An exploration of doping-related perceptions and knowledge of disabled elite athletes in the UK and Austria

Kathrin Weber[1], Laurie B. Patterson[2], Cornelia Blank[1]

[1]Institute of Sports Medicine, Alpine Medicine & Health Tourism, Private University for Health Sciences, Medical Informatics and Technology, Eduard-Wallnöfer-Zentrum 1, 6060 Hall in Tyrol, Austria; kathrin.weber@umit-tirol.at; cornelia.blank@umit-tirol.at

[2]Carnegie School of Sport, Leeds Beckett University, Fairfax Hall, Headingley Campus, Leeds, LS6 3QS, United Kingdom; L.Patterson@leedsbeckett.ac.uk

Corresponding author:

Dr. Cornelia Blank
Associate Professor
Department of Psychology and Sports Medicine
Institute of Sports Medicine, Alpine Medicine & Health Tourism, UMIT
Eduard-Wallnöfer-Zentrum 1, 6060 Hall in Tirol, Austria
Phone: +43 (0) 50 8648 3840
cornelia.blank@umit-tirol.at

Abstract

Introduction: Compared to anti-doping research in Olympic sport, the issue of doping is under-researched and poorly understood in Paralympic sport. However, with the growth of the Paralympic Games and the increased number of disabled elite athletes, the number of doping controls and doping cases has also increased. Therefore, there is a need to address the dearth of evidence in disabled sport contexts and develop an understanding of disabled elite athletes' perceptions, reasons and knowledge related to doping to ensure appropriate policy and programmes are implemented.

Method: Sixteen disabled elite athletes from Austria (n=9) and the UK (n=7) participated in semi-structured interviews. Data were analysed using inductive reflexive thematic analysis (Braun & Clarke, 2019a).

Findings: Four themes were generated during the analysis. The first showed that athletes perceive doping to be a well-known and wide-spread issue in Paralympic sport. The second theme illustrated that disabled elite athletes are exposed to extreme pressure (e.g., to earn money), which they state poses a risk for using prohibited methods and/or substances. Thirdly, athletes suggested that there are several ways to cheat if someone would like to find 'loopholes' (e.g., misuse of Therapeutic Use Exemptions) in the current anti-doping system, which they reported only works partially. Lastly, although it is not officially named as an anti-doping rule violation, athletes proposed cheating on classification as a form of doping – and the greatest threat to the integrity of disabled sport.

Conclusions: For the first time, the current study shows that doping in the context of disabled elite sport likely stems from only a few main factors; a perception of pressure and faults in the anti-doping system. To address these risks, prize money could be distributed more broadly, the TUE process and classification system should be more closely scrutinised, and targeted anti-doping education that addresses the main risk factors in disabled elite sport should be provided for all athletes and their support team worldwide.

Keywords

Paralympics, doping, anti-doping system, reasons, education, thematic analysis

1. Introduction

In the last 20 years, the Paralympic movement has grown rapidly (Collier, 2008; Fagher et al., 2016; Jefferies et al., 2012). This growth includes increased numbers of athletes (Henning et al., 2005; Slocum et al., 2015; Webborn & Van de Vliet, 2012) and intensified media interest (Slocum et al., 2015), as well as improved sport performance and technology (Fagher et al., 2016). In sum, these factors lead to enhanced competitiveness among athletes (Collier, 2008; Jefferies et al., 2012). Alongside these developments, the issue of doping has become more and more visible, indicated by Anti-Doping Rule Violations (ADRV) over the years. Specifically, Van de Vliet (2012) showed that from 2000 until 2011, 60 ADRVs were detected in sports which were overseen by the International Paralympic Committee (IPC). The number of detected ADRVs more than doubled, to 159 for IPC sports, for a shorter time period (only six years, compared to ten) according to the World Anti-Doping Agency (WADA) reports for 2013 to 2018 (World Anti-Doping Agency, 2015a, 2016, 2017, 2018, 2019, 2020). These sources of ADRV data, along with the list of sanctioned athletes managed by the IPC (2020), demonstrate that doping happens in disabled elite sport. Furthermore, rates of doping may be higher given that they represent only detected ADRVs. Notably, in addition to demonstrating that doping happens, ADRV records indicate that some sports experience more ADRVs than others. In particular, para powerlifting experienced the most ADRVs (n=37 ADRVs between 2000-2011 (Van de Vliet, 2012); n=78 ADRVs between 2013-2018 (WADA 2015a, 2016, 2017, 2018, 2019, 2020), and 17 athletes currently serving a sanction (IPC, 2020)), followed by para athletics (n=8 ADRVs between 2000-2011 (Van de Vliet, 2012); n=43 ADRVs between 2013-2018 (WADA 2015a, 2016, 2017, 2018, 2019, 2020), and 6 athletes currently serving a sanction (IPC, 2020)). Despite insights on doping rates from the (limited) published research and organisation statistics demonstrating that doping behaviour is a relevant and existing issue in Paralympic sport (Thevis et al., 2009; Van de Vliet, 2012), there is a dearth of anti-doping research in disabled elite sport, especially with a focus beyond testing figures and ADRVs. Therefore, there is a need to investigate this issue further to establish what causes doping in these contexts and how doping can best be prevented (e.g., education).

Of the limited anti-doping research that does exist in Paralympic sport, Henning et al. (2005) concluded that doping results mainly from insufficient information, especially in terms of medication use without obtaining a TUE for prohibited substances. Bhambhani et al. (2010) supported this notion of a lack of knowledge as they found that 39.4% of Paralympic athletes had never heard of autonomic dysreflexia (AD) before; this is a method prohibited by the IPC which is used to boost heart rate and

therefore performance by cutting off blood supply in tightening the leg straps of a wheelchair too hard. Although athletes had not heard of AD, 16.7% reported using the method at least once during their career to improve their performance, particularly males. Thus, leaving these athletes vulnerable to engaging in behaviours that may lead to anti-doping rule violations as well as potential health consequences/damages. Given the lack of knowledge around AD, it is possible that doping in this context might have happened unintentionally. Unintentional doping is an existing issue, which might stem from a person's unawareness that, for example, methods are prohibited, or medication contains prohibited substances (Chan et al., 2016). The problematic consequence of insufficient information and/or knowledge, for athletes and their teams, is also supported by Van de Vliet (2012). They examined the anti-doping education programme in detail and summarized that education should be strengthened to make knowledge about anti-doping more transferable. To address the lack of knowledge among Paralympic athletes and their support personnel, researchers (Henning et al., 2005; Van de Vliet, 2012) have called for an investment in anti-doping education in disabled sport.

Despite this evidence to suggest that knowledge is an important factor, researchers in non-disabled sport have recognised the complexity of doping and doping-related decisions (e.g., Backhouse et al., 2016; Backhouse et al., 2018), proposing that doping behaviour cannot be explained by one factor as it is brought about by a multi-layered, intertwined network of influencing components (Braithwaite et al., 2018). Researchers suggest that the athlete-centred focus of doping prevention, in theory and practice, might only reveal parts of the picture (Blank et al., 2014a; Blank et al., 2014c; Erickson et al., 2017). Indeed, environmental influences, including context (e.g., country, level of competition) and situational factors (e.g., injury, performance dips) also play an important role in doping-related decisions and behaviours (e.g., Allen et al., 2014; Williams et al., 2020). In particular, social agents such as coaches, team-mates and peers outside the sports world, impact on athletes' behaviour through the creation of pressure (Madigan et al., 2016; Martin et al., 2014; Ommundsen et al., 2006). On top of that, the fact that athletes are embedded in broader community cultures and practices could also be influencing factors (Gatterer et al., 2019). Therefore, both individual (e.g., knowledge, attitudes) and environmental (e.g., culture, context) should be considered in explorations of factors influencing doping in disabled elite sport. Here, anti-doping work, both in non-disabled and disabled elite sport, could potentially learn a lot from complexity science, trying to understand the interconnections between the single items and create solutions for change within a theoretical approach (Braithwaite et al., 2018).

Summarizing, compared to research in non-disabled sport, social science research aiming to enhance our understanding of factors that influence doping in disability sport is scarce. To the best of our knowledge, there is no published research that has gone beyond establishing numbers of ADRVs and has sought to understand disabled elite athletes' perspectives on and knowledge of doping in sport. Hence, to address this gap in research, the current study aims to form a more detailed picture about doping in disability sport by investigating disabled elite athletes' doping-related perceptions, reasons and knowledge, as well as their opinions of the anti-doping system in Paralympic sport. For the first time, this research can inform future interventions tailored to the elite disabled sport context. A better understanding of factors that influence doping behaviour in disabled elite sport can be of great value for responsible anti-doping organisations helping them to target e.g., affected sport disciplines/levels of competition or adapt content of their current anti-doping prevention concepts based on scientific evidence. Although our approach is explorative, we hope our findings might also contribute to a better conceptual understanding of potential factors that influence doping behaviour in disabled elite sport alongside these practical implications. In this regard, it is another aim to draw parallels (if possible) to theories already found to explain doping behaviour in non-disabled elite sport (Blank et al., 2016a; Ntoumanis et al., 2014). Therefore, with this chosen approach, our findings might be of great value to (a) contribute to an enhanced understanding of the complex nature of doping (behaviour), (b) provide evidence-based factors to understand doping behaviour especially in disabled elite sport, and (c) extend existing theories to explain doping behaviour and/or use our findings as starting point for a new theory of doping behaviour in disabled elite sport."

2. Method

2.1. Philosophical underpinnings

This study represents a qualitative research design, working within an interpretative paradigm, with a relativist ontology as well as constructionist epistemology (Sparkes & Smith, 2013). This means that we believe reality is shaped by experience and social influence. Therefore, findings are co-created by the investigators' interactions with the participants (Guba & Lincoln, 1994). As reflexive researchers, we are aware that these dynamics are based on our values, beliefs, and autobiographies. The first author graduated in physical education and biology. She has two years of experience in the field of doping research, and several years' experience in wheelchair sport as a player in a university setting. The second and third authors have been working in the research field of doping in non-disabled sport

for over a decade, are involved in the design of anti-doping measurements and education and have carried out doping controls several times at major sport events. Overall, this gave the team a broad insight into the anti-doping system itself and its impact on the affected stakeholders, as well as first-hand experience in disabled sport.

2.2. Sample recruitment

After receiving ethical approval, an initial email was sent to 49 UK and Austrian based para sport organisations. These were identified based on the given list of IPC sport disciplines in the respective country. All 49 organisations were asked if they are willing and able to help with the recruitment of German- and English-speaking athletes in their sport. At the same time, 89 para elite athletes were directly contacted via public email addresses, contact forms on their personal webpage or their social media accounts. We aimed to have broad coverage of different sports and athletes with different disabilities within the sample, given the exploratory nature of the study. However, the following inclusion criteria had to be met to participate: 1) be over 18 years of age, 2) pursue a sport defined under the International Paralympic Committee (IPC), 3) meet the definition of a Paralympic athlete as defined by the IPC (as adopted from the World Health Organization International Classification of Functioning, Disability and Health) (International Paralympic Committee, 2015), 4) participate for more than five years in the top five of the national team and/or participate at international competitions, and 5) belong to a registered testing pool (RTP) for doping control (to ensure some exposure to the anti-doping system had been experienced). In addition to these criteria, we purposefully sought athletes from two countries (Austria and the UK) that were perceived to be in some ways similar (e.g., sporting culture; funding system), but different in others (e.g., Austria has a focus on winter sports; the UK has a greater number of sport disciplines in total). Based on previous research (e.g., Blank et al., 2015), we believed these factors might have the potential to reveal variation of influencing factors for doping. Moreover, these countries are our home countries, meaning we were able to offer participants an interview in their native language and we could use our established networks to recruit participants. Overall, we utilised a combination of purposeful and convenience sampling.

2.3. Participants

In total, a sample of 16 athletes (female, n=6; male, n=10) was recruited with no difference in gender balance across the countries; notably, interviewees primarily (n=15) stemmed from our direct contact with athletes. Athletes had a mean age of 31.1 years (*SD*=7.7; range 19-48), with Austrian

athletes being slightly younger, on average (UK: *M*=34.7, *SD*=6.8; Austria: *M*=28.2, *SD*=7.0). Athletes from the United Kingdom (UK) (n=7) and Austria (n=9) represented 10 different team and individual sports: wheelchair tennis (n=4), para ski alpin (n=3), para cycling (n=2), para equestrian (n=1), para athletics (n=1), para powerlifting (n=1), para table tennis (n=1), para judo (n=1), para swimming (n=1) and wheelchair rugby (n=1). The majority (n=14) of athletes had participated at a Paralympic Games, and the remaining two athletes' highest competition level was the World Championships for their sport. On average, the athletes pursued their sport for 9.6 years (*SD*=3.4; range 5-16) on their highest competition level (UK: *M*=10.3, *SD*=3.4; Austria: *M*=9.0, *SD*=3.4). At the time of the interview, two thirds of the participants were full-time athletes (n=11) and a third were part-time (n=5). Nine athletes were disabled since birth (e.g., cerebral palsy, blind) and seven due to an accident (e.g., paraplegia, missing limb).

2.4. Interview details and procedure

Semi-structured interviews were chosen to gain rich and detailed insights into athletes' perceptions and experiences (Smith & Sparkes, 2016). This approach allows the interviewer to guide all athletes through the same relevant questions (Sparkes & Smith, 2014), while having the possibility and flexibility to ask spontaneous questions, which arose of interesting answers (Braun & Clarke, 2013).

The interview guide was informed by existing doping literature within disabled (e.g., Thevis et al., 2009; Van de Vliet, 2012) and non-disabled elite sport (e.g., Blank et al., 2016a; Ntoumanis et al., 2014), as well as global anti-doping policy documents (World Anti-Doping Agency, 2015b). The guide was structured into seven sections including: 1) opening (i.e., description of sport, length of sporting career, level of sport, information concerning their disability), 2) perception of doping in disability sport (i.e., prevalence, comparison to non-disabled sport), 3) perceptions about the factors which lead to doping among disabled athletes, 4) own definition of the meaning of "clean athlete", 5) perceived preventative measures in disability sport (i.e., satisfaction with current efforts, improvement potential), 6) opinion of sport authorities/agencies in addressing doping, and 7) closing questions (i.e., giving the interviewee the opportunity to add anything they think is important and was not asked within the questioning). Follow-up questions (e.g., Can you think of examples for individual factors that might lead to doping in Paralympic sport?) were used when needed to elicit more details (refer to the supplementary material for the interview guide). One pilot interview was conducted a priori to ensure that the structure of the interview guide was appropriate, comprehensive, and feasible. A special focus was set on

ensuring to use appropriate language for our research group. Specifically, the latter concerned use of terms surrounding disability, e.g., disabled athletes rather than athletes with disabilities (Cameron, 2015).

Prior to the interview, participants received detailed information about the study and were asked to sign an informed consent form as well as a demographic sheet to capture key details about their sporting involvement (e.g., how many years they have competed on their highest level, which sport they pursue). Between November 2019 and April 2020, the first author conducted all interviews at a time and place of the participants' convenience. In winter 2019, all UK interviews were conducted face-to-face, except one interview (telephone). All interviews with Austrian athletes were conducted in spring 2020 via an online platform (e.g., Skype, Zoom, Google hangouts) due to the global pandemic associated with Covid-19. The interview duration was on average 41:38 minutes (*SD*=11:15) (Austria: *M*=42:17, *SD*=10:15; UK: *M*=40:49, *SD*=12:23).

2.5. Data analysis

With permission of participants, every interview was audio-recorded and transcribed verbatim. To ensure anonymity for the athletes, all names were removed, and pseudonyms assigned. Before using the data in the analysis, each athlete was invited to review the transcript for accuracy (Braun & Clarke, 2013). To explore the transcripts in depth, an inductive reflexive thematic analysis was conducted (Braun & Clarke, 2006, 2019a) within the software programme NVivo 12.6.0 (QRS International, 2019).

The process started with a familiarisation of the whole data set (transcripts) including carefully listening to the audio recordings, converting the spoken words into a written document (transcript), rechecking the words for accuracy, reading the final transcript several times and finally, making some first notes of meaningful ideas in regard to the research aim. Next, initial codes were generated through open coding transcript by transcript. This process, which was repeated twice, involved highlighting relevant segments of text and labelling them with a descriptive code. Existing codes were then collated into initial subthemes by reviewing and sorting them into groups based on identified patterns and a shared meaning/central concept in the codes (Braun & Clarke, 2019a). After a first round, the findings were discussed in detail with all authors as 'critical friends', which led to some changes in the thematic structure due to different viewpoints, e.g., cheating on classification was first subsumed within the second theme, but while discussing, it was transformed into an independent theme. In line with recent

guidance on reflexive thematic analysis (Braun & Clarke, 2020), the analysis process required continual moving back and forth in the data to gather the real story and/or message behind the transcripts. Every transcript was reviewed against the structured codes, sub-themes and themes for “fitting” before the four themes presented in this manuscript were finalised. Meaningful and significant direct quotes were picked out to underline and illustrate the presented narrative.

2.6. Research quality

Our biographies affected all our decisions, from designing the study to the end-product that is presented in this manuscript. Indeed, our assumptions and experiences shaped the interview conduction, transcription, analysis and writing (Josselson, 2007). Therefore, it is important that we discuss researcher reflexivity and how we establish rigor in our study, to make sure our findings are consistent and arise from our collected data (e.g., Castleberry & Nolen, 2018; Smith & McGannon, 2018). We accepted to be open-minded during the whole process, go back and forth to capture the real essence and meaning of our interviews. In hand with reflexivity, the lead author engaged in regular discussions with the second and third authors throughout the research process. As ‘critical friends’ (Smith & McGannon, 2018) they challenged her on the wording of the interview questions, prompted her to reflect deeply on the conversations after each interview had taken place, and interrogated her early interpretations of the data.

We are fully aware that other researchers might adopt different criteria and viewpoints while reflecting on this work. Yet, we would like to highlight several factors that we believe demonstrate the quality of the study. Firstly, as it was our aim to form a more detailed picture about doping in disabled elite sport, we prioritised giving athletes a voice and placed importance on honouring their insights. In our minds, we have the feeling of achieving these aims and furthermore, strengthen the quality of the study (e.g., credibility, rigour, coherence, width) by (a) choosing a sample who was able to give (purposeful) insights according to our aim, (b) applying an inductive approach which means that the thematic structure is grounded on the participants’ statements/words and (c) our findings demonstrate the significance of the issue of doping in disabled elite sport and will be of great value to inform future interventions and research (e.g., Castleberry & Nolen, 2018; Smith & McGannon, 2018; Sparkes & Smith, 2014).

Specific to thematic analysis, we would like to highlight that we enhanced the quality of our research by conducting the study according to the checklist for appropriate thematic analysis by Braun

and Clarke (2006) and Braun et al. (2017). Furthermore, concerning data saturation, we agreed to reject the approach of theoretical saturation of data and a calculation of the sample size (Guest et al., 2020) in favour of the thoughts by Braun and Clarke (2019b). Specifically, the assumption of a point at which no new information can be gathered from additional data are in contrast to the method of a reflexive thematic analysis where the narrative is "generated thorough the interpretation" of the whole dataset (Braun & Clarke, 2019b, p. 1). This means that the decision to stop collecting data are based on subjective and situational judgements, including if the data had provided rich insights in relation to the research questions, and not a determined number in advance.

3. Findings

The aim of this study was to build a more detailed picture about doping in disability sport, including disabled elite athletes' doping-related perceptions, reasons and knowledge, as well as their opinions of the anti-doping system in Paralympic sport that will inform future interventions. The main findings are summarized in four themes and 11 subthemes (displayed in a thematic map in the supplementary material): (1) doping happens even in the Paralympics, (2) doping is driven by several factors, but especially money, (3) the anti-doping system works, but not completely, and (4) cheating on classification should be considered doping.

3.1. Doping happens even in Paralympics

According to most of the interviewed athletes, doping is an *"existing"*, *"popular"* and/or *"embedded"* issue within Paralympic sport, and Paralympic sport being doping-free can no longer be seen as a *"utopian idea"*. Lucas (UK) said, *"So, for my experience, it's the kind of perception that everybody is doing it"*. Reinforcing the perception that doping is ubiquitous in Paralympic sport, athletes had knowledge of numerous cases of Paralympians who have been accused and/or banned of doping in the past. George (UK) illustrates: *"I know it happens, because people have been banned for doping. Russia had been sanctioned for doping. Individuals that I've competed against in the past had been caught doping."* Within this discussion, athletes mentioned different sports (Paralympic sport as well as sport in general) where doping is more and less likely to occur; in particular, strength and endurance sports (e.g., cycling, sprinting, weightlifting) were highlighted as more vulnerable to doping compared to skilled sports like judo or table tennis.

Like George (UK), four other Paralympic athletes from the UK reported that they had previously felt like they were competing against someone who was doping *"just from the way they look or the way they move"* (Steve, UK). In line, Austrian athletes considered physical changes in a short time as suspicious, when for example someone looked like they were *"disproportionate[ly] trained"* (Oliver, Austria [AT]). Anna (UK) explained:

> *Based on physicality, the age of that person and how they looked at the time. It was a bit like, really? How could you be that shape and size based on disability? … There are limitations and restrictions and sometimes things that don't add up … So, yeah, I have had suspicions.*

One explanation around why Paralympic sport became vulnerable to doping is the fact that according to Steve (UK) the Paralympic Games *"exploded"* in the last decade and are *"catch[ing] up"* with the Olympics. So, the rapid growth of the Paralympic profile (e.g., popularity, number of athletes, professionalism) includes also doping, which becomes more and more of an issue and *"will start to escalate … if we leave it too much longer"* (Steve, UK). Underlining reasons put forward by athletes included that the sporting level has *"increased extremely"* (Ritchy, AT), the density of top disabled athletes is growing and consequently, it is more and more *"professionalised"* (Daniel, AT) so that you have to be *"more and more a professional"* (Marie, AT) to finance yourself. Anna (UK) stated: *"The more you win, [the] more money you earn. And that's how your life is, yeah."* This is accompanied with enhanced profile, as Andrea (UK) explains, *"there is a social status that comes with medal status"*.

Despite this acknowledgement that doping happens in Paralympic sport, when asked how doping is seen in the Paralympics compared to the Olympics, the majority of the athletes perceived doping as more common in the Olympics. For example, Steve (UK) suggested: *"I think that doping is a lot more integrated into a lot of sports in the Olympic Games than it is in the Paralympic Games."* Doping in Olympic sports was described as *"high profile"* and *"widespread"*, where George (UK) "*know[s] … it's brushed under the carpet on occasion"*. Focussing on reasons that Olympians might be more likely to dope, the interviewees offered several explanations, such as that non-disabled elite athletes are more in the "*spotlight*" (Jack, UK) and at the *"fame side"* (Anna, UK) compared to Paralympics where Simon (AT) concluded that the *"medial interest"* is less and therefore *"the pressure is not so extreme"* to perform. Athletes suggested another driving factor might be a financial incentive, where you can earn *"millions"* (Oliver, AT) in Olympic sport and a *"medal reward"* (Martin, AT) is a lot more valuable including *"sponsorship deals"* (Steve, UK) than in Paralympic sport, which will be discussed further in the second theme. Although the majority of athletes perceived doping to be 'worse' in Olympic contexts,

a couple of athletes thought the relative amount of doping is nearly the same on both sides, and one athlete (Martin, AT) had the feeling that the amount of doping is higher in Paralympics than Olympics due to fewer doping controls.

In terms of explaining the differences in doping across Olympic and Paralympic contexts, the Austrian athletes emphasised that the Paralympics have *"different values"* (Oliver, AT) and therefore another *"appreciation"* (Marie, AT) within the movement which affects the prevalence of doping incidents. This means that Paralympic athletes are less likely to dope because they pursue *"different aims"* (Simon, AT) compared to non-disabled athletes like staying *"healthy … and movable"* (Marie, AT), *"develop [their] personality"* (Martin, AT) and/or manifest *"self-assurance"* (Mona, AT) through sport. As a result, they try to forward the *"resocialisation"* (Daniel, AT) of disabled people into society and get more *"recognition"* (Marie, AT) of them. Notably, the interviewees seemed to view doping as *"weakness"* (Mona, AT) and as *"morally wrong"* (Andrea, UK). Oliver (AT) suggested that disabled athletes want to *"bolster other people up"* and be *"role models [and] … lights for society"*. A couple of UK athletes corroborated this idea, like Lucas (UK), who *"cannot understand why people are doping"* and they claim that their own *"health comes first"* (Anna, UK).

While all interviewed athletes acknowledged that doping is an issue in Paralympic sport, most of them referred to other athletes, sport disciplines, clubs, or nations – emphasising their personal beliefs in *"clean"* (Lucas, UK) and *"fair playing sport"* (Anna, UK). According to some athletes, doping in their sport disciplines would be *"useless"* (Ritchy, AT) and *"completely silly"* (Daniel, AT), because it requests too many technical skills. Sue (UK) expressed that they are *"not cheating … never tried to flex the system"* and/or are not *"interested in doping"*. Similarly, Martin (AT) said, he is *"no expert"* concerning doping, Marie (AT) is *"too little involved"* and Simon (AT) *"cannot say anything specific"*, because he never had *"any experiences"*. Tying their opinions specifically to medication, several Austrian athletes recounted their fears of unintentionally doping. Mona (AT) said she *"proves everything five times"*, and Hanna (AT) is suffering *"paranoia"* and even did not take any medication to address her broken nose. Similarly, Daniel (AT) is *"free of medication"*, because he is afraid to take some forbidden medication (according to the WADA list) by accident. For all those reasons, the athletes adopt a *"hands off"* (Simon, AT) doping approach. Although this specific group of athletes strongly advocated for clean sport, as shown in the next theme, they were able to describe multi-layered reasons for disabled athletes to dope.

3.2. Doping is driven by several factors, but especially money!

Athletes from both the UK and AT presented in detail that it is possible to dope if you really want to. The reasons for doping in Paralympic sport spanned both individual/personal and environmental levels. According to Mona (AT), personal reasons for athletes might be a *"vulnerable character"* with *"diminished self-esteem"* and the knowledge that you cannot cross *"the border"* to success or improved performance naturally. This is why athletes try to "*turn on all screws"* (Jonas, AT) and this was proposed by our interviewed athletes to be related to some athletes' needing to satisfy their *"own ego"* (Jonas, AT) and *"push [them]selves to be the best"* (Jack, UK). Anna (UK) called it as *"that hunger to win … that obsession and addiction … and that absolute drive to win at any cost"*.

George (UK) and other athletes reported that it is a *"vicious circle"* because you have to perform to get funded the next year. *"Somehow, only winning counts"* (Martin, AT), because winning is linked to not just repeated funding, but also prize money or sponsorship deals. Building on this idea of what motivates an athlete to dope, all interviewed athletes except one (Jack, UK) named monetary incentives or *"monetary values"* as the most likely reason to dope. George (UK) explained that the draw of money might be intertwined with other factors, such as a desire to be a provider, or pressure being exerted by an organisation:

> *I love doing sport, but the money plays a factor … Some people live in such poor conditions or their federation says this is the way you're in or you're out, you dope or you're out. …These athletes are desperate to win … when funding is attached to that, money is attached to that, buying a new home, providing for your family…[doping is more likely].*

Athletes reported that the financial gain is currently less in Paralympic sport compared to Olympic sport, corroborating some of their perceptions that Olympic sport is therefore at greater risk of doping. Yet, Steve (UK) suggested that this is because the Olympics have existed for so much longer and they are *"quite a long way ahead"*, proposing that *"Paralympics will catch up with that"* in time.

Beyond the monetary aspect that increases vulnerability to doping, all interviewees identified the pressure that coaches, other athlete support personal (ASP), media, sponsors, clubs and/or federations exert on athletes to perform well and hit the benchmark as an important risk factor for doping. This means for example "*medals expectations of the federation"* (Simon, AT), the fulfilment for a *"qualification to the Paralympics"* (Daniel, AT) or simply the *"external pressure … to perform at higher level and be faster or stronger"* (Jack, UK). Notably, there are speculations that not only elite disabled athletes are doping on their own, but also coaches as well as other ASP might be involved in doping

when *"sheer hard work and nutrition and training … made not be enough, so athletes, coaches or others may see that that's a way to improve"* (Jack, UK). Lucas (UK) underlines this perception:

> *Not only that the coach gets a reward … you know the stakes get higher and I think coaches and support staff when there is a financial game for them especially in these other nations that are not as educated as us or haven't got the, yeah, take the values that we have here … It becomes high risk.*

Building on the idea of environmental influences, bringing together the risk factors of winning at all costs, money and significant others, athletes suggested that the reasons or circumstances for doping differ from country to country. All interviewed athletes claimed that doping is an "*international issue*" (Simon, AT) and there are *"giant difference[s]"* (Hanna, AT) between the countries in terms of standard conditions (e.g., money, education, testing). For example, many disabled elite athletes from Western countries are funded whereas athletes from other countries, especially developing nations, do not get any financial support. Like other interviewees, Lucas (UK) described that their success and medals are *"literally payment"* and that this is *"the only way to life and make a living and feed their families"*. Hanna (AT) stated that "*basically, the nation I start for decides very very very very very much in sport."* Athletes, like Lucas (UK), posited that the different standards "*between the Western world and* (…) *developing nations*", where doping is sometimes even the "*norm*", are potential factors which might lead to a positive doping behaviour and/or a positive doping attitude. Adding a slightly different angle to the aspect of money, athletes suggested that there are *"huge differences"* in the National Anti-Doping Organisations (NADO) in terms of resources (e.g., low level of educational sessions, missing ADAMS system, small amount of doping controls); this point is explored in the third theme.

3.3. The anti-doping system works, but not completely

Concerning anti-doping organisations, eleven out of sixteen athletes perceive the anti-doping system in their country as "*strict"* (Andrea, UK), *"fairly solid"* (Sue, UK) and/or "*reliable*" (Martin, AT) and therefore able to help and protect clean athletes. Especially, all Austrian athletes emphasized that they think their national sporting organisations are doing a good job, for example in providing a lot of *"preventative measures"* in form of *"obligated workshops"* and/or *"online anti-doping licences"* to keep the athletes up to date. In line, the Austrian national anti-doping organisation was described as having *"very good communication"* (Daniel, AT). Austrian athletes reported the feeling of being *"looked after"*, because even young athletes are tested as a *"deterrent"* and in case doping occurs, they *"curb"* or

"punish" it. On an international level, particularly the British athletes, characterized the International Paralympic Committee (IPC) as "*brave*" and "*very firm*" highlighting how they handled the Russian scandal in banning the disabled Russian athletes completely. Speaking about this, Lucas (UK) suggested that they earned *"a lot of credit for doing that"*. When asked if they think that sporting organisations (e.g., (inter)national federation, IPC) can effectively lead a collaborative national, international and/or worldwide movement for doping-free sport, we interpreted the athletes' answers as being more cautious, such as Steve (UK) who said *"[I] think they're trying"*. As a consequence of the system in their own country 'working well', the majority of the interviewed athletes perceived themselves well-informed, including the received education as all as the amount of testing.

But not everyone described the whole system as working well. When discussing the current global anti-doping system, Sue (UK) said: *"I'm sure if somebody wanted to (dope), they can find a way around it."* Likewise, nearly all interviewed athletes perceived it as an easy task to find *"shortcuts"* (Oliver, AT), because *"every system is open to abuse"* (Anna, UK) due to *"potential loopholes"* (Andrea, UK) within it. The area which athletes suggested provided greatest possibility to cheat is to declare or *"solicit"* medication. Specifically, they proposed that athletes in disabled sport might be able to exploit the Therapeutic Use Exemption (TUE) process, seeking approval for a medication which wouldn't be needed for medical reasons, but could help them to *"get a better performance"* (Sue, UK). Oliver (AT) described:

> *Somehow I've got the feeling that every third athlete has asthma … I'm pretty sure there are many who gain a lot faster a use exemption for asthma due to their disability although they don't have anything and that's unfair … sometimes it feels like being defrauded.*

Athletes considered cheating on the TUE system is a lot easier for disabled athletes compared to non-disabled athletes, because some of them suffer pain and immobility due to their disability and therefore need medication anyway. To take any additional medication then is not too complicated to *"cover up"* in the medication list, especially when *"their doctor is kind of in the team setup and knows about the reward system"* (Lucas, UK). Therefore, it also seems to be *"easier to get TUEs in other countries"* compared to Western countries, because Lucas (UK) explained that these nations *"take advantage"* of the fact that athletes have disabilities.

Talking about another deficit in the worldwide anti-doping system, a couple of athletes perceived the doping controls abroad as *"not random"* as they should be or even totally missing. Oliver (AT) talked to other athletes about out of competition testing and *"they never had any doping control in their life*

although they win medals at Paralympic Games in series". An explanation might be that there are *"less resources for testing"* (Martin, AT) or that other nations do not have an existing ADAMS system. Like seven other interviewees, Hanna (AT) noticed the low rates of out of competition testing and claimed if somebody *"really would be willed to dope, the net (for catching doped athletes) as it is webbed, would probably have been less of a deterrent"*. To fix these shortfalls, nearly all athletes emphasized to strengthen the current test system in creating a *"control system"* in which *"more testing at races"*, *"more random testing"*, more "*target tests"* and/or *"more surprise testing"* should happen. Anna (UK) thought, it should be *"a bit more structured"* and *"more effective"* and even *"testing at home as much as it is annoying"* should be done more as it is "*important, because actually that's when the risk (of doping) is more likely to be there"*. Moreover, Oliver (AT) demanded to "*detach the anti-doping structures from the sport structures"* so that on an *"international level"* the anti-doping structures are *"completely financial independent … to verify gapless … [that] everyone got tested"*.

Alongside standards for testing, the education system seems to be quite uneven between the different NADOs worldwide. Some athletes perceived that in some nations, the educational standards are *"basic"* and *"not very good"*, so that education on anti-doping sometimes is *"terrible"* or *"bad"*. Lucas (UK) said *"a lot of athletes are still not aware of their responsibilities or their rights"* and when he once visited an anti-doping seminar abroad, *"they were talking about how to actually maintain vitamins and … take drugs … it was a doping seminar and how to dope. It was mind-blowing."* To improve this identified problem, the majority of athletes suggested *"more regular sessions"* which are *"binding"* for all competing athletes and were they should be *"forced"* to go. More concrete, Mona (AT) thought about a *"general anti-doping license"* or Lucas (UK) could imagine setting up an *"online test by the IPC, an anti-doping test"* where you *"have to have a certain percentage to pass before [you're] allowed to compete"*. Furthermore, as education on anti-doping starts too *"late"*, it's *"vital"* to *"trickle"* the information down to younger athletes and educate them *"from a young age … before they arrive on the big stage"* (Steve, UK).

All these circumstances are summarized in the perception that there are differences in the work and the systems of the NADOs and therefore *"a lot of inconsistencies"* within these organisations. For this reason, some athletes described the system as "*broken*" and too *"far behind the dopers"* and/or that it develops not fast enough considering the rapid growth of the Paralympics. To face these issues, athletes asked for a stricter rule application and/or accountability for compliance with policy. So, Lucas (UK) proposed to implement a *"minimum gold standard international"* where the NADOs have *"adhere*

to" and if they fail, *"they should be suspended"*. Equally, some athletes called for *"harsher sanctions", "guidelines or deadlines"*, so that they know, *"they don't get away with it"*. Moreover, Jonas (AT) wished to *"exclude"* athletes to *"come back into their sport"* and Oliver (AT) subsequently demanded to *"incorporate"* doping as *"criminal offence"* into the respective legal system.

Moving towards a 'minor' issue, athletes *"lost completely faith"* in 'blowing the whistle'. Oliver (AT) said it is *"easier to shut up and keep on training"*, because *"it doesn't go very far"* (George, UK). Anna (UK) reinforced that viewpoint:

> *Unfortunately, I think … often queries and worries aren't listened to that often. And without evidence it is a bit of, you could whistle blow and you could speak up, but … it's kind of just get pushed to one side … because it's just not taken seriously. So, it is like a little bit in court, isn't it? Without evidence, they're like huuu, it doesn't matter.*

These perception of whistle-blowing fit into the picture that in recent years, doping has *"always gone under the radar [and] still definitely goes"* (Steve, UK), because after all, too many people do not care enough about the issue of doping in Paralympic sport or prioritize it respectively. So, there is a lack of communication, *"a big gap"* between the athletes and *"bigger organisations"* and especially the Austrian athletes emphasized missing *"awareness campaigns"* for athletes and coaches to learn *"why doping is so cruel".* As a possible improvement, half of the interviewees suggested to aim at a *"collaborative approach"* and *"optimal coordination"* between the organisations, the officials and the political level, so that *"networking"*, *"exchange"* and *"more regular contact"* might lead to an *"international cooperation"*. As a result, the Paralympic movement could be seen more as a *"family"* and a *"common movement"* where athletes and organisations are *"closer"* together and *"more cohesion"* might be possible. There needs to be a feeling of *"together against doping"*. Steve summarized:

> *I would like to see a bigger push to get the athletes more and more involved in anti-doping … rather than being kind of them against us, where they just telling us what you can and can't do. I think you want to all be together … I think they should try and kind of push and campaign … to get that feeling where it's the athletes and the organisations to hold together against doping which would be the best way to move forward … I don't really feel that at the moment, no.*

Building on this idea of collective action for clean sport, it became clear that the interviewees wanted everyone (i.e., athletes, coaches, medical staff, each country's individual governing bodies on Paralympic associations) involved in elite disabled sport to be aware of their responsibility for doping-free sport. They suggested, *"it's everyone's responsibility"* (Jack, UK) and *"obligation"* to adhere to the

Code and therefore stick to the rules, so that the aim of *"clean"* and *"fair playing sport"* could be achieved. To ensure these aims, some athletes made clear that you need a *"good environment"* with *"people around"* who help and *"support"* you, even though *"the final decision to say yes or no … is down to the athlete"* (Jack, UK).

3.4. Cheating on classification should be considered doping

Athletes often discussed classification within the conversations on anti-doping. Therefore, it is important to discuss the attention that was paid, by participants, to that specific 'integrity' issue. Disabled athletes are divided into different classes according to their disabilities with the purpose of creating "fair" circumstances/conditions to compete. However, thirteen out of sixteen athletes spoke about *"intentional misrepresentation"* and Hanna (AT) even stated *"Classification is the doping of disabled sport."* Although *"classification doping"* is not officially recognized and sanctioned as doping (according to the definition provided by the World Anti-Doping Code), athletes describe it as an *"equivalent"* issue that is *"very present"* and has a significant *"impact"* on disability sport, therefore it is a *"massive issue"*. The fact that disabled athletes are divided into different competing classes, sometimes *"self-classif[ied]"*, leads to *"manipulation"* and *"abuse"* of the system. Like many others, Lucas (UK) said*: "A lot of athletes always exaggerate what their disability is and how bad it is to get into a favourable classification."* This behaviour might result in better chances to win *"because they are more able"*, so *"they're winning because of their disability and not because of their ability"* (Anna, UK). Daniel (AT), like others, stated that he often had the feeling that he was competing against someone who was incorrectly classified *"by purpose"*.

In addition to athletes describing classification manipulation as a form of doping, athletes also suggested that these manipulations might increase the risk of doping for other athletes who have been correctly classified because they feel disadvantaged. (Lucas, UK) described that your classification might decide *"between being a world champion or being nobody"* and others agreed that this circumstance might *"provoke some people to dope"* (Sue, UK), because you are *"deceived"* on your success (Oliver, AT) and Anna (UK) summarized:

> *There are so many athletes … that you look at and you go, how are you in that category? Sometimes these athletes that are winning by such a huge gap, you know, for us as fellow Paralympic athletes who understand disability and we know what limitations disabilities have on you physically. When you sometimes see somebody in the wrong category, you know, kicking everyone's ass. Over and over again by such a big gap. For us this is not rocket science.*

Whether being used to intentionally cheat or not, it was clear that the athletes agreed that the current classification system is *"too complicated to understand"* (Anna, UK) and it has not *"evolved with how quickly the events in sport have evolved"* (Steve, UK), including the increasing number of athletes. Consequently, it was perceived by athletes as *"a mess", "unfair"* and *"frustrating"*. Hence, the athletes welcome the current efforts to *"rewrite"* and adapt the classification system to create a fair and *"airtight"* system for everyone.

4. Discussion

The aim of this research was to explore doping in disabled elite sport, including athletes' doping-related perceptions, reasons and knowledge, as well as their opinions of the anti-doping system in Paralympic sport that will inform future interventions. The analysis of the interviews showed that doping is a well-known and reportedly wide-spread issue within different disabled elite sport disciplines. Athletes suggested that the main risk factors for doping in Paralympic sport are focussed on pressure, whether this is internal from the person (i.e., wanting to win), external (i.e., coming from the coach or a sporting federation) or a combination of both (i.e., wanting to earn money to secure their career as an athlete, support their family, etc). As a positive, athletes reported that the anti-doping system works well in some areas, especially in their own country. However, athletes revealed that there are several ways to cheat if someone would like to find the loopholes in the current anti-doping system, such as exploiting the TUE system and avoiding being tested. Athletes suggested several solutions to address the shortfalls and therefore stabilize the system to protect clean sport, including harnessing the power of collective responsibility and increased financial investment. Notably, the athletes suggested broadening the definition of doping to account for cheating on classification given that it is, in their opinion, a greater threat to the integrity of disabled elite sport than the use of banned substances and methods.

This research indicates that doping has become progressively more of a risk in disabled elite sport and is no longer a minor issue. This supports previous research in disabled sport (Collier, 2008; Jefferies et al., 2012; Van de Vliet, 2012) and ADRV data presented in WADA annual reports (World Anti-Doping Agency, 2015a, 2016, 2017, 2018, 2019, 2020). Interviewees attributed the growing risk of doping to the commercialization and monetarisation of disabled elite sport, including the professionalism of sport with sponsorship deals and media coverage. Thus, showing that some of the risk factors (which will be discussed in detail in the next paragraph) in disabled elite sport are the same as those that have been established in non-disabled sport (Smith et al., 2010). Also similar to non-disabled sport (e.g.,

Blank et al., 2014b; Blank et al., 2015; Blank et al., 2016b), athletes suggested there are low-risk and high-risk sport disciplines. For instance, Blank et al. (2015) found that athletes' doping susceptibility was higher when they performed sports like body building, swimming or athletics, and in the current study, strength and endurance sports (e.g., cycling, weightlifting) were highlighted as more vulnerable to doping. Building on this, athletes in the current study suggested risk of doping was lowest in skilled sports, like judo or table tennis, which aligns with Engelberg and Moston's (2016) finding that doping is less prevalent in skill-based sport than endurance sport in non-disabled elite contexts. Therefore, it could be hypothesized that there are some similarities in the nature of doping in disabled elite sport compared to non-disabled elite sport and therefore disabled sport organisations – or national anti-doping organisations working in disabled elite contexts – could adopt a similar approach to targeting their efforts (including testing and education), focussing greater attention on sport disciplines most 'at risk'. As the current evidence base suggests a selection of strength and endurance sports could be the priority, future research might also hone-in on these contexts more closely.

In addition to patterns in doping being similar across disabled elite sport and non-disabled sport, the current study highlighted several risk factors for doping that have previously been identified in non-disabled sport, including money, pressure and 'win at all costs' climates. For the first time, monetary incentives were the most named reason for doping in disabled elite sport. Over decades, money has been established as a risk factor with non-disabled elite athletes (e.g., Laure & Reinsberger, 1995; Smith et al., 2010; Westmattelmann et al., 2020). However, a unique insight provided by the current study is the way that money was *intertwined* with pressure exerted by ASP and expectations of federations and/or clubs. So, for example, previous research indicated that coaches possess certain influence concerning (anti-)doping (Allen et al., 2014; Patterson et al., 2016; Smith et al., 2010), but the current study showed that this influence being misused to encourage athletes to take drugs is sometimes specifically directed towards fulfilling expectations (e.g., to perform well in order to maintain funding). Notably, the interaction of the money and pressure risk factors seemed to culminate in a 'win at all costs' outlook. Again, this motive has been identified as a risk factors by other studies, in both disabled and non-disabled elite sport (Collier, 2008; Smith et al., 2010; Van de Vliet, 2012). However, to reiterate what is different about the current study, the main reasons to dope in disabled elite sport cannot be seen as isolated; they are all knitted together, which shows the complexity of the issue. Such complexity requires a well-planned and comprehensive approach to prevention and addressing only one point of pressure is certainly not enough. However, a possibly 'easy' start to address the rather structural risk

factors for doping behaviour might be to distribute the prize money more evenly (without changing the total amount). Obviously, the general pressure to win is also inherent in disabled elite sport and distributing the prize money differently might not completely resolve that issue. Yet, as shown, the risk factors are closely interrelated and thus, considering the money issue might be a worthwhile start. In support, a recent simulation study provided evidence that changing money distribution might reduce doping prevalence by up to 40% in non-disabled elite sport (Westmattelmann et al., 2020).

Along with potential adaptations to prize money, changes to policy or procedure surrounding Therapeutic Use Exemptions (TUE) would be beneficial. Adding a unique angle to doping in disabled elite sport, our study showed that using medications, and gaining TUES, provided an opportunity to 'cheat'. Much like athletes suggested in this study, previous research (Collier, 2008; Fagher et al., 2016) proposed that Paralympic athletes suffer pain due to multiple medical conditions. Specifically, Fagher and colleagues (2016) examined sport-related injuries in Paralympic sport and showed that an overuse of the upper limbs often causes pain and that athletes described that pain as normal and something athletes "have to live with" (Fagher et al., 2016, p. 1245). Therefore, it is not surprising that Paralympic athletes need more medication in comparison to Olympic athletes (Collier, 2008). The reason that medication use might lead to 'cheating', is that the IPC does not demand evidence (e.g., pulmonary function test) to prove the medical need for using prohibited substances (or methods) via the TUE process, whereas the IOC does (Collier, 2008). Current status is that the IPC automatically recognizes TUEs from 19 International Federations and 49 NADOs for all substances except for seven exceptions (e.g., anabolic agents) (IPC, 2021). Therefore, this could be interpreted that it is easier as a disabled elite athlete to get a TUE. To address this potential 'loophole' in the system, there could be more targeted controls of TUEs by the medical board of the IPC. In addition, as Greenwood (2019) suggested, there should be more transparency about the TUE process itself as well as training (i.e., knowledge about banned substances) for the respective team physicians and a better education and supervision of athletes who received TUEs.

Beyond TUEs, the current anti-doping system was repeatedly criticised by athletes for its 'inconsistencies' across countries, especially in doping tests and the implementation of education. Athletes reported that in some nations there seems to be a lack of regular doping controls and out of competition tests, except for at major events; this perception of inconsistency is congruent with previous studies (Allen et al., 2017; Van de Vliet, 2012). One reason suggested by interviewees for differences in testing across countries could be that it is not always easy to find an athlete for a doping test out of

competition everywhere across the world. Additionally, as doping controls (test and analysis) are expensive (WADA: 228 million USD per year for about 270,000 doping tests (Maennig, 2014)), the interviewed athletes suggested that organisations lacking money contributed to low rates of testing across some nations. Consolidating limited financial resources as a significant issue, athletes suggested that organisations having to deal with a limited budget negatively impacts their capacity to provide anti-doping education. This aligns with previous research in non-disabled elite sport (Patterson et al., 2016). Patterson et al. (2016) called for increased fiscal investment in the anti-doping system and the current study supports this suggestion. To achieve this will require the 'issue' of doping in disabled sport to be taken seriously, i.e., people in high-level positions must be committed to clean sport (Patterson et al., 2016). If increased investment can be attained, the current study indicates that changes to the way this is distributed across nations and activities would be beneficial to ensure greater consistency in both testing and education. Given the potential power of prevention, the current imbalance between detection and education (Engelberg et al., 2015; Patterson et al., 2016; Westmattelmann et al., 2020) could be addressed to respond to the athletes in the current study calling for organisations to capitalise on a "trickle-down" effect. Specifically, interviewees recommended that education should start early in an athlete's career and this is supported by evidence that adolescents are sensitive to normative influences (Ntoumanis et al., 2014) and their attitudes are established at this time (Backhouse et al., 2012).

Although theory was not used *a priori* in this research, we can see strong connections between our findings and theories that have been utilised to understand doping behaviour in non-disabled elite sport. In particular, our main findings corroborate the work of Stewart & Smith (2008) and Smith et al. (2010). Across their two studies, Stewart and Smith (2008) emphasised the fact that doping is influenced by factors operating at many levels beyond the individual. Aligned with our findings, they proposed that 'sporting culture' (Smith et al., 2010) – especially a 'win at all costs culture' (Stewart & Smith, 2008) – was a significant interpersonal influence. They indicated that 'influential people', including coaches, were important in shaping athletes' doping-related attitudes and behaviours. Furthermore, they highlighted the contribution of structural influences, such as 'government funding for elite sport with gold medal potential' (Stewart & Smith, 2008) and 'commercial pressures' (e.g., sponsorship) (Stewart & Smith, 2008; Smith et al., 2010). Therefore, although the conceptual models of Stewart and Smith were initially developed to understand doping in non-disabled sport, they appear to capture many of the factors identified in disabled elite sport. Further research may benefit from adopting this theoretical lens from the outset to interrogate their hypothesised constructs and connections between the constructs.

Although not explicitly explored in the interview guide, a second integrity issue became the focus of many conversations - classification doping. This 'problem' was considered the same as doping, even though it is not a part of the official anti-doping rules of the IPC. Much like anti-doping research, very few previous studies have explored classification manipulation. In fact, it could only be recovered in Henning et al. (2005), where classification is mentioned as a consequence of misunderstandings which might lead to doping. Other research has mainly focused on the question of if the IPC's structured classification system in 2009 can create a fair competition or not (Murray, 2018; Oh et al., 2013), how it could be improved (Beckman et al., 2014; Mills & Krassioukov, 2011; Ravensbergen et al., 2016) and which methods are currently used to classify someone (Tweedy et al., 2014). Taken together, these studies indicated that the current classification system is on a good way to meet the aim to classify athletes accurately and achieve 'fairness', but there are still many unsolved problems, e.g., athletes in the current study stated that an overlap between doping and classification exists if drugs which improve an athlete's condition affect the class in which an athlete will be grouped. Despite the difficulties, there are some efforts being made to improve the classification system by the IPC, such as the IPC Governing Board releasing a position statement in June 2018 to give guidance how visual impaired sport should classify their athletes (IPC, 2018). Moreover, some federations have started to revise their systems. For example, in August 2019 the International Tennis Federation reviewed the Wheelchair Tennis Classification system and published a new classification system (in which the self-assessment will be replaced by professionals (i.e., trained persons) until 2022. Even though there are some changes in the classification process being made, we suggest that the issue of classification should be taken more seriously by the respective organisations, even as far that cheating on classification could lead to a sanction comparable to a sanction for ADRV.

4.1. Limitations

All interviews were conducted in person or online face to face except for two interviews. Those two participants had weak internet connections and this resulted in a switch to telephone, rather than video call. This circumstance might lead to a bias, as it was not possible to react to visual cues of the interviewees. Yet, as doping is a sensitive topic, we believe that it enabled the athletes to share their experiences and opinions more freely (Novick, 2008). We did not perceive any loss of data as we asked all interview questions and received detailed answers. Another limitation could be that one interview took 23 minutes, whereas the average interview duration was 41:38 minutes (*SD*=11:15). One possible

explanation was that the interviewee was in a bit of a rush, because a training session was rescheduled at short notice. Notably, as the content of this conversation was in line with the other interviews, it was assumed that the shorter duration did not affect the data quality and, therefore, we included it in the analysis. Concerning our overall sample of athletes from Austria and the UK, the sample itself could be identified as limitation regarding the generalizability of our findings to athletes of other countries. However, as our research follows a qualitative approach, we did not adopt the 'statistical-probabilistic' approach (Smith, 2018). Instead, our findings provide contextualised, in-depth insights into disabled elite athletes' perception and knowledge of doping, including factors that might influence doping behaviour of disabled elite athletes. In terms of naturalistic generalizability, we encourage our readership to consider if our findings sound familiar to their environment, and if the findings seem to be similar (or different) to what the readers have experienced so far (Smith, 2018). Within this call, we would like to invite the readers to consider, based on our rich quotes and descriptions, if our interpretation of the data sound reasonable and to what extent our findings can be transferred to other situations and settings (Smith, 2018). In doing so, we hope to create resonance in other sport disciplines, countries and situations, even though our findings stem from our collected sample with 16 disabled elite athletes. Lastly, a commonly acknowledged limitation in anti-doping research is social desirability. Accordingly, we cannot guarantee that the interviewed athletes did not consciously respond in what they believed was a more socially acceptable way. To minimise this possibility, we 1) told the participants in the written confirmation form, as well as at the outset of the interview, that data would be anonymised using pseudonyms, 2) assured them that no presentation of the findings would be linked to their sport, and 3) explained that we would not judge them irrelevant of what they want to share with us or not. Overall, we believe that the interviewees felt comfortable with the interview situation and process and provided in-depth, personal insights in response to our questions.

5. Conclusions

The current study is, to the best of our knowledge, the first work to examine doping-related perceptions, reasons and knowledge of disabled elite athletes as well as their opinion of the anti-doping system in Paralympic sport. Overall, the issue of doping found its way into Paralympic sport as its profile is steadily growing (e.g., number of athletes, media interest, financial rewards). Within that, Paralympic athletes are exposed to extreme pressure (like earning money and/or fulfil demands of stakeholders) which poses an inherent risk to find a way through cheating (e.g., misuse of TUEs) and/or prohibited

methods and/or substances to enhance an athlete's performance. Although it is already the responsibility of sport organisations and/or sport governing bodies to ensure clean Games and provide anti-doping education, athletes requested for an improved, enforced and homogeneous preventative approach for every competing athlete worldwide. Lastly, cheating on classification should be taken seriously and handled as a major issue of integrity in sport. Taken together, there are many issues to be solved in order to improve the circumstances in disabled elite sport. Therefore, as this research is the first of its kind to spotlight major areas, additional research is necessary to reveal the whole picture of doping in disabled elite sport. Further qualitative as well as quantitative research will be crucial to allow a more specific analysis along with a generalisation of the issue. In detail, the model of Smith et al. (2010) have many parallels with our findings and we recommend to test this theory within a further quantitative setting. Within future studies, other relevant stakeholders like coaches or other athletes support personal should be considered to be taken into account as they work with athletes and have a certain impact on them.

Conflicts of Interest

None.

Funding

This research is funded by a grant (P 31864-B) of the Austrian Science Fund (FWF).

Acknowledgements

We thank all interviewed athletes for their time and their trust to share with us their experiences and perceptions in disabled elite sport. This is much appreciated and will contribute to establish further research in this field.

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