletes dope (Blank et al., 2016; Ntoumanis et al., 2014; Williams et al., 2020). Although this has provided vital information for key stakeholders in the fight against doping in elite sport, the complexity of external and internal factors that contribute to doping have left many intriguing questions unanswered (Boardley et al., 2021). A considerable proportion of these questions relate to the underpinning psychological principles that encourage or discourage elite athletes to follow clean sport principles.

On the societal level, policies to protect clean sport are justified on the role of sport to build values in individuals that are deemed desirable for the society. Contrary to this idealization Dimeo (2016) and Manoli et al. (2020) demonstrated that, on the one hand, repeated accounts of infringements to sport integrity have created a widespread belief that sport lacks integrity, and on the other hand, people's attainment to sport through fan-ship, volunteering and consumption has remained unchanged. In this milieu, sport has little reason to tackle integrity issues in a meaningful and effective way - which would need concentrated effort and resources - unless a major scandal such as in athletics, cycling or gymnastics pushes them in that direction (Petróczi, 2021). Another study (Otto et al., 2021) revealed that despite the popular fear that doping cases negatively impact the sport, doping scandals erode trust in the integrity of the doping athlete, but it does not impact the demand for the TV coverage of the viewers.

Approaching doping from the athlete vulnerability angle, the physical, psychological, financial, and social consequences of doping, as well as other infringements to sport integrity, can be felt by both the perpetrator, and those that are adjudged to have been cheated out of a sporting moment (Didymus & Backhouse, 2020; Erickson et al., 2016; Martinelli et al., 2021; Shelley et al.,

2021). Further complications arise from how athletes intuitively conceptualize doping, namely whether doping is considered a drug issue (i.e., use of performance-enhancing substances) or rule-breaking (i.e., use of prohibited means for performance-enhancement or competitive advantage). The implications of such distinction is far reaching and – with the latter approach – classes doping as one of the myriad of threats against the integrity of sport (Petróczi, 2021; Petróczi & Strauss, 2015). Therefore, the incentive to understand, and thus influence doping-related behaviors, remains as strong as ever. To appraise what drives athletes toward doping or clean sport behaviour, a host of systemic and individual factors must be simultaneously considered (Petróczi, 2018; Petróczi & Boardley, 2022a). The Integrated Model of Doping Behavior (IMDB, Petróczi, 2013) states that regulative, normative, and cognitive systems are relevant to an athlete's decision about performance-enhancements, particularly the use of non-prohibited and prohibited substances and/or methods (Petróczi, 2018; Petróczi & Boardley, 2022a). Combined, these systems are said to impact an athlete's performance-enhancement mind-set; their attitudes, values, beliefs, and behaviours towards doping, or put simply, their orientation towards cheating. The extended model allows for a simultaneous view of doping from system and individual perspectives to find congruence between anti-doping, education and individual behaviour (Petróczi & Boardley, 2022a).

1.2. Personal Integrity Approach to Clean Sport

With so much evidence of the significance of self-regulatory efficacy and moral identity (e.g., Chan et al., 2015; Kavussanu & Ring, 2017; Sukys et al., 2021), it is surprising that very little previous research has attempted to understand doping as a matter of personal integrity. This may be due to the lack of clarity about the meaning of integrity, and the common misconception that integrity is merely synonymous with morality (Palanski & Yammarino, 2007). This may have led to views that by exploring the moral makeup of non-dopers, research is inherently investigating their integrity however, integrity does not necessarily make inference about an individual's morality, instead it describes the extent to which a person stays true to their morals, attitudes, and values (Petróczi et al., 2021). This has been explained as the integration of outward action and inner values, which is

evident when a person does what they say they will do and behaves in a way that is consistent with their espoused values, beliefs, and principles. In the context of doping, integrity would not explain where a person sits on the IMDB continuum or their clean sport concept, but instead the likelihood of the athlete withstanding pressures and incentives yet behaving in a way that is consistent with their espoused clean sport concept. In this sense, many previous studies may have employed the concept of *integrity* without adequately conceptualising or applying integrity from the individual's point of view. Notably these studies tend to focus on issues and emerging trends that pose threats to the integrity of sport including sexual abuse and harassment (Gaedicke et al., 2021; Wilinsky & McCabe, 2020), interpersonal violence (Ohlert et al., 2021; Roberts et al., 2020), integration of trans- and intersex athletes (Hamilton et al., 2021), corruption (Caneppele et al., 2021), match fixing (Park et al., 2019), non-betting related competition manipulation and match fixing (e.g., Tak et al., 2020; Van Der Hoeven et al., 2020), self-betting (e.g., Moriconi & de Cima, 2020), and new methods for performance enhancement such as gene doping (Lopez et al., 2020), neuroenhancement (Park, 2017; Smith et al., 2020), technology (Loland, 2009; Richard et al., 2020), or boosting (Bhambhani et al., 2010; Sparkes & Brighton, 2020), and classification manipulation in Para sports (e.g., Weber et al., 2022).

Investigations of integrity in sport at the individual level appear to follow the dominant trends in doping behaviour research with a near-exclusive focus on the perpetrators and a relentless quest to understand the undesirable behaviours of athletes (Blank et al., 2016; Ntoumanis et al., 2014), coaches (e.g., Allen J et al., 2017; Barkoukis et al., 2019), sport managers and officials (e.g., Robertson & Constandt, 2021). Literature suggests that sportspersonship, and thus commitment to sport integrity, is not limited to the fields of sport but extends to all aspects of athletes' lives, and is strongly linked to the athlete as a person (Agnew et al., 2017). The expectation of being a role model on and off the pitch is felt strongly by athletes who feel under considerable pressure to live up to the unrealistic image of what is expected of them (Agnew et al., 2017; Qvarfordt et al., 2021). This perceived responsibility for their actions, values, purpose, and practices in their broader context

resonates well with other accounts of athletes' lived experiences and of holistic attributes of personality, intellect, and emotion. Without applying the 'integrity label' to their observations, recent studies specifically focusing on clean sport behaviour (e.g., MacNamara & Collins, 2014; Petróczi et al., 2021; Shelley et al., 2021; Šukys, 2019), protective factors (Erickson et al., 2015; Erickson et al., 2019) and values (Mortimer et al., 2021; Ring et al., 2020) touched upon facets of personal integrity. Furthermore, recent studies by Petróczi et al. (2021) and Shelley et al. (2021) have identified that guiding principles in an athlete's training and competition are rooted in early life experience and upbringing suggesting that these principles are not sport specific but universal and are demonstrated in many spheres of their lives. For example, athletes have spoken at length of how their values and personal stance against cheating manifested in varied situations, contexts, and interpersonal relations (Petróczi et al., 2021) while elite distance runners emphasized the consistency in their practices throughout their athletic career (Shelley et al., 2021).

Characteristically, athletes retired from elite sport or neared the end of their career in reflection and retrospective evaluation of how they adopted measures against accidental doping and how they coped with the pressure of competing under constant threat and suspicion of doping (Petróczi et al., 2021; Shelley et al., 2021). During their career, many felt that honesty and openness, both internally and externally, was challenged by actual and vicarious experiences of public criticism or attack when they spoke out against doping (Erickson et al., 2019). Athletes have also felt conflicted about reporting doping officially (Erickson et al., 2019; Whitaker et al., 2014). Through their life stories, athletes demonstrated a great deal of independence and unparalleled ability to focus on their sport-related goals and purpose as well as distancing themselves from pressure points that might lead to doping (Petróczi et al., 2021; Shelley et al., 2021). Furthermore, a holistic identity beyond sport has served as protection against doping pressures (Erickson et al., 2015).

In line with athletes' personal accounts, commissioned investigations following crises in sports such as cycling and athletics, indeed underscored the importance of individual responsibility for organisational integrity, and integrity of sport above all. For instance, the Union Cycliste

Internationale (UCI) independent reform commission report noted that "cycling has the potential to become a sport with integrity, ethics and accountability, but it can only become so if all participants are prepared to contribute" (Marty et al., 2015, p. 89). The IAAF also offers examples of significant deficit in personal commitment to integrity (Pound et al., 2016).

1.2. Working Definitions and Conceptual Framework

Despite that anti-doping rhetoric is replete with references to protecting clean sport or protecting clean athletes, operational definition for 'clean sport' does not exists. It is not only that athletes' concepts of 'clean' for performance enhancement is highly idiosyncratic (Petróczi et al., 2021), but anti-doping movement itself is unclear about what 'clean sport' is in terms of a mission, being a goal or a desired state (Petróczi & Boardley, 2022b). At this point, we accept that clean sport is undefined. Instead of putting forward an arbitrary definition, we focus on the situated meaning of 'clean sport' which we describe and illustrate with examples. To avoid potential confusion, we exclusively use the concept of '*compliance'* in connection with the anti-doping rules. This is to differentiate the behaviour and its driving forces from clean sport behaviour. It is because we argue that clean sport behaviour, or at most '*adherence to clean sport principles*', is personal value-driven and not sport specific (i.e., linked to cheating in many speres of life, including but not exclusive to sport) and personal goals including both the performance goals and the way to achieve them. In contrast, anti-doping code compliance by athletes is primarily driven by one's motivation to be rule-compliant in general and the perceived legitimacy of anti-doping in sport.

1.2.1. Commitment to Clean Sport and Compliance with Anti-Doping

For this paper, we propose a conceptual framework that separates clean sport behaviour and compliance with the anti-doping rules and procedures (Figure 1). In this framework, we focus on individuals (athletes), place anti-doping within clean sport as a defined but not fully overlapping segment; and make a distinction between the motivators of anti-doping code compliance and clean sport behaviour. In practical terms this means that an athlete can follow clean sport behaviour and not being anti-doping code compliant (e.g., failing to log their whereabouts, or refusing to provide

doping control samples) but all code-compliant athletes must be clean athletes. Values, attitudes, perceived anti-doping legitimacy, morality, and personal integrity play a role in both anti-doping code compliance and commitment to clean sport, but through unique pathways. We define values as guiding principles in life, and in sport (Braithwaite, 1998; Cheng & Fleischmann, 2010; Schwartz, 2012). Because values are abstract constructs, they are operationalised in specific contexts and captured in both one's goal content (*what one wants to achieve*) and goal striving (*how one wants to achieve the set goals*) (Henriksen, 2019; Parks & Guay, 2009). Goal contents and striving are linked to the perceived current (*what kind of an athlete one is*) and aspired ideal (*what kind of an athlete one wants to be*) selves (Boyatzis & Dhar, 2022; Boyatzis & Akrivou, 2006), and manifests in one's personal integrity which is defined as a committed adherence to one's values, aspirations, and normative personal standards, summed as one's morality (Barkoukis & Elbe, 2021). Morality, like values, needs context and they are operationalised in specific behaviours that are deemed morally good.

Figure 1: Conceptual framework of clean sport behaviour and anti-doping compliance

We included attitudes because of the persistent belief in anti-doping which posits that 'doping attitude' drives doping-related behavioural choices. By definition, attitudes are one's cognitions, emotions, beliefs, and behaviours toward a specific phenomenon ('doping'), object ('use of prohibited substances'), person ('doping cheats'), authority ('anti-doping organisations'), or action ('compliance with the anti-doping rules'). Although 'attitudes' are widely linked to doping use or avoidance (e.g., Backhouse & McKenna, 2012; Backhouse & McKenna, 2011; Morente-Sánchez & Zabala, 2013), it is important to note that this link is tenuous (Folkerts et al., 2021), and its strength chiefly depends on the conceptual closeness between the attitude and the action. That is, attitude toward anti-doping code compliance linked more strongly with actual code compliance than attitude toward clean sport, or attitude toward doping use for performance-enhancement predicts actual doping behaviour better than general attitude about the doping phenomenon.

Finally, we included legitimacy-as perception in the framework because one element on anti-doping legitimacy perception, the normative segment, is linked to personal values. The combined models of legitimacy (e.g., Jackson et al., 2012; Tyler & Jackson, 2014) propose a dual pathway for explaining why people comply with the rules. According to this model, people comply, on the one hand, because they share the same values and ideals that justify having the rules and regulations in place (domain specific), and on the other hand, because they value being law-abiding and have a personal commitment to rule-following (generic condition). Proposed by Jackson et al. (2012), the two complimentary pathways are based on (1) shared moral values (i.e., personal moral alignment with the authorities, as well as perceived obligation and internationalisation to obey the rules) and (2) shared goals (i.e., clean sport for all is important and worth protecting), both of which play a role in compliance with the rules and procedures.

1.2.2. Theoretical framework of Personal Commitment to Integrity

Congruently, among the philosophical approaches to personal integrity (for an overview see Gardiner et al., 2017), commitment of the person captures the ethos of sport integrity from athletes' perspectives well. Within this literature, Gardiner et al. (2017) illuminate Calhoun's (1995)

suggestion that the basis of personal integrity is built on a commitment to stand for a purpose which is greater than one modelled by an individual's own morals. Following Calhoun's (1995) argument, which defines personal integrity as a sense of commitment, as '*standing for something*', athletes' personal commitment to sport integrity is demonstrated in multi-faceted ways. First, athletes commit to anti-doping by being compliant with basic responsibilities to the World Anti-Doping Agency's (WADA) Code, to a degree that goes over and above what is required (e.g., going the extra mile to adhere to whereabouts requirements, meticulously recording supplements taken and avoiding food of uncertain origin, etc.). Secondly, athletes commit to clean sport through a broader lens which exceeds an isolated avoidance of doping and/or anti-doping rule violations. Personal commitment to clean sport therefore extends beyond 'being good by not doing bad' and may include standing as clean sport role models and projecting an athlete identity that is congruent in sport and life, regardless of context or audience and despite restrictions posed on privacy and personal life. This commitment also manifests through an athlete's persistence to clean sport regardless of being subject to anti-doping rules and procedures (e.g., testing), feeling strongly about the integrity of their chosen sport, supporting measures to protect clean sport (including anti-doping rules) and/or standing up for clean sport through personal actions and words. Building on the work of Mason (2001), Curzer (2015), and Robinson (2009), Gardiner et al. (2017) highlight that integrity is less a personal value but more so a social value, underpinned by a complex interaction between individuals and their environment (Figure 2). Captured in 'VIRTUE' acronym, an athlete's personal commitment to clean sport and integrity is *Visible*, *Independent, Reliable*, *Total, Universal, and Existing side-by-side.* This characterisation aptly captures the key difference between explicit commitment to compliance with anti-doping rules, and personal commitment to clean sport principles and integrity. Whereas anti-doping rule compliance of the athlete must be consistent throughout their sporting career, it is *specific.* That is, rules related to the use of substances and methods that are prohibited in sport are different to the lack of restrictions on the use of the same substances or methods as experienced by non-athlete members of society. Furthermore, some

substances and methods are prohibited only in certain sports, and in specific contexts, and thus applicable to a finite cohort of the athletic population, at particular times (for example, conditional use of prohibited substances in- and/or out of competition or via certain routes of administration). In contrast to personal commitment to clean sport and integrity, compliance with anti-doping rules is *narrowly defined* (where actions matter, while psyche and emotion remain irrelevant); and *invisible* (as only rule violations are made apparent). In parallel to the fluid and idiosyncratic notion of personal integrity (which does not accept the Self as singular but a composition of many relationships and conflicting values), anti-doping rule breaking, specifically doping, has been discussed using Bandura's moral disengagement framework (Boardley & Kavussanu, 2011), driven by the categorical view of desirable/undesirable. From this perspective, it has been assumed that athletes seek some compatibility between the conflicting actions, values and their narratives via six modes of moral disengagement (e.g., Caz et al., 2021; Chen et al., 2017; Guo et al., 2021; Kavussanu & Ring, 2017; Mallia et al., 2017; Stanger & Backhouse, 2020).

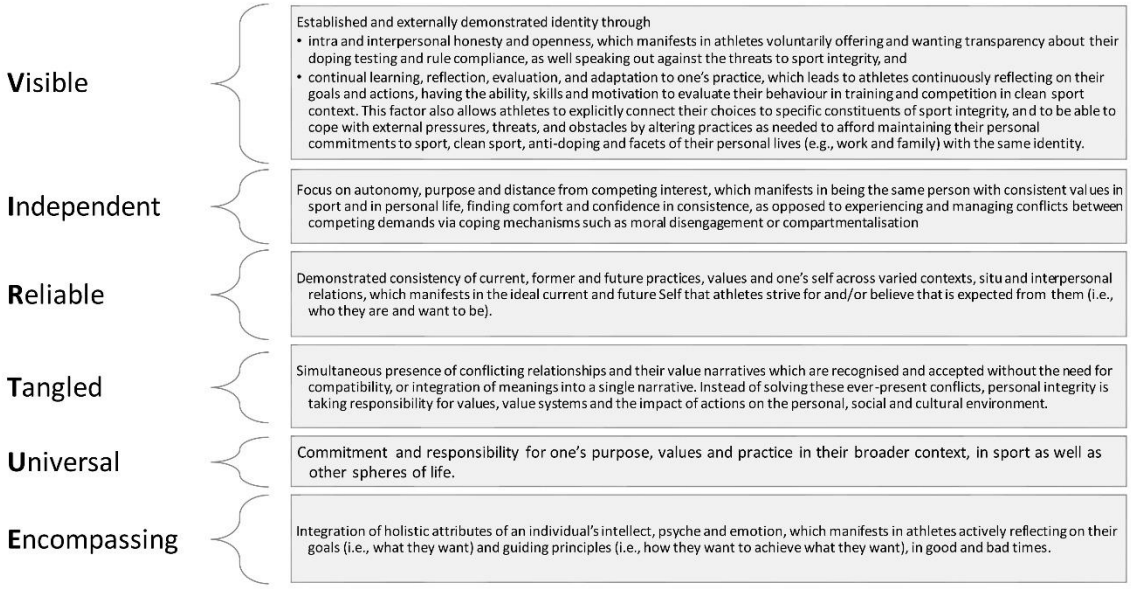

Figure 2: The 'VIRTUE's of personal integrity

1.3. Research Aim

We propose that to move anti-doping research forward, personal integrity could be a seminal concept in our understanding of doping phenomenon with a focus on anti-doping and clean sport behaviour as separate goals. Commitment to personal integrity could describe the dynamic process that mediates the extent to which an athlete's actions are consistent with the anti-doping values, attitudes, and beliefs that elite athletes all adopt. To achieve the proposed aim, the present study explores (1) elite athletes' conceptions of 'clean sport' and integrity, (2) the factors that might threaten personal commitment to clean sport, and (3) those key factors that may help build and maintain personal commitment to clean sport, and their personal contribution to clean sport environment.

2. Methods

2.1. Research Design and Sampling

This investigation was based on the qualitative re-analysis of data collected as an empirical base for anti-doping educational resources. Consistent with previous approaches to the qualitative secondary analysis (QSA) of existing data (see Heaton et al., 2016; Tate et al., 2012), this study analysed previously recorded life story interviews with original research objectives. Secondary analysis was deemed suitable for this study as it; a) maximised the use of evidence obtained from a highly specific cohort, b) allowed existing data on a sensitive topic to be interrogated from a unique perspective and c) illuminated athlete voice otherwise unheard from an extensive original dataset.

The original data collection in the parent study used a constructivist paradigm and adopted transactional and subjectivist epistemology (Guba & Lincoln, 2005). Naturalistic and dialectical qualitative methods were used, thus semi-structured narrative interviews were arranged (Herrmanns, 1995). This encouraged participants to consider their athletic career and recall the factors that influenced their attitudes, values, beliefs and behaviours towards doping at critical periods in their career. Interviews were also designed to consider and uncover the decision-making

processes that underpinned their responses to them. This was conducted on the premise that "any common themes that emerge from great variation are of particular interest and value in capturing core experiences and central shared aspects" (Patton, 1990, p. 172).

For the secondary analysis, we maintained the constructivist approach, while investigating original data (life stories of elite athletes). Drawing upon two theories (the IMDB and Personal Integrity) for coding frame, QSA expanded upon the original research by linking the concept of personal integrity to participant's reflections of the factors that influenced their attitudes, values, beliefs and behaviours towards doping at critical points in their career. This was deemed appropriate as factors relating to personal integrity emerged consistently from the original data, the dataset was extensive, and re-use helped to maximise the participation of this highly sought after, yet hard-to-reach population (Heaton et al., 2016). It was also beneficial that the purpose of this secondary analysis was close enough to the original research aim that the context of the participants original responses would not be lost when QSA was based on the aims of this study (Wästerfors et al., 2014). Therefore, the main issue of secondary analysis (the difficulty and feasibility of re-analysing data from its original context), was sufficiently addressed (Wästerfors et al., 2014). With the unique aim of exploring clean sport from a perspective of personal integrity, the lived experiences of participants, and their self-reflections of influences, perceptions and behaviours related to clean sport, were analysed thematically to identify individual, similar and unanimous accounts. Once more, this was conducted on the premise that commonality which emerged from great variation were valuable in capturing both core experiences and central shared facets (Patton, 1990).

2.2. Participants

Transcribed individual interview data from 14 participants were included in this study. The interviews were originally conducted for an independent research project called "Safe You+" (see project website for details: https://www.safeyou.eu/), with the aim of constructing real-life case studies of athletes. For the parent study, which adopted a non-judgemental approach, athletes were invited to participate regardless of their use of performance-enhancing substances. Their choices for

performance-enhancement were covered as part of their respective interviews, and therefore were self-reported. In line with the non-judgemental approach and the ethos of the qualitative enquiry, we did not seek 'evidence' for their self-declared status as non-dopers. Athletes were recruited to share their life stories with us knowing that these stories will be used for creating anonymous (or in came cases identifiable with consent) case studies. We have no reason to think that athletes were not honest with us and deliberately and consistently misrepresented themselves throughout a long interview.

The parent study was conducted with participants from European countries. Therefore, conscious effort was made to recruit a heterogeneous sample to ensure diversity in terms of gender, age, type of sport and low versus high risk for doping. An overview of participants where interview data were included in the current QSA is presented in Table 1. Of the 14 athletes, nine were male, and five were female. Participants were elite athletes, either currently active (*n*=9) or retired (*n*=5). At the time of data collection, active participants were aged 16 – 34 years old while retired participants were aged 30 – 38 years old. The mean age of participants was 27.21 years old (SD=5.81). Participants also self-identified as female (*n* = 5) and male (*n* = 9). At the time of this study, participants were competing, or had previously competed in Athletics, Cycling, Gymnastics, Para powerlifting, Rugby Union, Triathlon, Water Polo, Taekwondo, Sailing, Futsal and Judo. Participants had all competed in, or won, competitions at national, international, and Olympic/Paralympic levels.

The sample recruited for this study could be considered homogenous as each were from European locations which, despite respective cultural nuances, afforded similar sporting opportunity and experience to participants. However, an important and distinguishing factor highlighting the heterogeneity of this sample from a clean sport perspective, is the doping risk of the respective sporting codes in which athletes participated. To identify these risks, two authors with subject matter experience conducted an independent risk classification, which was informed by WADA Technical Document for Sport Specific Analysis (World Anti-Doping Agency, 2022) and practice.

When combined and contrasted, the resulting classifications of high (*n* = 8), medium (*n* = 3) and low (*n* = 3) doping risk were congruent across sporting code as shown in Table 1.

Table 1: Participant characteristics

Participant	**Country**	**Sport**	**Highest level of competition**	**Risk classification**
P1	UK	Para powerlifting	Paralympic	High
P2	UK	Taekwondo	International	Medium
P3	Germany	Cycling	International	High
P4	UK	Athletics	Olympic	High
P5	Italy	Gymnastics	Olympic	Medium
P6	UK	Cycling	International	High
P7	UK	Athletics	International	High
P8	Germany	Sailing	Olympic	Low
P9	Germany	Water Polo	International	Low
P10	Germany	Judo	Olympic	Medium
P11	Italy	Rugby Union	International	High
P12	Italy/Brazil	Futsal	International	Low
P13	Germany	Cycling	National	High
P14	Germany	Triathlon	International	High

2.3. Procedure

In the first stage of data collection via interview, ethical approval was gained locally by the project partners from the respective institutional research ethics boards in University of Potsdam (Germany), 'Foro Italico' University of Rome (Italy) and Kingston University London (UK). The interview schedule and process were developed by partners from the University of Potsdam and adopted by the other partners. Before the interviews, each participant was given an information sheet and an opportunity to ask questions about the study. If participants declared a desire to be part of the research, a mutually convenient interview time and date was arranged. On this date, participants were given another opportunity to ask questions, and once their questions had been

answered participants were invited to read and sign the consent sheet. This indicated a willingness to be part of the study.

All interviews took place in a quiet and convenient place and were recorded using a voice recorder. Interviews took the form of narrative interviews. The interview matrix was originally designed for an ERASMUS+ funded research project in support for developing real-life case studies and problem-based learning scenarios (Supplementary material 1: Interview guide). The interview followed the course of a competitive athlete's life. The guide is divided into five "life stages": before competitive sport, promotion into competitive sport, life during competitive sport, potential crises, present state of affairs. Questions relating to each stage were research derived, based on the key challenges and considerations that are typical at that particular stage of an athlete's career. The aim and related questions of every "life stage" are outlined in Supplementary material 1. This was followed by closing statements in which each participant was thanked for their involvement and the recording was ended. Participants were then given the opportunity to ask any questions of the researcher or add further clarifications or redactions. Interviews were audio-recorded and transcribed verbatim for data analysis. Data were transcribed in their original language by native speakers with a good command of the English language.

In the second stage of research, the secondary data analysis conducted in this study, the original interview recordings were obtained from the project partners who granted use for secondary data analysis. Partners were informed about the aims of the secondary analysis and offered an option to participate in the project or be credited through acknowledgement. Direct participation was declined but research leaders involved in the original project were helpful and supportive of this endeavour by the current research team. Ethical approval was granted by the Faculty Research Ethics Committee, Faculty of Science, Engineering and Computing, Kingston University London, UK.

2.4. Data

Data in the parent study were generated for narrative life stories. After verbatim transcription, data comprised a total of two hundred and fifty-one pages of text. Data were collected in English from athletes from the UK, resulting in one-hundred and fifty pages of text. Three athletes from Italy provided data totalling thirty-three pages, while five participants from Germany provided sixty-eight pages of evidence. Where the interview language was not English (three Italian interviews and five of the six German interviews), only the coded quotes were translated into English.

2.5. Data Analysis

In the current secondary qualitative analysis, data were analysed using Braun and Clarke's (2006) established approach of thematic analysis. This approach offered "a method for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 79) with a new set of research questions focusing specifically on personal integrity and commitment to clean sport. This involved six key steps. Firstly, the raw data from interviews were transcribed verbatim, and then data were scrutinised for both semantic and latent codes. Key quotes were labelled and grouped to signify rich and illustrative themes or sub-themes that represented the experiences of elite athletes in this study. Data collected and transcribed in Italian and German languages were coded by native speakers of the respective language. Once coded, quotes illustrative of major and minor themes were translated into English for further analysis.

Themes and sub-themes were developed and refined using adductive reasoning to ensure there was a concurrent interplay of both inductive and deductive methods (Sparkes & Smith, 2014). This meant that findings were used to both develop general ideas and principles from a theoretical perspective where appropriate or developed with consideration of existing theory and research on doping. When themes were appropriately defined and labelled, a thematic map was developed to visually represent findings (Figure 3). Data analysis was then conducted in NVivo v12.

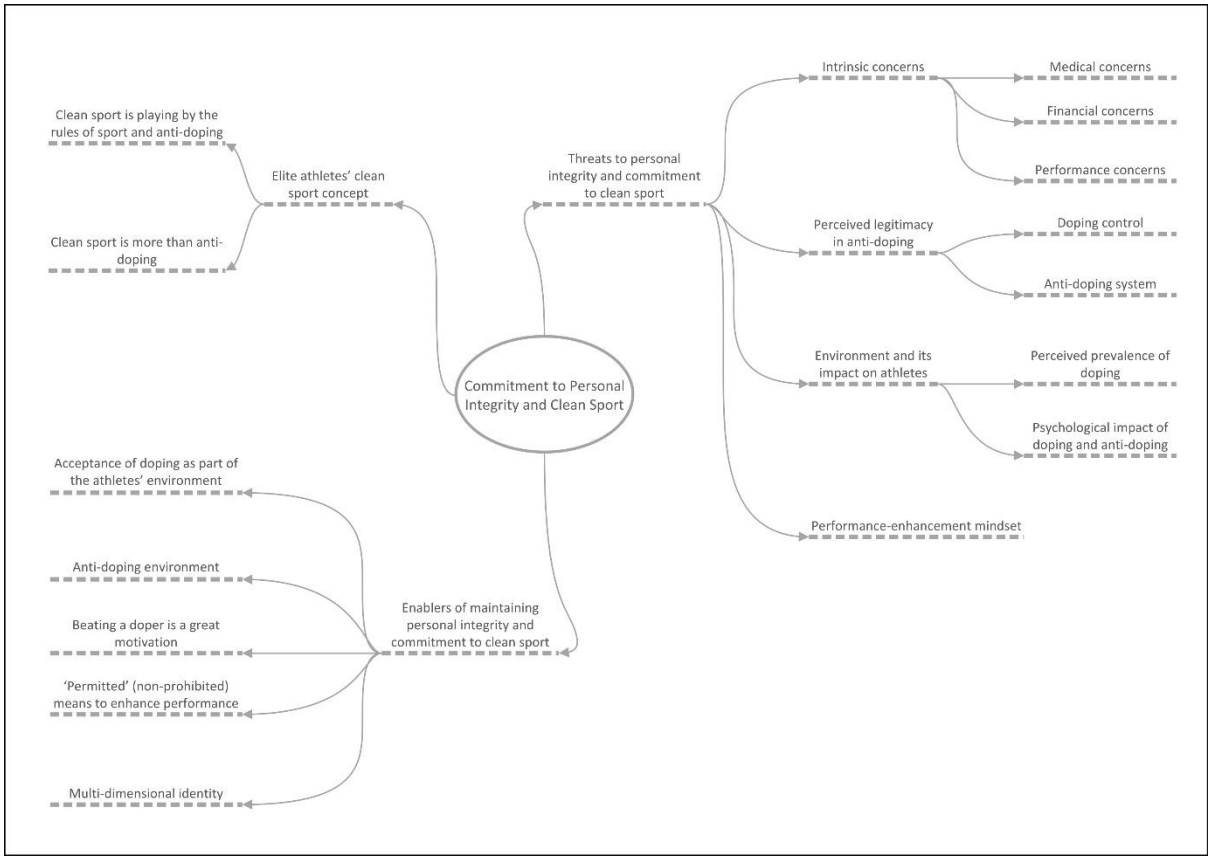

Figure 3: Mind map of the identified themes and subthemes

2.6. Data Adequacy and Congruency

In this project, we used existing data (narrative interviews) to answer new research question which focused on a specific theme, namely personal integrity, and commitment to clean sport. Based on the limited literature, personal integrity, and personal commitment to clean sport, as well as goals and goal striving were assumed to be important factors in clean sport (e.g., Erickson et al., 2016; Petróczi et al., 2021; Shelley et al., 2021). In the interview transcripts, thick and rich description was available on athletes' personal take on doping and anti-doping with personal and vicarious examples presented in all cases. Due to the focus on 'personal integrity' and 'personal commitment to clean sport' and 'anti-doping compliance', data from life story interviews were deemed adequate to address the research questions. Passage of time (time between the primary data collection and the secondary analysis) was under five years during which anti-doping has not changed drastically.

Aligning with Braun and Clarke's (2021b) view on data-, thematic-, code-, or meaning-saturation, we focused on generating meaning through the interpretation of athletes' life story accounts and not 'excavating' these from the data. This approach is also in line with the nature of secondary qualitative analysis where data were not collected with the current research questions in mind. With retrospective reflection, there were not any grey areas or areas of divergence that would call for further data to verify, thus we are confident that the data were adequate to substantiate the conclusions drawn.

Problematic interviewee behaviour (e.g., lying about one's own doping related conducts, reluctance to criticise the official anti-doping stance or offering views about doping that deemed to be a socially desirable) is an issue in all empirical studies that rely on obtaining data via participants' self-reports, recollections, retrospective rationalisations, and personal views, and it is a well-known bias in surveys (Krumpal, 2013). However, the literature suggests that such distortion is rare in qualitative interviews (see e.g., Collins et al., 2005).

2.7. Quality Criteria & Methodological Rigour

Drawing upon a constructivist approach (Guba & Lincoln, 2005), the quality and methodological rigour of the current study is evaluated against the criteria set for QSA (Ruggiano & Perry, 2017). Specifically, quality and rigours are demonstrated through; a) the relationship of the researchers with the original study (the current study involved re-examining qualitative data to explore a new research question, from the original study that involved two authors (AP, JS) and led by one of them (AP)), b) ethical considerations in secondary study (authors provided information on ethical approval for the original study as well as for the secondary analysis), and c) attention given to methods and rigour of both the original study and the secondary analyses (a detailed description of the original study and dataset is provided with regard to the parent project, funding source, aims, design, sample, data collection, and use of data; transparency in data acquisition; details of methodological rigour during the QSA on the un-coded transcripts and the use of audit trails). The researchers (JS, AP) and the project lead (AP) from the original study acted as a *'critical friend'*

throughout the analysis, offered different perspectives from the athlete as well as an academic point of view, respectively, and challenged the new interpretations of the data. The first author's (SC) involvement in the practical aspects of anti-doping ensures relevance and authenticity (making sure the current QSA study is worthwhile, and that its impact on members of the anti-doping community is continuously reflected upon). The quality of the analytical process can be judged with Braun and Clarke's (2021a) evaluation questions to guide assessment of research quality.

3. Results

This study explored elite athletes' perceptions of doping, anti-doping, and clean sport behaviour within the personal integrity framework. Through investigating elite athletes' conceptions of clean sport and integrity, the factors that might threaten personal commitment to clean sport, and those key factors that may help build and maintain personal commitment to clean sport and personal contributions to a clean sport environment, clear differentiations between personal commitments to anti-doping rule compliance and to clean sport emerged. This characteristic distinction permeated all themes identified in the data, regardless of the doping risk in respective sporting codes. A visual representation of the themes and subthemes are offered in Figure 3 and defined in Supplementary material 2.

3.1. Elite Athletes' Clean Sport Concept

When elite athletes were asked to conceptualize clean sport, evidence was found to support the view that this concept is highly individualized and influenced by a wide variety of factors. Athletes offered noticeably divergent views about what clean sport is, and how it can be demonstrated.

3.1.1. Clean sport means playing by the rules of sport and anti-doping

No athletes reported use of prohibited performance-enhancing substances and/or methods, not even under Therapeutic Use Exemption (TUE), but their approach to performance-enhancement spread across the clean sport spectrum. Some athletes stayed away from any form of supplements and substances unless advised by medical professionals, as exemplified by Participant 9 (P9): "There is no point in finding out what is good and just taking it – it needs to be supervised by sports

physicians. They have to be experts who know what they are dealing with." Others expressed only using natural ingredients out of fear of potential contamination that could lead to inadvertent doping, including P4: "I'd be stringent on everything that I take and I'm probably not going to take any vitamins or supplements." While P9 didn't provide rationale for their avoidance of supplements and substances, they had a clear stance by stating: "There are significantly more possibilities to get more out of the body in the so-called grey area or via food supplements, via shakes, but I tell myself that I don't need it."

Many athletes relied on the WADA Prohibited list and felt that if the substance or method is not prohibited, its use falls within the clean sport rules, including P6 who spoke of caffeine: "… it was a threshold drug I think a few years back. Yeah so use it, at the end of the day it works so it's easy to get, it tastes good as well". Also discussing caffeine was P3 who had set their own peculiar rule for what is acceptable for them, and what was not:

> I really like coffee and I also use it for some kind of performance enhancer. For example, before a big race, I start drinking coffee five days before so that I have some benefit from it but I would never use caffeine pills. I mean maybe it's a grey line but I think, for me, it's okay.

Caffeine in these instances means more than just a substance with performance benefits, or a preferred beverage. Its history in anti-doping, the fact that caffeine was a prohibited substance above a certain concentration but now removed from the Prohibited List for practical reasons, signals a 'grey zone' where the boundaries between morally acceptable and unacceptable within the not-prohibited spectrum is blurred, and right or wrong is defined idiosyncratically. Athletes were cognizant about the rules regarding caffeine but also the history of it. They knew that caffeine is not prohibited in sport yet due to its past they felt somewhat uneasy about it, and offered explanations and rationalization based on their own self-imposed limits. Exemplified with caffeine but it is not a substance issue. Rather, athletes' self-limiting, idiosyncratic approaches appear to be characteristic in the grey zone and can be applied to other substances and performance-enhancing methods.

Consistent with the perspective of others was P10 who felt that the demands of high performance necessitated acceptance of supplement use:

> As a competitive athlete, your body is demanded much more than as "normal people". And to cover that, I don't know if even the best organic nutrition is really enough… I think it's good to add something but of course not the forbidden substances, but things that really help, like minerals and trace elements.

Notably, the risk classification of participant's sports did not have a clear impact on their clean sport concept. Instead, changes in these 'personal lines' occurred overtime, were idiosyncratic and tended to follow changes in participant's personal circumstances including injury, health issues, increased pressure for training volume or intensity.

3.1.2. Clean sport is more than anti-doping

The most stringent performance enhancement mindset was expressed by P2 and P4 who had and continued to use no substances at all. With this mindset, P2 said that clean sport is "putting yourself to the test but with a pure state of mind and body." This participant went on to say that clean sport is "trying to see who is the better one in their state without any substance to change you." Both P2 and P4 rooted their strict stance in their personal identity and strong personal desire not to use performance-enhancing substances, despite respectively medium (P2) and high (P4) doping risk in their sports. The personal approaches to sport and sport performance athletes spoke of are independent of anti-doping rules. Athletes' commitment to clean sport is driven by their personal values and morals, exerting influence on their performance-related goals which include not only what they want to achieve but also how they want to achieve it.

Signifying the holistic and universal nature of personal integrity, P2 also spoke of their deeply held religious convictions that would override a desire to use performance-enhancing substances: "God put the right nutrients on this earth to find it and use it, you don't need to make manufactured things.". The influence of one's social identity and strong personal desire to not use any substance was also demonstrated by P1 and P7 who both competed in high-risk sports. However, in taking a

less strict stance, P1 focussed on the performance-enhancing role of the substance, not merely its manufactured nature: “What clean sport means for me is not putting anything in your system that’s going to enhance you without hard work.” Similarly, P7 spoke of the morality of performance enhancement and how sporting decisions mirrored their character and identity, while P1 reflected on the universality of personal integrity: “I bring my lifestyle into my sporting endeavours, so how I compete in sport is how I am as a person. I like to be an honest person.”

Further along the continuum, participants described a performance enhancement mindset that was less stringent in its use of performance-enhancing substances/methods but did not cross over the threshold into prohibited substance/method use. As an example, P14 described their use of permitted substances to enhance recovery efficiency in their high-risk sport, as opposed to performance: “You think more about regeneration and after intense sessions we often take regeneration drinks since it is important to refill your fuels within the first half hour.” In some cases, the line was self-imposed including for high-risk sport P13 who stated: “I do everything to race faster, but you just don’t do something like that [taking pills].”

For other athletes, the official regulatory line set by the WADA Anti-Doping Code served as reference point for clean status. Several participants identified their use of substances to enhance performance and recovery using what they perceived permitted means. This included P12 from a low-risk sport who questioned:

> I am [over 30] years old and, if I want to play at a high level, I also need the things that help me, but always within those legal limits. So, if you can use it, and they are good for you, why not?

At this end of what might be considered a ‘clean sport continuum’, some participants described a performance enhancement mindset that alluded to a social duty not to use prohibited substances and remain a positive role model for others, on and off the field. P13 explained the inspiration from, and influence of, positive role modelling by an athletic sibling who “inspires me and

I share his view on this topic [not taking illegal substances]." In turn, P13 wanted to have a positive influence on others:

> you realize how bad it is and that you have a family at home and that it's really bad for your health – so you talk yourself more into conscience that it's nonsense to do something like that [doping] just for the sport.

The sense of social duty as 'role models' was both visible and universal, evidenced in the importance participants from varied codes places on their integrity as a person, not only as an athlete. For example, P12 said: "Being a model for some girl is something very beautiful …. athletes must give a good example to do sport well and show the good side of sport." P12 explained their view on positive role modelling with the example of a younger person seeing "you [are] smoking or drinking, she may think that … she will be able to do it. But if she doesn't see you doing it, maybe she will not." Across sports with varied doping risks, athletes' holistic views on clean sport were more encompassing than 'anti-doping' and had personal importance to them, within and outside of the sporting arena. Although they were aware of their environment, both in terms of sport and the broad society, risk-level of their sports did not seem to influence their personal approach to clean sport. Collectively, athletes' accounts of how they approached performance-enhancement support the notion that behavioural choices within the regulatory 'clean zone' where anti-doping rules do not apply is driven by personal integrity. In the absence of set rules, athletes intuitively employed rules that *felt* right to them. Here we observed two competing forces. On the one hand, athletes were conscious of their position as 'influencers' (for both good and bad), found pride and joy in being a positive role model for the future generation of athletes. On the other hand, athletes were also aware of their position as elite (often funded) athletes and doing their absolute most, being in top form, and recovering from injury as fast and effectively as possible were considered both a duty and a necessity.

3.2. Threats to personal commitment to clean sport

The second objective of this study was to explore the factors that might threaten athletes' personal commitment to clean sport (temporarily or permanently), and consequently push them towards doping. Within this general dimension of threats, four higher order themes were identified; intrinsic concerns, perceived legitimacy of anti-doping, descriptive doping norms and athletic identity.

3.2.1. Intrinsic concerns

Within this higher order theme, participant's intrinsic concerns were categorized into three sub-themes of medical, financial, and performance concerns.

From high and medium doping risk sports, participants described concerns about their health status and the potential impact of medical issues and injuries on their ability to train, compete and be successful. Maintaining good health was discussed as a significant challenge for an elite athlete, not just because of the physical challenges associated with competitive sport, but the lifestyle around it too. This was particularly so in sports with high doping risk including P3 who said:

> You have to always be in shape. You have to care for your health. You have to travel a lot. Sometimes, you have to ride races even if you're not in such a good shape or you might have other plans.

These concerns were not only described in the short term as P10 shared "It [doping] can cause so much consequential damage to your body … is not worth it, because that's just a short snapshot of competitive sports." Considering this, the potential for some substances or methods to enhance participant's health was considered a key motive, even if the substance was not being used for the primary goal of performance enhancement. This was especially relevant to those with pre-existing and long-standing health conditions for whom the use of the substance and/or method caused somewhat of a moral dilemma as their primary benefit would be to manage difficult symptoms, though athletes were conscious of their performance related impact. Sometimes this dilemma occurred as medical professionals suggested the use of prohibited forms of treatment. For example, P3 explained:

> I also had a big knee problem when I was 16 years old … I had a discussion with my doctor and he said, '… If it was the Tour de France and you were one of the favourites, we could discuss [steroid injections] because you would be able to earn a lot of money'...I didn't ask for it.

Similarly, athletes were uniform in their belief that sustaining injuries is a key concern, particularly in sports with high doping risk. P4 explained: "As an athlete, you've always got this underlying anxiety about getting injured at any minute and it all going away. You're always in this fearful place." P1 agreed, describing a "… fear in my mind that I'm probably going to have to retire so every flare is kind of a huge stress for me."

Once an injury was sustained, participants described substance use for the purpose of persevering with competition regardless. For example, P13 reflected: "...they talked themselves into it a little bit, like 'Oh, that hurts, I'll take an aspirin or something' and then they took one." The use of permitted medications to deal with pain in sporting contexts appeared normative for some however others were steadfast in their stance on such behaviors, like P14 who claimed: "I am not a fan of enduring pain for a longer time by taking pain killers, I don't do that."

A second factor that was discussed as having the potential to impact the athlete's performance enhancement mindset was financial concerns. Again, these financial concerns were discussed predominantly by athletes from sports with high and medium doping risk, in relation to direct financial remuneration (e.g., for winning), and indirect financial reward (e.g., sponsorships and endorsements that lead to free goods). For example, P10 declared: "money plays a big role, fame plays a big role."

All athletes expressed that at some point in their career they experienced financial pressure. In fact, P3 explained that financial pressure as a motivation for doping: "…there are some critical moments when [athletes] say, 'Okay, I need to get better contract. I do not earn enough money. I don't know where to go next'." This concern was exacerbated by anxiety that the athletic career is a

short one and can be cut even shorter by injury or ill health. P4 explained: “You know you can make a load of money, so you just want to make loads of money because it could go at any point.”

P14 believed that the pressures and associated financial opportunities of elite sport increased over time, alongside the development of appropriate coping mechanisms:

> I never had any external pressure in the past years, but it’s now starting a bit since now it is about things like qualifications for the squad, with whom you are allowed to practice, where you will practice and also financial factors.

Though, as put by P7, the financial pressure is not just experienced for the purposes of materialistic desires:

> I know some people in Africa, in Kenya, they’re doping, but they have to put food on their table. They’re coming from a place where they don’t have money and that’s a way out for them. So that maybe that is one of the reasons why they’re encouraged to dope, they have to dope.

P7 went on to state: “a medal can change people’s lives… so this really affects your life.” This view was supported by others and similarly described by P6:

> … you can understand why they go through that and to them it’s more about poverty or essentially a damn **** life … For them it’s either stay in poverty or possibly win a nice big pay cheque at a big marathon and retire off out and support their family.

The third factor was performance stagnation or perceived underachievement. Discussing the potential impact of stagnation on athletes’ confidence and anxiety, P7 said “once things don’t go right in athletics, I feel you can honestly have mental problems because you put all your energy into one thing and then once it doesn’t go right it’s like your whole world is crashing down.” This perspective was shared by P6 who said that they spent a lot of time questioning, “where are we going to find our gains from?” Despite being one of the strictest elite athletes, P2 explained how this pressure can lead to a reconsideration of one’s initial principles: “I had a lot of people looking up to

me as well, so you feel the pressure of wanting to perform more and making sure that you do well." Within the context of a team cycling event, P6 shared similar experiences:

> We did mention tramadol [when] we had a weak rider, he wasn't getting round team pursuits, so we went to the World Cup and he didn't finish. He got dropped in qualifying, he got dropped in the rounds. We were one of the fastest teams there! We should have been on the podium. So, off the back of that we're like what can we do?

With perspective from a sport with low doping risk, P12 believed this was relevant because "at a high level, there is a lot of pressure for the result", while P7 said:

> I know a lot of people that take drugs can do the performances clean, but it just takes a longer time and the major thing in sport is about time. People want to do it as quickly as possible and not everyone's going to be in that prime shape for years and years.

While explained with greater intensity by those in sports with higher doping risk, intrinsic concerns about health, finances and performance are an evident threat to all elite athlete's personal commitment to clean sport. These ever-present threats alone, and in unfortunate but potent combinations, lead to increase in athlete vulnerability to doping, as well as accidental anti-doping rule violations from extensive supplementation and medicalization for performance-related reasons.

3.2.2. Perceived legitimacy in anti-doping

One of the key influencing factors discussed by participants were their perceptions of legitimacy within the current anti-doping system. Whilst they shared the view that clean sport is valuable and thus worth protecting (which offers high normative legitimacy for anti-doping), participants were critical of the ways anti-doping measures are implemented (i.e., legitimacy through fairness in the process and in outcomes). Most participants expressed great skepticism of the systems that exist to prevent doping and frustration with the consistency of testing, as well as the transparency of how bans are issued and overturned. For example, P4 said: "one minute it's this punishment, and then it's that punishment, and then, 'Oh no, we're going to overturn that punishment'." When using the Russian doping scandal and the summer 2016 Olympics as a case

example, P4 said: “When you don’t even have IAAF, IOC and WADA on the same page when it comes to doping a week before, a day before, during... what the hell!? What does that do for an athlete’s mental approach?” It was notable that P7 attributed scepticism in the anti-doping system with the occurrence of doping: “… because of the way it’s set up, people actually dope more.”

A second factor was perceived international variations in doping control. Participants agreed that flaws in the anti-doping system are greatly contributed to by global discrepancies in the quality of anti-doping, even when competing under the same governing bodies. These discrepancies were challenged primarily by participants of high doping risk sports including P4 who stated: “The rules need to be the same across the board.” In addition to the rules, this participant described varied access to anti-doping from a global perspective: “… you go all over the world, you speak to different athletes; the lack of education, the lack of exposure to testing it’s such, it’s so different.” Similarly, P11 described a lack of control and information regarding substance use: “you were free to take whatever you want, and nobody told you anything.” In contrast, from a sport with low doping risk, P12 discussed an obvious change to their usual experience where doping control was included in a major event environment: “if you go to a world cup, everything is organised. There are doping tests … they are prepared to do that.”

Perceptions of international inconsistency regarding doping control, associated frustration and a feeling of unfairness was shared across most participants regardless of the doping risk in their sport. For example, P1 said:

> it’s unfair that you have six or seven countries in the world that are a good standard and the rest are very poor in terms of education, testing, the perception of anti-doping … it’s a huge frustration for me that I get tested like a lot compared to my rivals.

Likewise, P9 explained: “You would have to make it uniform all over the world … we are the absolute pioneers in [Redacted] which is of course sometimes annoying for us as athletes.” P8 shared “you get annoyed when other nations don’t do it that way” while P10 said: “there is no equality.” P3 similarly expressed their views on international discrepancies in doping control: “I think it’s still a big

problem. There are many races where there is no testing at all. I think there is room for a lot of improvement." Participants explained that this could have the effect of encouraging other athletes to dope to 'even up the playing field', or merely persuading them that the likelihood of being caught, and thus doping, is low. P7 expressed: "I've barely got tested over the last like year or so … so yeah it's possible for me, if I wanted to, to take something and come off it and get the performance that I need." Reinforcing consensus of participant's perceptions of legitimacy of the current anti-doping system, it is noteworthy that similar views were shared by athletes from codes with low, medium and high doping risk.

3.2.3. Environment and its impact on athletes

Linked to the questionable confidence that athletes have in the anti-doping system, participants also expressed perceptions of prevalence of doping in their sport and its influence on their performance enhancement mindset. It was evident that athletes from sports with higher doping risk are more negatively impacted by doping (perceived or otherwise) in their sporting environment however it clear that participants of sports with lower risk are not immune. Though athletes were clear that their perceptions may not necessarily reflect reality, they unanimously felt that doping was rife in various sports. For example, P10 said "There are some nutcases in the sports sector that really do dope no matter in which sports, and I am convinced that is still the case … it's always been like that and yes, it still exists today."

Despite growing awareness of doping and developments in anti-doping procedures, participants of sports with high doping risk experienced greater psychological impact than others, regarding the issue. P3 said: "I still can't be sure that everyone is also clean." P4 similarly explained that "there's not much trust, and there's insecurity." For this reason, athletes stated that they subconsciously found themselves questioning and looking for clues of who may be doping. As described by P1: "in some countries … people think everybody's doing it rather than the other way around." Knowledge and perceptions of others doping meant that P13 held little optimism for improvement:

> There was a number that 20% of the athletes in this field are still doped, while 80% are clean. I would say that unfortunately that is still true … it is still a very high amount and I don't think we will get rid of that.

One key issue with such skepticism is the psychological impact that it may have on athletes. P4 admitted that they "had quite a lot of experience competing against athletes that I perceived as being, I guess, 'dopers' or 'dirty athletes'." As a result, this participant said: "I didn't realize it but I got caught in the trap of mentally becoming very negative." Findings suggest that perceptions of others doping can also lead to athletes questioning the wisdom of their stance on doping, and whether or not they should also dope to increase their chances of success, or 'level the playing field'. For example, P4 said, "I'd started noticing was that my focus was becoming about, 'How am I going to beat them? This is not fair. Even when I work hard … I'm still not beating them'." Similarly, P3 explained:

> I saw riders using injections, just on the bus next to us. That made me very, very angry because it was before a mountain time trial. You're standing there at the starting line and you think, 'Now I have to ride against a cheater?'

The impact of perceived doping among competitors was evident when P4 explained:

> They're actually taking what rightly belongs to clean athletes that we've worked hard for. The sacrifices that we make; family, friends, everything and your life is just all about this. You also have to compensate even more.

Athletes' views together gave a strong indication of the difficulty they felt in coping with observed or assumed doping in their environment, among peers and competitors. References to the impact on mental health were frequently made but the ways athletes coped with this situation were seldom articulated.

3.2.4. Performance-enhancement mindset

Although it was not unanimously identified as a key influencing factor, most participants explained that one's performance enhancement mindset can be influenced or harmed by the extent

to which their sport dominates their identity, regardless of the doping risk in their sport. P6 spoke about this struggle, saying “it’s just all-encompassing, so now I don’t have a social life beyond the sport.” P14 similarly said: “You simply adjust your entire life for the sport.” Likewise, P9 said: “Sport meant very, very much to me back then. I think I would say almost everything because I simply realize myself in this sports world.”

P5 explained with hindsight that:

> Over the years, it was more the physical and mental fatigue of living so focused that the situation is beginning to weigh on you, you begin to feel the need to be with your boyfriend, you do not want schedules.

With statements such as this, participants explained that the reason that this may influence one's performance enhancement mindset is because those with unidimensional identities dominated by sport may experience more intense feelings when they face athletic disappointments such as injury and underperformance. Thus, they may be more willing to take extreme measures to address them, regardless of the doping risk in their respective sport.

3.3. Factors that may help build and maintain personal commitment to clean sport and contribution to a clean sport environment

The third objective of this study was to investigate key factors that may help athletes to build and maintain personal commitment to clean sport and to contribute to a clean sport environment. Five themes emerged from the data to show that relevant factors are not purely situational but internalized. These psychological/psychosocial themes work in tandem over the lifetime of the athlete’s career and include acceptance, anti-doping environment, motivation, ‘permitted’ (not prohibited) means to enhance performance and multi-dimensional identity. It is worth noting however that not all five factors play an equal role, or present simultaneously, thus in specific cases it may be more useful to utilize or rely on particular factors.

Collectively these factors comprise a set of coping mechanisms athletes, most likely intuitively, employed to manage the presence and threat of doping in their environment.

3.3.1. Acceptance of doping as part of the athletes' environment

Participants expressed a form of learned helplessness through their acceptance that others may be doping and a desire to focus on what they could control, in order to compete with personal integrity. This was predominant in participants of sports with high doping risk including P4 who explained that:

> You just think... '**** it! I'm just going to concentrate on me and not try to put my focus on being the best in the world. I'm just going to try and do the best I can. If that results in me being the best in the world, then bonus.

Similarly, P1 described their "attitude of, 'if I can't physically do it myself then I'm never going to take anything artificial to get me there', I just kind of had to accept the fact that I'm not good enough." Likewise, P3 said:

> If you take EPO, growth hormones and other stuff, maybe I would have also been capable of that but I don't want to try it. I know where my natural limit is and that's okay, I have to deal with that.

P8, from a sport with low doping risk, added: "If the muscles aren't trained enough, I have to train myself, no pill or anything would help me with that. That is why it [doping] was not an issue."

P11 emphasized that the choice to dope remained an individual's own, and knowing that some may choose to do so was something that required acceptance, without endorsement: "Seeing as you take anabolics you know you are stupid. Do it if you want to hurt yourself. Nobody tells you not to. In the end, everyone is free to make their own choices and responsibilities."

A popular view among participants from sports with higher doping risks was that self-focus was key, as explained by P4:

> You've got to really just control only what you can control ... You can either just do that and really stay very, very clean and clear on... 'I do this and I'm doing it for these reasons. I want to see how far I can jump; fast I can run; far I can throw' and it just be about that.

Similarly, P7 summarized: “At that moment you’ve just got to focus on what you’re doing; you can’t really focus on that.” Perhaps unsurprisingly, it was athletes from sports with higher doping risk who were most vocal about their acceptance of others’ doping. Of note however is the perspective which this acceptance gave participants about their own performance and their resolve to remain clean.

3.3.2. Anti-doping environment

Participants described the influence of having an anti-doping culture around them to encourage them to uphold their commitment to clean sport, regardless of the associated doping risk. For example, P1 said:

> My coach was very, very ‘anti-doping’ so like you know they’re all about being clean and doing the best you can do and reaching your potential through hard work. So, from literally day one that has kind of instilled into me.

Similarly, P13 explained the view of their coach: “We could always train more before you reach for something like that [substance], you still have 1000 other things that you can optimize first.”

Parents also had a notable influence on anti-doping in participant’s sporting environment. P1 stated: “my parents like are very ‘anti-doping’ too like, any mention of drugs and my mom starts like going nuts.” Similarly, P13 explained: “My mother is pretty strict regarding that, she always wanted me to just drink water and eat bananas …. anything else didn’t even cross my mind.” This interpersonal anti-doping influence was comparable to P2 who explained:

> If you have a positive and a very encouraging club and family where everyone is trying to get together with as natural as possible putting the work and the time in to get yourself better, then of course if you won’t really think about having to take anything.

It appeared important to participants from sports with medium doping risks, that positive influences existed from early in the athletic pathway. For example, P10 stressed the importance of “more emphasis on educating young”, while P5 described the need for such at higher levels of competition: “While you are in the national team you are in a bubble. Whatever you take every time the staff tells you to be very careful because even the stupidest thing can contain illegal substances.” Regardless

of the level of competition, P2 also emphasized the importance of sport type to an anti-doping culture: “it’s such a disciplined sport and I think if anyone did then it would be literally like ‘no, that’s not acceptable at all!’”

Just as environmental influences regarding anti-doping were influential to clean sport, it was evident that negative influences could impact doping behaviour in sports of all risk classifications. P12 explained how team management had decision making authority when it came to substance consumption “because the staff organized everything.” Similarly, P11 described that:

> I talked to him [athletic trainer] and he said, ‘Maybe you're wrong to take them like this, take them this other way’ … Or he said, ‘Throw this, buy another one, if you want to take some creatine or anything else come to me that I recommend you the best one’.

P3 summarized the variation in environmental influence on athletes regarding anti-doping when they encouraged others to:

> Have a social network that you trust and talk to them. Talk to older athletes. Talk to different coaches because I also know that not every coach or team manager is good for your health or for your performance.

Going one step further, P11 felt there was importance in a team environment, to hold athletes to account for their sporting integrity:

> If there is one of the team that you know is doing some bull****, you as a teammate and as a friend in my opinion it is right that you go to him and tell him that he is doing the wrong thing.

Participants from sports with high, medium and low doping risks articulated the importance of anti-doping environment as a key factor to build and maintain commitment to clean sport.

3.3.3. Beating a doper is a great motivation

Perceived doping among competitors became a source of motivation for athletes from sports with higher risk of such, including P1 who felt that: “trying to beat a drugs cheat is actually very motivating because it means that you’re winning the battle when it comes to the science behind

everything that you do naturally." The perception that others were doping was influential to some participant's drive to demonstrate their ability. For example, P4 explained that: "in my... maybe my confidence but also a little bit of my naivety, I felt like, 'I can beat them. I don't care. I'm talented enough' which I still think I am." This drive was shared by P13 whose view on this is boosted when others demonstrate that it can be done:

> I have seen that it is possible without taking illegal substances. Since I am doing competitive cycling and since I am a relatively high level, I noticed that the professionals at the top do not show unrealistic performances and that is motivating me even more, knowing that it is possible to reach the top without performance-enhancing substances.

From the perspective of an athlete in a sport with medium doping risk, P10 described the positive reinforcement and motivation drawn from experiencing success as a clean athlete:

> When you are successful and realize for the first time … if you continue on this path [training hard and improving technique] and with that determination, you can really achieve something in your life, that was a very, very important moment for me.

Participants of sports with high and medium doping risk similarly gained motivation and built greater commitment to clean sport through sporting triumph over those who doped. It is of note, that athletes from sports with low doping risk did not share similar experiences and may, through less exposure to such behaviours, may not the same motivation to commit to clean sport.

3.3.4. Permitted means to enhance performance

Participants from sports of all doping risk classifications explained that a means of maintaining integrity in sport was to ensure they got the most out of their career by utilizing the full breadth of legal performance enhancers. For example, P3 explained the technical ways in which they enhance performance: "The reason I became more successful, to be honest, was just because of technical improvements." Likewise, P14 said:

> That is why I consult a sport psychologist to work on that and learn to take the sports not too seriously and to not think that it is the end of the world and to not put too much pressure on myself.

In addition, P1 attributed their on-going success to permitted medical practices: “I knew that was the best medical care and if I kept doing what I was doing that I could always come back and that’s what kept me going.” While P8 “tried to adjust the material to allow me to sail fast.” Meanwhile, P10 and P13 showed their drive to succeed through adapted training volume rather than doping. For example, P10 said: “I improved my performance through increased amount of practice and especially through increased intensity” while P13 explained: “I always tell myself that it is better to train one more hour per week than taking anything. In general, it never came to my mind to take something before a race or something.” Continuing with the theme, P1 also acknowledged that their performance was enhanced by their understanding of what was required to compete at the highest level and the commitment to do so:

> I think like I started to learn from a young age that to try and be up there with the best in the world you have to make a lot of sacrifices and you have to live your life the way that you know you need to, to compete.

Further, P5 shared that: “… I had strong sweating and lost a lot of fluids so I regenerated them with supplements such as magnesium, potassium, things like that, or vitamins.” Supplement use was also perceived necessary by P9, particularly at major events:

> If you go to the big events such as World Cup … you have to have some nutritional supplements prepared due to the high density of appointments and games in a row, so that you are able to recover and to retrieve your performance again after two days.

It was however alarming that some participants used supplements to enhance performance, without consideration of inadvertent doping risks. For example, P11 described: “I started taking a Mass Gainer that contained seven different types of creatine and nobody told me anything.” This meant

that some athletes may be placing themselves at risk of doping, while aiming to compete clean, regardless of the code in which they participate.

3.3.5. Multi-dimensional identity

Participants clearly identified the positive impact of a multi-dimensional identity on continuous commitments to personal integrity in sport, across sporting codes with varied doping risk. For example, P3 said: "I think my academic career really helps me to get a broader view and they are just stuck in their thoughts." Similarly, P2 felt that: "as I got into uni that's when it changed because now, I had those roles for myself."

Participants shared the view that it is important for athletes to have balanced pursuits for greater perspectives to be gained in both sport and life. This notion was summarized by P7 who stated: "As much as I love the sport, it's not life and death to me … sport is just one part of my life, but other people it is their life." P7 went on to detail that:

> Sometimes we look at life as so small, especially when we're in a sport like athletics, when we only focus on a few goals that we have and then we're kind of like blind to the outside world. But because I'm very much in my community, I'm quite neutrally balanced.

It appeared that athletes with a multi-dimensional identity placed far less focus on winning and performance as a sole sporting outcome and, as described by P8, have: "Structure, supportive people, discipline and a broad view." Regardless of sport type, it is therefore evident that a multi-dimensional identity which extends outside of the sporting realm, has a positive influence on an individual's commitment to clean sport.

4. Discussion

In this paper we explored elite athletes' perceptions of clean sport and doping in relation to personal integrity, identified factors that threaten personal commitment to clean sport as well as those that assist to build and maintain personal commitment to clean sport and individual contributions to a clean sport environment via qualitative secondary analysis (QSA).

4.1. Athletes' approaches to performance-enhancement

The present investigation identified elite athlete's conceptions of clean sport on a continuum from a strict position to use no substances at all through to the use of non-prohibited substances and/or methods for the purpose of enhancing performance. These results were unrelated to the doping risk associated with the sport they competed in. Based on accounts of what they do and do not do for performance enhancement, elite athletes' personal stances about performance-enhancement within the clean spectrum roughly corresponds to the different points on the IMDB (e.g., Petróczi et al., 2021) to illustrate the stringency of their ideological stance towards clean sport and how this impacts their behaviour (Figure 4). This also supports the observation made in Petróczi et al. (2021) regarding athletes' diverse view on clean performance enhancement. It is worth noting that while participants did not self-report the use of prohibited substances/methods, those who used non-prohibited means to enhance performance were situated at the far end of what may be considered a 'clean sport concept'.

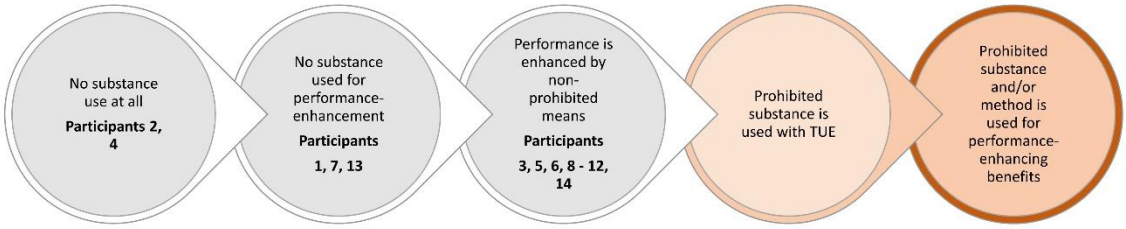

Figure 4: Participants' positions regarding clean sport

4.2. Commitment to clean sport via personal integrity

Commitment to clean sport via personal integrity was identified as an individual value however in this context, and with similarities to literature, athletes also recognised the social value of integrity (Gardiner et al., 2017; Mason, 2001). In addition, a key finding of this study is the clear differentiation between athlete's commitment to anti-doping and clean sport via personal integrity, which was specifically demonstrated in athlete's accounts through the VIRTUEs (Figure 2). Athlete's personal commitment to clean sport and integrity was encompassing as participants, while perceiving descriptive doping norms (particularly in higher risk sports) and questioning the

legitimacy and universal fairness of anti-doping, openly accepted this reality and were content in their commitment to achieve goals within a personal framework of integrity. This commitment was consistent as athletes from sports with varied doping risks reflected on their past, and some into their future, with a mindset and clear intention to act with integrity in sport. Present findings show however that athletes who are committed to clean sport through personal integrity hold true the value of being so both inside, and outside of, sporting contexts. The mirrored importance athletes placed on personal integrity in sport, and in life, speaks to the universal nature and social value of an individual's commitment to clean sport.

Akin to this universality was the fluidity of athlete's personal commitment to a clean sport identity as expressed by participants. Athletes from sports with varied doping risks were aware of their surroundings and notably, a consciousness of situational influences which had supported or challenged their volition to act with personal integrity in a clean sport capacity. As consistent with Curzer (2015), these findings suggest that athletes who commit to clean sport via personal integrity do not need to be surrounded by a sole narrative which is compatible with their clean sport values. Instead, and as similar to literature (Braun & Clarke, 2021a; Robinson, 2009), with awareness of the potential for conflicting influences from throughout their socio-ecology, athletes committed to clean sport via personal integrity have the resolve to accept contrasting views and behaviours among others and still act within their perceived clean sport principles. The present findings further illuminate the internal conflict that individuals experience regarding clean sport, yet the resolve of clean athletes to make decisions based on their personal integrity despite varied factors.

Current evidence also shows that athlete's commitment to clean sport via personal integrity is one which individual's wish to be visible. As such, athletes who commit to clean sport in this way understand the importance of positive role modelling, particularly in higher risk sports, and reflect on the influence of significant others on them in this regard. The transparency of one's commitment to clean sport via personal integrity is evidently important to athletes grounded in this mindset and

one which presents optimism regarding athlete autonomy to speak out about doping however also in taking the necessary actions to meet one's anti-doping responsibilities.

4.3. Role of personal integrity in overcoming challenges

According to the theoretical framework by Kegelaers et al. (2018), an athlete's integrity to compete honestly as well as their willingness to abide by the ethical spirit of sport is a major deterrent for doping. Evidence from this investigation has also shown factors that have the potential to shift elite athletes' clean sport concept, threaten their personal integrity, and thus could push them towards doping. Of these factors, athletes held intrinsic concerns about their medical, financial and performance status, particularly in sports with medium to high doping risk. Since no participant in this study reported the use of prohibited substances, the identified scenarios in which athletes might consider doping to cope with certain stressors are hypothetical in nature. Nevertheless, the listed concerns are in line with existing literature. Specifically, physical health is one of the fundamental prerequisites for athletes to perform to their full potential. Hence, being injured can present an enormous stressor which threatens a successful athletic career. In line with concerns expressed by some participants in this investigation, previous studies have identified medical problems as potential pressure points. Accordingly, athletes might be tempted to dope when experiencing injury to reduce pain and accelerate rehabilitation, allowing them to return to participation in sport (Bloodworth & McNamee, 2010; Didymus & Backhouse, 2020; Kegelaers et al., 2018; Overbye et al., 2013). While this investigation identified that athletes perceived substance use to have potential uses for recovery from injury, others have demonstrated a lack of consideration and knowledge of the health-compromising side effects of banned substances across the literature (e.g., Chan et al., 2014; Lentillon-Kaestner & Carstairs, 2010).

Besides injuries and health issues, economic pressure was also identified as a factor contributing to doping behaviour, particularly in sports with higher doping risks. Concerning the increase of prize money awarded at the major sporting events over the past decades (Westmattelmann et al., 2020), it is not surprising that the financial gain attached to being successful in elite sport presents a

commonly reported incentive to dope. Elite athletes invest years of practice and hard work into their sports careers. Hence, they have frequently reported the experience of financial pressure, for instance in the form of obtaining a professional contract or by receiving prize money as medalists in major sporting events, when transitioning into professional sports (e.g., Chan et al., 2014; Kegelaers et al., 2018; Kirby et al., 2011). According to Westmattelmann et al. (2020), the pressure to perform well is especially high since athlete income is directly related to performance with even minimal ranking differences being linked to considerably different shares of prize money. Hence, the distribution of prize money has a strong impact on doping behaviour. However, it is not only the chance of receiving money that might tempt athletes to dope, but the individual circumstances of the athletes need to be considered to understand their decision-making. Hence, previous studies indicated that the opportunity of earning large sums of money is a vulnerability factor, particularly for athletes from a less wealthy background (Shelley et al., 2021) or for those whose financial security is directly linked to their quality of life (Overbye et al., 2013). Closely related to the mentioned stressors, a third intrinsic concern refers to the athlete's experience of pressure when facing performance stagnation or decline. In this study, participants discussed the impact of stagnation on their confidence and how performance pressure could cause an athlete to reconsider their initial principles. Existing literature provides support for these findings. For instance, Overbye et al. (2013) explained that doping might be used as a coping strategy to overcome critical phases, such as performance stagnation or decline, during the athletic career.

However, the purpose of this study was not to simply identify potential incentives for doping but to investigate the role of personal integrity in overcoming identified threats to an on-going commitment to clean sport. Athletes' persona, including the moral compass and strong anti-doping beliefs was a protective factor (Didymus & Backhouse, 2020). Those with personal integrity expressed greater acceptance and resilience to act with such when faced with descriptive doping norms, particularly in sports with higher doping risk where athletes may have greater familiarity with this issue. As explained by participants in a study by Shelley et al. (2021), the commitment to clean

sport reflects the “extension of the values of honesty, integrity, and fair play which were instilled in the family setting during the participant’s childhood” (p. 5). As such, it appears that the development of a values base which is grounded in personal integrity in the context of clean sport has relevance to anti-doping outcomes, regardless of the doping risk associated with any code or discipline.

Results of this study have also identified athletes’ perceptions of legitimacy in the anti-doping system as a factor which may threaten their clean sport concept. Perceptions of inconsistency and lack of international uniformity of the anti-doping system were evident in athletes from sports with all extents of doping risk. These perceptions can generate feelings of frustration in athletes, particularly among those who perceive doping among competitors, representing important incentives for doping use. Such de-legitimization of anti-doping authorities has previously been associated with doping (Woolway et al., 2020). Similarly, inconsistent application of doping control has resulted in a lack of athlete trust and identified as a barrier to athlete’s sense of self-control in the context of anti-doping (Byers & Edwards, 2015). In line with this research, what athletes question is not the purpose of the anti-doping rules per se, rather the way these rules are applied. However, commitment to personal integrity in a clean sport context allowed athletes to stay true to their clean sport concept while remaining aware of the threat of de-legitimization. It is suggested that to improve the overall effectiveness of the anti-doping system, and thus strengthen athletes' perceptions of legitimacy, anti-doping authorities could work on greater promotion of their results and on international harmonization, not only of rules and regulations, but also their implementation.

What athletes observe in their personal environment was identified by participants as a factor that may push them towards doping. Perhaps unsurprisingly, this was particularly so for athletes in sports with high doping risk. These findings are consistent with literature which has similarly highlighted the influence of norms in both doping (Blank et al., 2016; Ntoumanis et al., 2014) and clean sport behaviours (Didymus & Backhouse, 2020; Erickson et al., 2015). As athletes with commitment to clean sport via personal integrity were previously explained to possess an awareness of external influences that challenge their integrity yet a resilience to act with volition

based on their values, it appears that development of personal integrity should be prioritized to assist athletes overcome opposing challenges which can be expected in the context of clean sport. The final factor this evidence found to threaten athletes' personal integrity and clean sport concept was related to their identity. That is, athletes who identified themselves through an isolated sporting lens appeared more oriented toward a performance enhancement mindset and thus may be more inclined to dope, regardless of the doping risk in their respective code. This finding emphasizes the importance of including universal, co-existing and varied aspects of personal integrity in the development of an identity based on balance between sport and a broader life context.

4.4. Enablers and motivators of personal commitment to clean sport

Results of this study highlight five key factors that may help athletes build and maintain personal integrity to support clean sport. Interestingly, most of these factors were internalised, rather than situational and were evident among athletes in sports with all extents of doping risk. These factors included acceptance, motivation, permitted means to enhance performance and multi-dimensional identity. This is supported by findings that personal integrity comprises of fundamental values and morals, which are rooted in early life experiences, and contribute to a personal stance against cheating that is manifested in varied situations, contexts, and interpersonal relations (Petróczi et al., 2021). The consistency of this throughout an athlete's career has been evidenced, particularly because it underpins elite athletes' motivations for competing in sport (Shelley et al., 2021). The internalised nature of these factors is also consistent with evidence which identified more negative attitudes toward doping among athletes with moral identity and an inherent concept of fair play (Sukys et al., 2021). Anti-doping environment was a final factor that assisted the development and maintenance of personal integrity and commitment to clean sport in codes with all classifications of doping risk. It is noteworthy that the opposing view of these factors have been noted elsewhere in this paper to have a negative influence on athletes' personal integrity, and commitment to clean sport, when orientated toward or suspicious of doping. As such, there appears merit in focusing on the development of athlete's moral identity, one that is grounded in

personal integrity, to strengthen their clean sport concept and motivate an on-going commitment to clean sport, despite external influences.

4.5. Theoretical, methodological, and practical implications

Although the present research did not specifically set out to prove or falsify a specific theory, or theories, the results have some theoretical contribution, and inform future targeted research in several ways. Originally, the IMDB model (Petróczi, 2013) was developed to aid understanding of how doping behaviour might develop over time, and considered factors that could, but not necessarily would, push athletes over the regulatory hard line that separates clean sport from doping, and other associated forms of anti-doping rule violations. At the same time, the IMDB also indicates that a wide spectrum of clean sport exists, allowing for a great deal of variability in how athletes manage performance and performance enhancement within the clean spectrum. Athletes' life stories made it clear that the regulatory framework (what athletes must do and cannot do) only served as an external reference point for anti-doping code compliance. Commitment to clean sport dated well before athletes came to contact with anti-doping rules and showed determined consistency throughout their career. Athletes took extra care of being anti-doping compliant but not to avoid sanctions or because they felt they must do. Rather, they felt that being anti-doping rule compliant is a badge of honour, a recognition that they reached a high enough level, and showing that they are fully compliant is part of their personal commitment to clean sport. Normative factors were clearly at play in athletes' recollections about how they interacted with their environment, managed their athletic and personal profiles, and how they overcame challenges. Whilst it is true that athletes were compliant with anti-doping because of a sense of duty and perceived responsibility as an athlete, and that they were adherent to the clean sport norms, they did so for different reasons. Being anti-doping compliant is only a part of the personal commitment to clean sport, a way of demonstrating commitment, making it visible (as much as the rules allow) to others and to the system. As much as their unwavering commitment to clean sport was visible in their actions, their concept of what constitutes clean sport within the regulatory spectrum varied

considerably. It appears that athletes' cognitive systems, which comprise of individual values, beliefs, and assumptions, are highly individualistic. A similar observation was also made in previous studies (e.g., Petróczi, 2013; Shelley et al., 2021). The implication of this phenomenon for anti-doping is the recognition that 'clean athletes' do not form a homogeneous group (but neither do dopers). Benefitting from the life story approach to data collection, we can also see that the way athletes manage their commitment to clean sport is consistent but fluid, with individual's position on what is 'clean' in sport performance and performance enhancement having changed over time, influenced by an interplay between a host of personal and contextual factors.

Results from this study contextualised the general concept of personal integrity by Gardiner et al. (2017) for clean sport and for anti-doping, captured in the newly proposed VIRTUE model. Results from qualitative secondary analysis highlighted how abstract values such as general values or elements of the spirit of sport are operationalized into personal value-systems and priorities. It showed that the way these value priorities are enacted in daily decisions and practices are both complex and fluid. This dynamic process can be captured, analysed, and understood within the commitment to personal integrity 'VIRTUE' frame. By offering empirical evidence for how each characteristic of this model manifests in athletes' accounts of their choices, thoughts, values and moral standing, our study paves the way toward seeing anti-doping as 'anti-cheating' and the incorporation of protecting clean sport via anti-doping into the broader concept of protecting sport integrity.

We also found empirical support to our proposed conceptual distinction between athletes' commitment to clean sport values and behaviour, and athletes' compliance with the rules and demands of anti-doping. This difference, if further supported by evidence from future studies, has mission critical implications on multiple aspects of anti-doping, specifically on the (1) connection between perception of anti-doping legitimacy and voluntary compliance with anti-doping rules and regulations; (2) role and place of values in anti-doping; and (3) a better understanding of the rightful

place of attitudes in doping anti-doping. These, in turn, impact on how values-based and anti-doping education should be planned, delivered and evaluated.

In terms of methodology, the qualitative secondary analysis (QSA) approach has proved to be beneficial on multiple grounds. Firstly, it contributed to better use of valuable data. Secondly, it offered 'access' to data on elite athletes without the need for recruitment and afforded a cost-effective investigation of a novel research question by looking at existing data from a new perspective. Thirdly, our QSA produced valuable insight into athletes' personal journeys on the clean sport path, highlighting the role of personal integrity and commitment to the clean sport ethos and principles, which can offer a solid, evidence-based starting point for future research on personal integrity in clean sport and anti-doping contexts.

In support for practical application, outcomes of this investigation have illuminated several recommendations for anti-doping practitioners and other stakeholders influential to clean sport environments:

- Values-based education (VBE), education that builds and develop one's principles, values and ethical behaviour and decision making (World Anti-Doping Agency, 2021), should be included in curricula across all phases of the athlete lifecycle, regardless of sport type, for all targeted audiences identified as part of WADA's International Standard for Education.
- Noting a need for greater global harmonization in VBE, a focus on commitment to personal integrity should consider what this looks like when exhibited, and when challenged, in practical contexts across all sports (regardless of respective doping risks).
- Practitioners and other stakeholders should prioritize a focus on commitment to clean sport through integrity in VBE which is additional to, and separate from, commitment to anti-doping. Here 'clean sport' should be conceptualised as fair sport competition without any form of cheating, which includes but not limited to doping.

- A clear conceptual distinction is called for in setting educational goals for VBE, whether it aims to adopt a holistic view in order to protect sport integrity as a whole; or specifically focus on building a foundation for anti-doping rule compliance.
- As commitment to personal integrity is idiosyncratic and personal, anti-doping initiatives should consider athletes as individuals as opposed to homogenous audiences of 'clean' or 'doping' participants. One approach, one narrative that encapsulates all aspects in an athletes' life is not possible.
- Athletes' personal commitment to clean sport manifests in their athlete identity which is (1) visible, (2) consistent and (3) universal without separation from personal and professional lives outside sports. VBE should therefore seek to develop and reinforce personal commitment to integrity both inside and outside of athlete's sporting endeavors.
- With awareness of factors that threaten personal commitment to integrity, practitioners should take an inclusive approach across sporting codes, with equal focus on factors that build and maintain this integrity as athletes navigate obstacles throughout their sporting pathway.

4.6. Limitations and future research directions

Limitations of this study stem from the sample and the inherent limitations of the secondary analysis of an existing data. Results represent the view of athletes from Western Europe (developed countries) which may not be universal. Athletes themselves were mindful of their privileged position that they were well supported (in terms of anti-doping) and had options for their life and career outside of sport. Participants also expressed views of contrasting motivations and influences for clean sport in their countries, as opposed to others, further indicating a lack of shared experiences in the international context of anti-doping. Limitations associated with secondary data analysis included an inability for participants to be involved in further data collection to validate themes and sub-themes identified in these results, nor for input to be given to a member checking process. Further, the analysis of secondary data meant research was conducted using data collected for

another purpose. As such, a limitation of this approach may include the questionable relevance of data to the specific aims of this study, and contextual or time related changes, in contrast to the purposes of its initial collection (Ruggiano & Perry, 2017)**.**

Future research should explore the findings of this study with a primary data set and targeted research questions which differentiate commitment to anti-doping from commitment to clean sport. Aside from the threats of inadvertent anti-doping rule violation associated with contamination, the controversial role of non-prohibited (permitted) performance-enhancing substances and methods warrants further investigation. In this study, athletes spoke of non-prohibited means as 'help' to maintain their personal commitment to sport integrity. The anti-doping literature has a split view on whether these, supplements specifically, are good substitutes (Barkoukis et al., 2020; James et al., 2010) or risk factors to future doping use (Backhouse et al., 2013; Hurst et al., 2019; Hurst et al., 2021).

5. Conclusion

Results from qualitative secondary analysis highlighted how abstract values such as general values or elements of the spirit of sport are operationalized into personal value-systems. Commitment to clean sport, via personal integrity, captures this dynamic process and explains how athletes navigate through challenges, demands, opportunities and obstacles while staying on the clean side of anti-doping. Results also provided evidence that clean athletes do not form a homogeneous group and expands on previous findings showing that 'clean sport' concept is highly personal and idiosyncratic. It is also situated, dynamic and fluid, allowing for movement within the clean spectrum, and it is the personal commitment to clean sport, and not the anti-doping rules that keeps athletes on the good side of the regulatory line. Results of this investigation add to existing knowledge and inform practical recommendations for values-based education that focuses on individual integrity as separate from, and in addition to, personal commitment to clean sport. Outcomes of this research also highlight factors for consideration to maintain these personal commitments despite obstacles and challenges faced throughout the athlete lifecycle. Values-based,

anti-doping education therefore should adopt a holistic and broad approach to reach beyond the values of sport within the context of anti-doping. Furthermore, athletes would benefit from skills that facilitate reflecting on past, current and desired future Selves alongside an awareness of factors that build and maintain personal commitment to clean sport and individual contributions to a clean sport environment.

Author's contribution

AP led the work package of the Safe You project where data were generated, supervised UK data collection, initiated the current study and contributed to conceptualizing the current study and drafting the manuscript. FOS conceptualized the study and analyzed the UK data and drafted the first version of the manuscript. SC contributed to data analysis and interpretation, and drafted the final version of the manuscript. JS collected the UK data, contributed to the interpretation of the results and critically reviewed the manuscript. AV transcribed and analyzed the data collected in German, and contributed to the interpretation of the results. ADM transcribed and analyzed the data collected in Italian, and contributed to the interpretation of the results. All authors read and critically evaluated the manuscript and approved the final version.

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Supplementary material 1: SAFE YOU+ Interview matrix for the case studies

Background

The structure of the interviews follows two premises. First, the interviews should lead to a similar format and content as the case studies in the Safe You project. Second, the interview matrix should be in line with theoretical background drawn from qualitative research.

In order to meet these premises, the interviews are arranged as semi-structured narrative interviews. The interview matrix follows the course of a competitive athlete's life. The guide is divided into five "life stages" that are: before competitive sport, promotion into competitive sport, life during competitive sport, potential crises, present state of affairs. The aim and related questions of every "life stage" are described below.

Interview matrix

	Aim	**Related questions**
Introduction	• Refers to the anonymity of data collection and the right of early termination • Explains the goal of the interview (your experiences, feelings, opinions, strains and support systems related to PEAS) • Defines PEAS (see Safe You) • Illustrates interview approach by introducing the "life stages" • Inquires personal data	How old are you? What is your main sport? What is your professional level? What is your biggest success so far?
Before competitive sport	• Targets the beginning of an athlete's career • Asks for motivation behind the sport • Refers to physical and mental changes related to sport • Addresses the ambition for competitive sports • Examines possible first connections and impressions to PEAS	How did you get in contact with sports? Did you try different sports? What was the reason to focus on your particular sport? Did you notice any changes in your body? What did your sport mean to you? How great was you desire to make it into competitive sports? How far would you have gone to reach the competitive level? Have you been in contact with PEAS from early on?

Promotion into competitive sport	• Targets the time where performance increases and competitive sports are imminent • Addresses the changes of a competitive athlete's life • Analyzes possible experience of underachievement • Focusses on own and observed use of PEAS	Did your daily life changed because of competitive sports? How was your training routine? Did you experience any stagnation in your performance? Where there any particular methods to overcome such stagnation? Did you use any substances? Where did you get your substances? Where there any common substances everyone in you sport took? Which views and opinions about PEAS did you noticed in your surrounding (e.g. other athletes, coaches)?
Life during competitive sport	• Targets the time of the first (big) success in competitive sports • Refers to physical and mental development • Addresses the changes in the surrounding • Specifically asks for PEAS used during this period	What was the final push for your biggest achievement so far? Did you adjust your training or your diet? Did substances contribute to your success? How did you maintain your performance level? Did you experience any health problems and how did you manage them? Have you been part of the national and international doping control system?
Potential crises	• Targets performance decrease, loss of motivation or other mental problems • Refers to methods to overcome the crises • Examines the supporting system of the athlete • Ask for the specific role of substances	Did you experience any performance-related or personal setbacks? Why did you think it happened? How did your environment reacted? Did you ask others for advice (e.g. athletes, coaches)? Did substances help? Did substances cause any health problems? Did you change anything regarding PEAS?
Present state of affairs	• Targets global experience in competitive sports so far • Ask for learning curves, gains and loses regarding sport • Resumes current opinions, feeling and use of PEAS • Ask for future developments and perspectives of sport and PEAS	What did competitive sport change in your life? What did you personally gain? Do you feel that you miss out on something? Would you have done something differently? What is the key to success in your sport? What would you recommend other athletes starting their careers? Would you recommend any specific substances? What is your current thinking about substances? During your career how have your opinions and feelings changed toward PEAS? What are your wishes for your future in

		competitive sports? How do you want to accomplish your goals? Is there anything else you want to tell us or talk about?
*Specific examples for a decision / dilemma if not covered**	• *Targets possible dilemma situations of athletes regarding substances use* • *Refers to explicit pressure from the environment, physical or psychological problems (could have been covered in the previous questions already)* • *Asks more specifically for life defining events or the anti-doping support of athletes*	*Have you been pressured to use substances? Have there been any situations in your life in which you have been tempted to decide differently with regard to substances? Do you have family and friends that have opinions or feelings about substances that contradict your standpoint? Should athlete do more for clean sport than being clean themselves? Why do you think social media presence is (not) important?*

* Included to support developing Problem-based Learning scenarios (specific to a grant output)

Supplementary material 2: Overview and definition of the research questions, major themes and sub-themes

Research Question	**Major themes** *(definition)*	**Sub-themes**
Elite athletes' clean sport concept	Clean sport *(is playing by the rules of sport and anti-doping)*	
	Clean sport *(is about more than anti-doping)*	
Threats to personal integrity and commitment to clean sport	Intrinsic concerns *(individual's concerns which were consistent and perceived as uncontrollable)*	Medical
		Financial
		Performance
	Perceived legitimacy in anti-doping *(doubt in the efficacy and fairness of various components of anti-doping)*	Conflicting interests in the anti-doping system
		Doping control feels haphazard
	Environment and its impact on athletes *(the role of cultural / interpersonal factors on individuals)*	Perceived prevalence of doping
		Psychological impact of doping and anti-doping
	Performance-enhancement mind set *(consistent focus on improving performance by varied means)*	
Enablers of maintaining personal integrity and commitment to clean sport	Acceptance of doping as part of the athletes' environment *(a learned helplessness of competing as a clean athlete, against others who are not)*	
	Anti-doping environment *(immersion in a context orientated toward clean sport)*	
	Beating a doper is a great motivation *(descriptive doping norms as a motivator to compete clean)*	

‘Permitted’ (non-prohibited) means to enhance performance *(using not-prohibited substances, techniques and other means to improve)*

Multi-dimensional identity *(sense of Self influenced by several components, in and out of sport).*
