THE BALANCING ACT:

How risk is experienced, navigated and perceived by users of performance enhancing drugs

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A thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

Kingston University (Department of Science, Engineering and Computing)

March 2020

Abstract

The current literature concerning performance-enhancing drug (PED) use is often highly medicalised. Limited research exists which delves into the lived experience within the context of PED use, particularly in a risk-oriented context. This thesis uses qualitative methods to explore the experience, perception and navigation of risks associated with PED use in greater detail. The three empirical studies in this thesis are connected via PED use, which is self-identified as functional, but perceived as deviant by society. Study 1 uses Interpretative Phenomenological Analysis to highlight the experiences and challenges of AAS use from the perspective of four women, drawing out the impact on their identity. Study 2 is a thematic analysis study of experiences and perceptions of twelve 2,4-dinitrophenol (2,4-DNP) users. This study evidenced strong control over every aspect of using a controversial and polarising compound. The thematic analysis of study 3 highlighted key influential factors that impact the physician-patient interaction and expands on the notion of risk for non-PED using individuals. The results collectively show how the perception and navigation of risks in a PED-use context shape the experiences of risk. These results are explored within a Risk Society Model (RSM). Risk perception is framed through a social-constructionist lens to reflect the highly individualistic nature of risk assessment impacted by sociocultural influences. Risk navigation in PED-use is complex and multifold, heavily dependent on the nature of the risk and the resources available to participants at the time. These studies highlight the importance of understanding lived experiences of risk and hazard management. These results offer a different perspective to those within the current literature and aim to contribute experiential knowledge and understanding upon which co-productive harm reduction interventions can be built.

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Ainsworth, N. P., Vargo, E. J., & Petróczi, A. (2018). Being in control? A thematic content analysis of 14 in-depth interviews with 2, 4-dinitrophenol users. *International Journal of Drug Policy, 52*, 106–114.

Chapter contributions in edited books

Ainsworth, N. P., Shelley, J., & Petróczi, A. (2018). Current Trends in Performance- and Image-Enhancing Substance Use Among Gym Goers, Exercisers, and Athletes. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Handbook of Novel Psychoactive Substances: What Clinicians Should Know about NPS.* New York: Routledge. https://doi.org/https://doi.org/10.4324/9781315158082

Verbatim segments have been used throughout the introduction to this thesis (Chapter 1).

Acknowledgements

Though a thesis aims to be the work of an individual, it goes without saying that this thesis would not be possible without the involvement of a number of people throughout.

First and foremost – I would like to express my profound gratitude for my supervisory team. To my first supervisor, Professor Andrea Petróczi – your support, guidance and help has been nothing short of fantastic. Your experience and perspectives have helped me greatly throughout my PhD. Thank you for helping me realise my research ideas and bringing them to light.

To my supervisory team – Professor Phil Terry, Dr. Owen Spendiff, Professor Declan Naughton – thank you all for the help and support throughout my PhD. Having such a multidisciplinary team has been invaluable for me, enabling me to gain new perspectives and try different ideas. Thank you for helping me with the writing of this thesis and for being so supportive throughout my PhD.

To Dr. Sam Thrower – thank you for being an excellent co-author. The detailed feedback and comments I have received on our co-authored works have enabled me to reflect on my perspectives and practices as a researcher in greater depth. Thank you for guiding me throughout the production of our co-authored manuscripts.

To every single participant who has volunteered their time to share their perspectives, experiences and stories throughout – my thesis would not be possible without your generosity and trust. Thank you for being so open with me.

To those outside of academia: my family (including Louie and Darwin!) - thank you for being supportive and loving throughout this thesis. The phone calls, the chats, the random visits, thank you for everything.

To my powerlifting and martial arts friends – of note, team Barfight. Thanks to every one of you for being excellent comrades throughout my thesis and for supporting me when I needed it. The friendship, kindness and appreciation shown have been invaluable throughout my thesis. Here is to many more training sessions and competitions together.

A big thank you to the gyms I have trained at over the years for the friendship and knowledge you have given me. These places have, at times, been like second homes for me, and I am grateful for the ability to train at these locations.

Last but not least, to my long-suffering husband David – Thank you for being a pillar of strength, critical friend and source of calm throughout. The support and love you have given me throughout this thesis helped me in many ways. Thank you for keeping my head on my shoulders and giving me, at times, much-needed perspective. I am eternally grateful and fortunate to have had you by my side throughout.

Chapter 1: Introduction

"Whilst the environment and the social world seems to be 'out of control', the body becomes something of an anchor."

(Nettleton, 2009)

In a constantly evolving global society of rapid scientific progress and ever-shifting values, few things appear to be in our direct control. Uncertainty plays a more significant role in our lives and becomes a bigger challenge which modern society must live with and adapt to (Giddens, 1991; Beck, 1992). Indeed, the one thing individuals can hold on to tangibly is ownership of our physical bodies (Nettleton, 2009). The concept of the body has evolved throughout time, as outlined in this quote from Giddens (1991):

> Like the self the body can no longer be taken as a fixed -- a physiological entity -- but has become deeply involved with modernity's reflexivity. The body used to be one aspect of nature, governed in a fundamental way by processes only marginally subject to human intervention. The body was a 'given', the often inconvenient and inadequate seat of the self. With the increasing invasion of the body by abstract systems all this becomes altered… the body has become fully available to be "worked upon" by the influences of high modernity… (Giddens, 1991: pp 117-118).

In short, the ever-widening modern array of bodily modifications demonstrate a perceptual shift of our bodies from a fixed, immovable object to a pliable, alterable form (Nettleton, 2009; Petersen & Lupton, 2000). In this contemporary context, specific modifications are considered "riskier" than others and have immorality imposed upon them by society (Monaghan, 2002). Indeed, some forms of risk-taking are glorified and considered acceptable (Adams, 2002). Nevertheless, within the context of health and wellbeing, risk and risk-taking activities often have immoral labels attached to them. In a society ever concerned with "healthism" and the promotion of a "healthy" body, activities which "pollute" the efforts to create and maintain a healthy body are considered immoral on a societal level (Petersen & Lupton, 2000). The fitness industry, consisting of professionals such as personal trainers, nutritionists and clinicians, has become an ever-expanding juggernaut focused on risk-avoidance. The "healthy body" has become a morally-charged symbol indicative of self-control, moral worth and worthy of commendation (Petersen & Lupton, 2000). Thereby, activities such as taking drugs, which deviate from this socially-reinforced risk avoidance are considered undesirable and morally wrong (Petersen & Lupton, 2000). Performance-enhancing drug (PED) use falls within this category. The use of PEDs in a risk-oriented modern society is associated with negative labels; notably, these include the identifiers of "cheater", "fake", "violent" and "narcissistic" (Monaghan, 2002);

> It has been suggested that the greatest public discomfort about bodybuilders is that 'all those muscles somehow come out of a bottle; that there is something as synthetic, unhealthy, useless and faintly sinful as plastic flowers about what they do and the way they look' ((Gaines & Butler, 1981): 76); that there is discomfort about 'the impurity of the chemical body, the unnaturalness of the steroid body' (Mansfield & McGinn, 1993, p. 59, cited in Monaghan (2002), p. 2).

The risks outlined with PED use are not only limited to the physical effects, which are broadly described and covered throughout scientific literature; other hazards include the adverse effects upon the psychological and social self of those who use these substances (Monaghan, 2002). These remain to be investigated further, from the perspective of those within a PED-using context.

The next sections will provide an overview of the definition, prevalence and usage of PEDs available, with more specific information provided on the substances of focus in this thesis. A broad historical context will be provided, as will an overview of gender identities, problematisation of PED use and the theoretical framework which underpins the empirical studies within this thesis.

1.1. Performance Enhancing Drugs (PEDs)

This section provides a general overview on PEDs to cover prevalence rates, methods of usage and a brief socio-historical context of PED use. Specific information is provided on anabolic-androgenic steroids (AAS) and 2,4-dinitrophenol (2,4-DNP) due to the focus on them within this thesis. Certain parts of this section include verbatim information previously published by the author in the form of a book chapter (Ainsworth, Shelley, & Petróczi, 2018).

1.1.1. What are PEDs?

PED is an umbrella term encompassing a group of substances with performance-enhancing effects used in sport and exercise.[1] PEDs comprise of dietary supplements and functional foods that enhance sports performance, over-the-counter medications, herbal preparations, and controlled substances. These substances are grouped into nine broad categories based on their primary functions (see table 1). Notably, PEDs do not always fit neatly into one category. In these

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[1] This includes image-enhancement purposes; image-enhancement is as much performance-enhancement when we account for aesthetic-focused athletic disciplines such as bodybuilding.

cases, we categorised the substance according to the dominant use in sport and exercise.

Table 1

A list of substances used and their functional effects. Adapted from Ainsworth, Shelley and Petróczi (2018)

Substance Type	**Purpose**
Anabolic-androgenic steroids (AAS)	Skeletal muscle hypertrophy, increased strength
Selective androgen receptor modulators (SARMs) and PPARδ nuclear receptor agonists (cardarine)	Effect similar to anabolic steroids on skeletal muscle but with fewer adverse effects traditionally associated with AAS
Stimulants and neuroenhancers	Increased energy and psychological focus
Appetite suppressants, fat burners and clenbuterol	Decreased appetite or increased caloric expenditure for weight loss
Peptides: insulin, human growth hormone (hGH), melanotans, thyroid hormones	Various, depending on the substance
Erythropoietin (EPO)	Increased red blood cell production, increased endurance
Beta blockers / hypertension medications	Lower heart rate and reduce tremor in times of high anxiety, thus improving accuracy
Diuretics	Rapid loss of fluid (known as “water weight” amongst the gym-going population).
Dietary supplements and herbal preparations	Health maintenance (vitamins and minerals) and ergogenic benefits

Within this thesis, two substances were focused on: Anabolic-Androgenic Steroids (AAS) and 2,4-dinitrophenol (2.4-DNP).[2]

1.1.1.1. Anabolic-Androgenic Steroids (AAS). AAS are a group of synthetic derivatives of testosterone used for performance and aesthetic enhancement within the gym-going community. Structural modifications are introduced to the testosterone molecule to maximise anabolic effects and minimise androgenic effects (Kicman, 2008). Table 2 outlines commonly used AAS within the gym-going community.

Table 2
A non-exhaustive list of commonly-used AAS and the colloquial terms used for them within the community. Obtained from Ainsworth, Shelley and Petróczi (2018)

Substance Type	Commonly Known As
Testosterone	Test, T
Testosterone propionate (ester)	Test prop
Testosterone enanthate (ester)	Test-E
Testosterone undecanoate (ester)	
Testosterone suspension (ester)	
Oxandrolone	Var, Anavar
Chlorodehydromethyltestosterone	Turinabol, T-bol
Drostanolone	Masteron, Mast
Mesterolone	Proviron
Methandione/methandrostenolone	Dianabol, D-bol
Methenolone/metenolone	Primobolan, Primo
Trenbolone	Tren
Trenbolone acetate (ester)	Tren Ace
Trenbolone enanthate (ester)	Tren E
Trestolone	Ment
Nandrolone	Deca-durabolin, Deca
Nandrolone decanoate (ester)	Deca
Nandrolone propionate (ester)	NPP
Methyltestosterone	m-tren
Fluoxymesterone	Halostin, halotestin, halo
Stanazolol	Winstrol, winny
Boldenone	Equipoise, EQ

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[2] This will be clarified further within the methods chapter in section 2.2.2.2.

Over the years, wide ranges of ergogenic and adverse effects have been catalogued for AAS. Ergogenic effects of AAS are varied from increasing muscle mass to aiding recovery. Adverse effects vary between individuals and are sex-dependent. Hoffman and Ratamess (2006) suggest that specific adverse effects are transient. Table 3 lists these potential ergogenic and adverse effects.

Table 3

A list of potential ergogenic and adverse effects from AAS use. Obtained from Ainsworth, Shelley and Petróczi (2018)

System	**Ergogenic effects**	**Adverse effects**
Circulatory	Increase in erythropoiesis, haemoglobin, and haematocrit	Lipid profile changes Elevated blood pressure, decreased myocardial function
Digestive	Increase in appetite	Increased risk of liver tumours and liver damage
Endocrine	Increase in lipolysis Increase in glycogen storage Increase in protein synthesis	Decreased sperm count (oligospermia or azoospermia) Menstrual irregularities
Excretory	None	None
Immune	Some compounds have a slightly immunostimulatory effect	Some compounds have a slightly immunosuppressive effect
Integumentary	None	Acne Male pattern baldness
Muscular	Increase in lean body mass Increase in muscle cross-sectional area Increase muscle strength and power Increase in muscle endurance Reduction in muscle damage Decrease in body fat percentage Enhancement of recovery between workouts Enhancement of recovery from injury	Intramuscular abscess (if using injectable compounds with unsafe injecting techniques)
Respiratory	None	None
Reproductive	None	Decreased testicular size Impotence and transient infertility Clitoromegaly Libido changes Virilisation Gynecomastia
Skeletal	Increase in bone mineral density	Increased risk of tendon tears Premature epiphyseal plate closure
Nervous	Increase in neural transmission Increase in pain tolerance	Mania Depression Aggression Mood swings

Users[3] attempt to self-mitigate adverse effects from AAS use (Parkinson & Evans, 2006). Such measures include using aromatase inhibitors (AIs) to mitigate hyperestrogenemia arising from androgen aromatisation, cabergoline for prolactin management, and diuretics to mitigate hypertension. An AAS dosage depends on the individual's sensitivity to compounds, the specific compounds used, and the sex of the user. In Parkinson and Evans (2006), the range of self-administered self-reported dosages varied between 70 mg through to greater than 6,000 mg of testosterone or its equivalent per week. To achieve mega doses, users practice polypharmacy, often "stacking" several other compounds considered appropriate for their goals.

Notably, self-reported AAS dosages have shown a demonstrable increase over the past decade. The upper limit of the self-reported weekly dosage has increased from 3,200mg to greater than 6,000 mg (Evans, 1997; Parkinson & Evans, 2006). The trend of ever-increasing doses is of concern to the extremity and possibility of adverse effects.

1.1.1.1.1. Female-specific use. Reports of female nonmedical self-administered AAS use are uncommon—the virilizing side effects possibly deter potential users. The female lifetime prevalence rate was suggested to be 1.6% (Sagoe, Andreassen, & Pallesen, 2014). While the likelihood of encountering a

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[3] The term "PED users", "individuals who use PEDs", "AAS-using patients" and other similar terms will be used interchangeably throughout this thesis. However, I acknowledge that a "person-first" approach is fundamental for the purposes of this research. The term "PED-users" can be heavily stigmatising. However, for the purposes of readability and brevity, I will employ the term "users" throughout.

female AAS user is low, it is imperative to understand the consequences which can arise from female AAS use.

Female AAS use has a high potential for virilisation (Kicman, 2008; Nieschlag & Vorona, 2015). Side effects can be dose and compound dependent, though individual-specific sensitivity should be considered. Potential adverse effects include hirsutism, voice changes, clitoromegaly, fat redistribution, and psychological changes, including increased aggression. Amenorrhoea is an often-reported side effect with female AAS use. Chronic amenorrhoea is a potential adverse effect and is dependent upon the compounds used and the user’s natural menstrual cycle. Amenorrhoea can persist for up to 24 months (Nieschlag & Vorona, 2015). The effects on female fertility are not fully understood. Previous studies report that women will use the least androgenic compounds in order to mitigate potential virilisation (Abrahin, Souza, de Sousa, Santos, & Bahrke, 2017)—oxandrolone (“var” or “Anavar”) is a typical “beginner” compound, with dosages of 5–10 mg a day for four to six weeks being a standard cycle. More androgenic compounds, such as trenbolone, could lead to an increased risk of virilisation.

1.1.1.2. 2,4-dinitrophenol (2,4-DNP). 2,4-dinitrophenol (2,4-DNP) is an industrial compound used initially for munitions manufacturing in the early 20th century (Perkins, 1919). Currently, the focus remains on its role as a fat burner. 2,4-DNP is rarely taken for longer than two months (McVeigh, Germain, & Van Hout, 2017) with daily dosages ranging from 250 mg daily through to 500 mg or more (Ainsworth, Vargo, & Petróczi, 2018; McVeigh et al., 2017; Petróczi et al., 2015). 2,4-DNP can raise metabolism by 11% for every 100mg ingested (Grundlingh, Dargan, El-Zanfaly, & Wood, 2011). This effect is possible through its role as an uncoupler of oxidative phosphorylation, leading to a significant increase in energy expenditure through compensatory mechanisms (Grundlingh et al., 2011). Adverse effects include tachycardia, nausea, yellow discolouration of bodily fluids and skin, rash, and uncontrolled hyperthermia. As of now, no antidote is available for 2,4-DNP overdose, although successful treatment of a single patient with Dantrolene has been reported (Barker, Seger, & Kumar, 2006). Death occurs through irreversible hyperthermia.

1.1.2. Prevalence of PED use among exercisers and gym-goers

A recent survey among young exercisers in five European countries showed that although rates of self-reported lifetime use of controlled PEDs vary across countries, PEDs use is not limited to competitive sport; a considerable segment of PED users (19.6%) is present among 16- to 25-year-old regular exercisers (Lazuras et al., 2017). In a US survey (n = 9,147, mean user age = 10.8 years), a wide variety of herbal and vitamin/mineral supplement use to improve sports performance by children was reported (Evans, Ndetan, Perko, Williams, & Walker, 2012). Though most reported multivitamin and mineral combinations, fish oil/omega-3, creatine and fibre, developing a mindset that supplementation is needed to enhance performance at such an early age is concerning for later use of PEDs (Backhouse, Whitaker, & Petróczi, 2013). Based on self-reported surveys, prevalence rates for PEDs use among gym users range between 0.4% and 35% (Abrahin, de Sousa, & Santos, 2014; Hitti, Melki, & Mufarrij, 2014; Khullar, Scull, Deeny, & Hamdan, 2016; Lazuras et al., 2017; Molero, Bakshi, & Gripenberg, 2017; Sagoe, Molde, Andreassen, Torsheim, & Pallesen, 2014; Simon, Striegel, Aust, Dietz, & Ulrich, 2006; Striegel et al., 2006; Stubbe, Chorus, Frank, de Hon, & van der Heijden, 2014). In the absence of a standardised methodology, prevalence rates from individual studies are hard to compare. Within this range, PEDs prevalence figures vary widely across substance types, time frame, and methods used to establish prevalence, and, as is the case with all data from self-reports, the exact prevalence rate may be higher or lower than reported. Within the UK, the 2016/2017 drug misuse crime survey (Broadfield, 2017) found an increase in AAS use in the 16–24 age range compared to the 2015/2016 report (0.1% to 0.4%). The media have noticed this trend, as evidenced by the article titled ‘Up to a Million Britons Use Steroids for Looks Not Sport’ in the *Guardian* on 21st January 2018. There is a notable upward trend in reported PED-user numbers. Of note is the trend with concurrent PED use through the form of stacking. A greater qualitative understanding of their use can provide valuable information regarding perceptions of the compounds themselves.

1.1.3. How are PEDs used?

Generally, there are two components to PED use: cycling and ingestion, and the instrumentalised nature of their use. A ‘cycle’ (or ‘cycling’) is a term used to describe the amount of time a substance is used for. The length of use depends on the pharmacology of the substance and the purpose for which it is used. Some cycles can be as short as one week (for example, diuretics) while others can last many months (certain AAS compounds). Depending on the ester size and purpose of use, some compounds can be rapid-acting (i.e. stimulants such as amphetamines or AAS such as halotestin (fluoxymesterone)). Others can take longer for the effects to develop (such as testosterone undecanoate). Substances can either be taken alone or with other compounds through “stacking”. “Stacking” refers to using one or more substances concurrently for a synergistic effect. These substances can be AAS only or include other PEDs. Cycles can include AAS only, non-AAS PEDs only (such as stimulants) or include a combination of AAS and other PEDs (such as stimulants, diuretics and other compounds). For example, someone who is “cutting weight” may have an AAS cycle consisting of a testosterone base and trenbolone (both AAS) whilst stacking the thyroid hormone triiodothyronine (T3) alongside the stimulant clenbuterol for the purposes of metabolic management. Ingestion methods vary depending on the substance being ingested. Substances can be orally ingested as tablets, via sublingual or subbuccal ingestion or injected either intramuscularly or subcutaneously.

1.1.4. Historical context

Early records mention PED use within the first Olympic games, circa 766 to 393 BC (Bowers, 1998). Some accounts describe athletes allegedly consuming sheep testicles to improve performance in sporting events (Knights & Mangoni, 2015). This use of PEDs was normalised and continued throughout into the 20th century (Waddington & Smith, 2000). In the 20th century, PED use was an expected and normalised aspect of competitive sport (Coomber, 1999). Even outside an athletic context, the use of substances such as 2,4-dinitrophenol (2,4-DNP) for image enhancement through fat-burning is evident from as early as 1933 (Tainter, Stockton, & Cutting, 1935). Thus, the use of drugs in sport was not considered particularly controversial at this time. Throughout the 20th century, despite the introduction of legislation governing certain recreational drugs (notably, cocaine and opium), the use of PEDs was still seen generally as permissible and continued without restriction (Coomber, 1999; Waddington & Smith, 2000). More recently, testosterone was synthesised in Germany in 1936 for the first time (Freeman, Bloom, & McGuire, 2001). From here, 1959 saw the development of the first AAS compound specifically to enhance athletic performance: methandrostenolone (also known as Dianabol) by Dr Ziegler (Waddington & Smith, 2000). The period of the 1960s saw the first PED-related death; in 1960, the first reports of PED-related deaths sadly arose in the form of two cyclists suspected to have died from amphetamine use: Danish cyclist Knud Jensen in 1960 and British cyclist Tommy Simpson in 1967 (Waddington & Smith, 2000). Shortly after, 1968 saw the first drug test at the Winter Olympics competition in Grenoble, the start of a decades-long prohibitionist approach to drug use in sports (Waddington & Smith, 2000). While this period oversaw the first efforts to control drug use in elite competitive sport and society, PED use became more endemic. From the 1950s, alongside the synthesis and introduction of Dianabol by Dr John Ziegler, numerous AAS compounds entered the market (Bateman, 2014). Despite this public perceptual shift favouring the prohibition of drug use, PED use was still heavily endemic within sport (Waddington & Smith, 2000). PEDs were commonly acknowledged as being essential for sport, with some athletic teams reporting as much as 30% of team members having used PEDs (Waddington & Smith, 2000). The next two decades saw a surge in the use of PEDs through all levels of society, with reports that schoolchildren were using PEDs (Waddington & Smith, 2000). This PED influx coincided with the first Mr Olympia bodybuilding competition in 1965. This competition was (and still is) considered to be the most prestigious bodybuilding competition worldwide by crowning the "champion of champions" (Bateman & Žeželj, 2017). Since then, numerous winners have come and gone; from the likes of Arnold Schwarzenegger displaying Greek statuesque proportions to more contemporary *"mass-monsters"* dominating today's stages, characterised by a controversial amount of sheer muscular bulk. This overt portrayal of hypermasculine bodies warrants a brief consideration of gendered identities in the context of PED use.

1.1.4.1. Masculine and feminine identities and PED use

It is widely acknowledged that the representation of the masculine aesthetic consists of male figures who are well-groomed and physically “well-built”, portrayed in a manner that correlates success with a masculine body (Walker & Eli Joubert, 2011). It would be simple to associate the use of PEDs, particularly AAS, with the desire to adhere to masculine identity. Indeed, this is the suggestion made by Kotzé and Antonopoulos (2019); the use of AAS is an attempt to “hyper-conform” with societally accepted norms of the masculine aesthetic, rather than as a deviation from these aesthetic norms or a move towards a disordered masculine identity. This point is further strengthened with the perception attached to specific side effects associated with AAS – for example, the development of gynaecomastia is considered a threat to the masculine aesthetic (Monaghan, 2002). In this context, this particular physical risk can have the additional risk of experiencing shame and stigma due to this side effect, on account of transgressing a gender boundary.

However, is this expandable to the use of other PEDs? Consider the use of a substance such as 2,4-DNP. As outlined previously, this is a substance which is used to lose body fat and retain a more muscular aesthetic. On the one hand, it can be considered a tool to adhere to traditional masculine norms through showcasing an aesthetic which is low in body fat. On the other hand, the process of losing fat can be considered a feminine pursuit (Monaghan, 2002). Additionally, a distinction needs to be made regarding the perception of specific disciplines;

> Bodybuilding may be distinguished from weight-lifting since the former activity takes as its goal improvement of physical appearance (bodily display), whereas the latter pursuit is aimed at lifting a maximum weight (bodily performance). On an analytic note, this cultivation of strength for

> displayed beauty (the bodybuilder’s muscles) is suspect for non-participants because it is latently feminine, whereas beauty in the service of strength or courage (as among boxers, for example) is, by contrast, solidly masculine (Jefferson 1998: 84). (Monaghan, 2002, pg. 29, citing Jefferson, 1998, pg. 84).

In summary, reducing the use of PEDs to simply developing and reinforcing a masculine identity is overly simplistic; PED use encompasses a range of substances for a range of purposes which extend beyond muscular hypertrophy.). Additionally, PEDs are used in a variety of sports of which the concept of masculinity is not necessarily straightforward. The development of the masculine identity is complicated among those who use PEDs, as are the resultant risks.

In the context of female PED use, the literature understanding the context of female AAS use is clarified through understanding how these competitions came to be. A comprehensive overview is presented in Bunsell (2013).

Female bodybuilding competitions initially started as beauty pageants or bikini competitions, held alongside male bodybuilding competitions (Andreasson & Johansson, 2020; Shilling & Bunsell, 2009). In the 1970s, with the advent of feminist movements alongside the relative success of female powerlifting, female bodybuilding in a more recognisable modern-day form was born (Bunsell, 2013). In these competitions, female bodybuilding was more akin to the pageants previously held; women had to wear bikinis and high heels (Bunsell, 2013). During the 1980s, female bodybuilding competitions were held in what was considered the “golden age” of female bodybuilding (Bunsell, 2013). From here, female bodybuilding developed into several categories, and muscularity increased over time to the aesthetics present in modern-day female bodybuilding.

It is also critical to discuss the impact that the East German doping scandal had regarding the attitudes towards female PED use – this provides more context which develops from the points made about “moral panics” mentioned earlier. For many years, beginning in the 1950s, over 10,000 male and female athletes were subject to mandatory doping, often without their consent (Loland, Skirstad, & Waddington, 2006). These practices were kept secret until the dissolving of the USSR in 1989 (Dimeo & Hunt, 2012). One particular work which uncovers the experiences of female athletes within this system is *Faust’s Gold: Inside the East German Doping Machine* by Steven Ungerleider. This is the only monograph that focuses on these particular experiences from that time; consequently, it was widely disseminated on an international scale (Dimeo and Hunt, 2012). The specific impact the uncovering of this doping scandal, if any, upon the perception of women who choose to use PEDs has not measured. Nevertheless, it is tentatively suggested there may have been an impact due to the wide dissemination of the sole monograph available in the English language (Dimeo and Hunt, 2012) alongside the impact outlined that the disclosure of these practices had on the perception of PED use outlined in Coomber (2014).

The use of PEDs, notably AAS, by women is depicted as transgressing the boundary of societally accepted female aesthetic – by its very nature, the virilisation effects caused by AAS are considered a challenge to the traditional hegemonic masculinity (Andreasson & Johansson, 2020). Female bodybuilding is often considered a threat to traditional female identities due to this particular reason. Female bodybuilders who take steroids are considered “doubly deviant” – their pursuit for muscularity is already considered a move away from societally acceptable norms of femininity; the use of AAS, even more so (Bunsell, 2013). However, limited empirical research exists which examines the female identity in the context of non-AAS substances, as well as female AAS use outside a bodybuilding context. As mentioned earlier, the use of fat burners can be considered one that fulfils a goal traditionally considered “feminine” (Monaghan, 2002). Thus, somewhat similarly to male PED users, female identity construction and PED use is complicated.

In short – the identities of female and male PED users are complex and can result in an array of particular risks and hazards. The risks associated with PED use can extend beyond the physical and psychological side effects – the effects of being perceived as a “gender outlaw” (termed by Shilling and Bunsell, 2009) can mean an increased amount of stigma associated with both female and male PED use, as outlined above.

1.1.4.2.Problematisation and stigmatisation in non-PED and PED contexts

Despite a burst in popularity, the discussion regarding PED use for both male and female users remains very limited and seldom discussed publicly. There was an overwhelming agreement that to reach these levels of competition, PEDs use is considered essential (Bateman & Žeželj, 2017). This reluctance to publicly discuss PED use is related to the stigma associated with it. To understand this further, some context is required on the topic of stigmatisation and PED use.

Coomber (2014) provides an in-depth review of discourses relating to non-PED use and their relation to discourses surrounding PED use. The aforementioned drug testing within sports from 1968 occurred concurrently with the “moral panics” associated with the use of amphetamines and other drugs (Coomber, 2014). Drug use was not only perceived to be physically harmful; its use was also associated with perceived social and spiritual harms (Coomber, 2014). Concerning the concepts of “healthism” discussed earlier, drug use was considered a “contamination” of the social fabric comprising of purity, thus representing a deviation from acceptable societal norms (Coomber, 2014). The movement from drugs being acceptable to drugs being perceived negatively can be contextualised through the process of “problematisation”; discourses around drug use revolved around exaggeration of their effects and the negative perception placed upon the users of such substances through the propagation of particular myths associated with drugs and their users (Coomber, 2014). This problematising of drug use shaped the narratives surrounding the users of such substances and, consequently, shaped the ensuing demonisation and stigmatisation (Coomber, 2014). It is suggested that anti-drug discourses stemmed from the 1920s and gained traction during this tumultuous time of social and political strife in the 1960s (Coomber, 2014). During this time, the messages being delivered about drug use in sport were shaped by a number of events occurring at the time; for example, drug use in sport fell outside of what was deemed acceptable in amateur sport and therefore considered deviant and immoral (Coomber, 2014). Associations made between PED use and Nazi Germany, alongside Communist countries within the Cold War context further entrenched negative associations relating to PED use (Coomber, 2014). Paradoxically, this increasingly negative perception of PED use did little to stem the usage rates. It goes without saying that in the context of the early associations made from the start of anti-doping dialogues and prohibitionist drug policy, public perception of PED use is still heavily stigmatising and negative (Monaghan, 2013). Risks are presented as inevitable and severe. This homogenisation of risks associated with PED use ignores the complex interactional factors which contribute to the risks associated with PED use – factors such as individual biology, gender, dosages, compounds used and how they are cycled. Such perceptions of the risks associated with PED use give way to generalisations and stereotypes, similar to narratives presented in other drug-use contexts. Stereotypes relating to PED use include an overexaggerated mortality rate as well as discussions surrounding “symptoms” such as “roid rage” (Coomber, 2014). To give an example, one common side effect attributed to AAS use is that of “roid rage”. “Roid rage” is an alleged side effect of AAS, namely high levels of aggression and violence. Rather than acknowledging potential underlying tendencies for aggression, there is a perceived causal link between aggression and use of PEDs (Coomber, 2014). However, despite how widely acknowledged “roid rage” is, empirical data is inconclusive and not as clear cut as it may appear (Dobash, Monaghan, Dobash, & Bloor, 1999). Such stigmatisation and the feared effects from encountering it potentially contribute to the limited public discussion on PED use in bodybuilding and other strength sports from PED users. Yet stigmatisation is probably not the first risk that comes to mind when discussing the risks associated with PED use, except for those within the community. Risk perception within the community is more nuanced and complex than originally considered. To understand the risk perception associated with PED use, it is important to first understand how PED users perceive their use and the differentiation between functional and non-functional use.

1.1.4.3.Identity construction and instrumentalised PED use

To understand their perception of PED use, a brief overview of instrumentalised drug use is provided. One concept which underpins this approach to PED use is the drug instrumentalisation framework (DIF). Outlined by Müller and Schumann (2011), DIF posits that the vast majority of non-addicted individuals take drugs to further their goals. In short, drugs are *instrumentalised* to fulfil functional goals. While the context is limited to psychoactive substances, this concept applies to non-psychological goals. For example, the use of PEDs to facilitate weight loss, muscular hypertrophy or improve strength can be considered a form of drug instrumentalisation. Regardless of whether the individual is a competitive bodybuilder, powerlifter, or non-competitive gym-goer, the use of PEDs is first and foremost for the purposes of self-improvement (Monaghan, 2002). In this context, previous research outlines how bodybuilders' perspectives of PED use qualify them as "ethnopharmacologists" (Bloor, Monaghan, Dobash, & Dobash, 1998; Korkia & Stimson, 1993). This term reflects the nature of the lay expertise associated with PED use within the community, such as the particular sub-cultural understandings associated with particular compounds to facilitate their use for their particular purposes (Bloor et al., 1998). Despite technically being "drug use", the concepts of drug "use" and "abuse" are differentiated; their approach towards PED use is highlighted through a collective understanding of the "proper" way to use PEDs. Indeed, one respondent stated how, when using steroids, "…you have to be a scientist" (Bloor et al., 1998, p. 32). This term indicates the rationality and logic associated with the use of PEDs, thereby rejecting the notion that PED use is reckless and without a plan. In contrast, the "abuse" of PEDs is underlined by "…overuse, indiscriminate use and unplanned taking with an absence of control." (Monaghan, 2002, pp. 3). Notably, it was also suggested that using PEDs without a specific cycle or plan indicates a lack of discipline and not having a goal (Bloor et al., 1998).

In short; the use of PEDs is perceived to be a careful and considered choice made for the functional purpose of self-improvement rather than recreation. In this context, user perceptions concerning the hazards associated with PED use are not as black and white as conventional understandings might portray. There is a notable debate which comes into play – the role of the PED-user as a "lay expert", one who values experiential knowledge and understanding versus the exaggerated discourses surrounding risk espoused by the wider scientific community. To build upon this gap, the studies within this thesis will be considered within the context of the Risk Society Model (RSM) theoretical framework.

1.2.Theoretical Framework: Risk Society Model (RSM)

For modern society, risk is an essential aspect to understanding everyday life (Giddens, 1999). Indeed, the identification, management and risk assessment methods have encompassed many levels of modern society; from governmental and global levels through to the individualistic level (Duff, 2003). Thanks to advanced technology and science, we are now equipped with more tools than ever before to help raise our awareness of risks and hazards ever-present to us, alongside giving us tools to evaluate the probabilities of a risk becoming a hazard (Duff, 2003). However, as outlined in Beck (1992), the very existence and progress of science and technology mean new risks and hazards arise, raising questions about how helpful these institutions are in terms of facilitating growth and improving society's quality of life (Beck, 1992). A risk society model (RSM) posits that the period of late modernity is a risk-oriented world whereupon identities and bodies are constructed reflexively amidst continuous warnings to danger (Monaghan, 2002). There were two broad reasons why this particular framework was chosen to frame these results:

Firstly, the aim of Beck's (1999) RSM was to explain risk within sociocultural behavioural contexts and critique traditionally scientific and "objective" quantifications of risk assessment. Building from this, lived experience is considered a key component often ignored by scientific accounts of risk within the RSM (Duff, 2003; Lupton, 1999). Particularly in the context of substance use, separating the user's understanding of the associated risks from the context these substances are used in misses the aspects of risk navigation and perception from a lived experience perspective (Duff, 2003). One of the aims of this thesis is to move away from reductionist scientific descriptions of risks associated with PED use. Instead, each qualitative chapter aims to build an understanding of the narratives and perceptions of individuals within a PED-using context from a first-hand perspective. This importance placed on lived experience gives theoretical justification for the empirical works within this thesis. This leads on to the second reason for the application of the RSM: a focus on the debate between “lay” and expert perspectives.

1.2.1. Risk perception and PED use

A fundamental tension between the “scientific” and “lay” groups outlines how both conceptualise risk. The scientific understanding of risk is that of a “problem”: risk assessment is objective, rational and consists of a perhaps “cold” calculation of probabilities and hazards though “expert authority” (Beck, 1992). In this context, risk assessment can be considered to be a way to organise and perhaps dictate personal conduct and actions to improve personal wellbeing (Duff, 2003; Petersen & Lupton, 2000). In contrast, the lay perceptions of risk appear to be grounded in the direct understanding of risk; rather than avoiding risk, risk is a concept to be experienced, perceived, considered and managed; therefore, risk assessment is pragmatic and functional (Duff, 2003; Fox, 1999). In response, a growing emergence of a different level of knowledge and risk assessment has arisen through the form of a lay understanding of risks. This tension creates a conflict in the quest for obtaining legitimacy between the concept of “expert” versus “non-expert” (Duff, 2003);

> In restricting itself to the purportedly objective and rational dimensions of risk, the science of risk assessment discounts the subjective and situated experience of risk, despite the fact that risk is always encountered within specific social contexts. Beck notes that this process has been compounded by the propensity for scientists to regard any opposition to

> expert risk discourses as irrational and ignorant. For scientists, the problem of risk is a problem of information and how it is disseminated; and so risks may be overcome through the more widespread dissemination of this expert information. Lay actors, conversely are increasingly wont to dismiss this information as irrelevant, misguided or worse, ideologically motivated, because of the way it ignores changes in the ways risks are experienced in diverse cultural settings. (Duff, 2003, p. 292).

This notion is congruent with the context discussed earlier relating to the heavily negative stereotypes and perceptions of PED use and users. The two key justifications for contextualising the thesis through a RSM now enable an overview to be provided regarding the use of the RSM in a PED-use context.

1.2.2. Risk society and PED use context

The applicability of the risk society lens to the PED using population has been covered in substantial depth through Monaghan (2002). This was an ethnographic qualitative study to understand how PED-using bodybuilders in South Wales sustain their "risky" practices and how they construct and maintain their bodies and identities pursuing their choice of activity. This is one of the few empirically grounded works which emphasises the importance of gaining and exploring the lived experience of these participants to better understand their choices. Here, the argument is made that chemical bodybuilding is a "technically sophisticated way of making muscular bodies." (Monaghan, 2002). The use of PEDs is seen as a controlled and carefully considered decision made for self-improvement. The processes of risk management are highly individualised and supported by dialogue relating to social responsibility and being competent technically. Within this context, bodybuilder participants went to great lengths to limit the potential for bodily and psychological harm which could arise from their use of PEDs. Narratives concerning the definition of harm and risk and how these risks are managed and experienced within this population require exploration in greater depth through understanding the lived experiences and narratives within a PED-use context. Through this understanding, user-oriented harm reduction initiatives can be developed through understanding their experiences and perspectives and remain congruent with the principles of co-production, which value the lived experience and perspectives of those within affected communities for the creation of meaningful interventions.

1.3. Harm reduction

Harm reduction is a public health philosophy initially developed for adults with substance use issues where abstinence was not feasible. Sex education for adolescents in the context of sex education is an example of its success outside of a drug use context (Leslie, 2008). The core objective is to reduce harms from potentially risky behaviours (Leslie, 2008). This paradigm has two key underpinning concepts associated with it; firstly, the focus remains on the outcomes of substance use, rather than the use itself. Secondly, the primary objective is to reduce the adverse outcomes associated with use, regardless of any reduction or non-reduction in use (EMCDDA, 2010). Just as there are a plethora of associated harms with substance use, harm reduction is implemented in numerous ways (EMCDDA, 2010). For example, needle exchange services are perhaps the most familiar; through their implementation, annual decreases in HIV rates have been documented (Amundsen, 2006). In terms of effectiveness, the literature documents notable declines in morbidity and mortality associated with potentially risky behaviours through the implementation of harm reduction methods and principles (Leslie, 2008).

Understanding the challenges and perceptions of those using PEDs and the surrounding societal groups can potentially inform harm reduction policies. It is well-established that understanding "first-hand" the experiences from the perspectives of stigmatised groups is crucial to inform meaningful interventions (McKeown et al., 2014; Penny, Slay, & Stephens, 2012). This is the concept of co-production (Penny et al., 2012; Seymour, 2017).

1.3.1. Co-production: Lived experience and intervention creation

Co-production in healthcare settings is the active involvement of those with lived experience of a condition or behaviour in the design, delivery and monitoring of services (Seymour, 2017). Co-production works upon the premise that individuals with lived experience of a particular condition or behaviour are best placed to advise what support and services will make a difference in their lives (Seymour, 2017). The benefits from a service-user perspective include empowering those who require these services alongside improving the quality and efficiency of services (McKeown et al., 2014; Penny et al., 2012). One case study on a secure ward demonstrates how co-production helped decrease the number of incidents on alongside reducing the average length of stay (McKeown et al., 2014).

Additionally, co-production of services facilitates an improved relationship between service users and professionals by acknowledging the "expert-by-experience" role service users bring, thus moving away from the assumption that only professionals can be experts (Penny et al., 2012). one study describes a co-production approach to designing harm reduction materials for injecting drug users (Hussey et al., 2019). The process outlined emphasised the impact and importance of including individuals with lived experience throughout the design process. The involvement of service users throughout the project helped decrease the likelihood of stigmatisation and potential alienation, thereby improving engagement (Hussey et al., 2019). Co-productive principles assert that those with lived experience of PED-use, or in contact with PED-users, are often best equipped with the skills and knowledge to implement effective interventions (Hussey et al., 2019). The results of this thesis can add to the knowledge base upon which pragmatic and feasible co-productive harm reduction initiatives can build. Through outlining the experiences and perceptions of a group who are self-professed experts through experience, services can help implement harm reductive interventions and provisions. To do this, we need to understand, beyond the conventionally acknowledged health-focused hazards, what risk and harm mean in a broader PED-using context.

1.3.1.1. PED use and available interventions. Currently, limited resources exist for harm reduction for experienced PED users (Bates, 2019). Bates (2019) offers a comprehensive review of the limited number of interventions specific to PED use. This review outlined 14 distinct interventions. The majority of these interventions were preventative and predominantly aimed at young athletes. Of all 14 interventions outlined, only one was found to contain a significant number of individuals who used AAS (Jalilian, Allahverdipour, Moeini, & Moghimbeigi, 2011). Even within this study, only 20% of participants used AAS (Bates, 2019). This study used the theory of planned behaviour to create and disseminate an educational program for PED-users and non-PED users. The aim was to reduce AAS use and, therefore, reduce potential harms associated with AAS use. Of note are the findings of this interventional study; there was a notable decrease in individuals who used AAS within the interventional group compared to the control group (Jalilian et al., 2011). Effectively, the end goal of the intervention was achieved. However, it remains unclear whether participants who were using AAS at the time were considering coming off beforehand. Furthermore, it is unclear whether the intervention was co-produced with those who use PEDs or not. This lack of specific interventions, combined with a lack of experiential narratives concerning PED use in the literature, indicate further research is required to create an experiential foundation upon which such interventions can develop (Monaghan, 2013).

1.4. Research question, aims and objectives

Current literature extensively outlines the medical and psychological side effects arising from PED use, often from a heavily exaggerated and negative perspective (Coomber, 2014; Monaghan, 2009). However, there is a shortage of lived experience accounts concerning what they perceive to be a risk, how they manage it, and how they navigate it. This thesis sets out to answer the question: Through exploring lived experiences, how is risk perceived, navigated and experienced in the context of PED use? Figure 1 demonstrates the studies in the context of the research question.

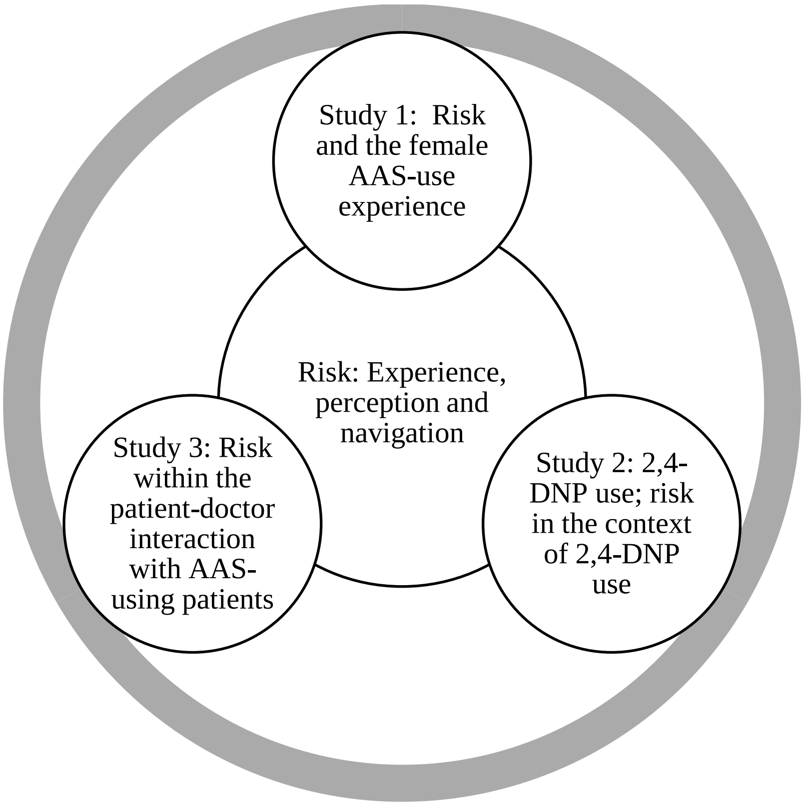

Figure 1. Diagram demonstrating each study in relation to the research question. AAS: Anabolic-Androgenic Steroids, 2,4-DNP: 2,4-Dinitrophenol.

Each study aims to explore the navigation, experiences and perceptions of risk in the context of PED use. The inclusion of different participant cohorts builds narratives of risk from different perspectives and in different settings. Three different participant cohorts, backgrounds and perspectives give a more holistic overview regarding risk and PED use.

1.4.1 Outline of empirical chapters and the gaps they address

Each study was conceptualised inductively. The aim was not to work within a pre-planned framework using testable hypotheses. Rather, the goal was to organically develop a series of qualitative studies which aimed to explore specific facets of the PED-using experience within the framework of the research aims and objectives. The ideas for each study came about from information within interviews or were identified through gaps in the literature. The order within this thesis does not reflect chronological order. It instead aims to provide a narrative moving from the idiographic and individualised approach to a more environmental and community-based perspective.

1.4.1.1. Chapter 3 (Study 1).

Chapter 3 is an empirical chapter which chronologically describes the female experience of AAS use. This Interpretative Phenomenological Analysis (IPA) interview study outlines the challenges, experiences and perceptions of women who have, or currently use, AAS. Women who use AAS are an understudied group within the context of PED-focused research. For the first time, this study delves into aspects of AAS use that transcend the health implications; this study explores the impact upon the feminine identity throughout AAS use.

1.4.1.2. Chapter 4 (Study 2).

Chapter 4 is an article outlining the attitudes and perspectives of those who use 2,4-DNP. This was the first time an interview study had been done with those who use 2,4-DNP. The identified risks with 2,4-DNP use originate primarily from the lack of an antidote in the event of an overdose, combined with a relatively rapid build-up in the human body. Exploring the attitudes and perceptions towards 2,4-DNP uncovers essential aspects of disclosure and intra-community perspectives towards acceptable levels of risk and risk mitigation, building from the idiographic approach outlined in the first study in chapter 3.

1.4.1.3. Chapter 5 (Study 3).

The last empirical chapter is a thematic analysis exploring the patient-doctor interaction between doctors and AAS-using patients within the UK. This study is the first time both perspectives explored concurrently. Through exploring both sides, risks and risk mitigation within the clinical interaction for each cohort can reflected upon concurrently. The risks present within this empirical chapter extend beyond those within the community itself; the perception and experiences of physicians give a different dimension to risk and offer a comparative point for risk from an out-group perspective.

Chapter 2: Methodology

This section will provide an overview on the qualitative theoretical frameworks used within each study. Following this, information will be provided to explain in further detail the specific methods used within each study.

2.1. Qualitative theoretical framework

Qualitative research offers the opportunity to explore and understand the perspectives and experiences of participants through their own words, particularly the perspectives of those who are often silenced (Creswell & Poth, 2016). Qualitative methods enable a deeper understanding of relatively unexplored phenomena and the contexts they occur in (Creswell & Poth, 2018). Additionally, the author's access to this hard to reach population enabled exploration of these novel narratives in greater depth. Using qualitative methods facilitated these population cohorts to share their experiences and perspectives concerning risk and hazards in greater detail.

2.1.1. Ontological position

The ontological position of this thesis is subjectivism. The subjective paradigm posits that people experience their position within the world as a result of many factors (O'Gorman & MacIntosh, 2015). Reality is comprised of the perceptions and interactions of individuals. Two different individuals can experience the same event differently. The papers within this thesis set out to outline the experiences and attitudes of both ingroup and outgroup participants of the PED-using community. Participants were recruited from different gender groups, different parts of the world (and subsequently differing cultural groups), different athletic disciplines and professions, amongst other factors. Though the majority of participants used PEDs in the empirical chapters, experiences and perspectives differ amongst them.

2.1.2. Epistemological position

This thesis is epistemologically situated within an interpretivist paradigm. Interpretivism differentiates knowledge-gathering between the human and natural sciences (O'Gorman and Macintosh, 2015). The key difference is between explanation (for the natural sciences) and understanding (for human behaviour). Weber (1924) asserted that the causal-inference knowledge-gathering process in the natural sciences is unsuitable for the exploration of human experiences due to factors such as human free choice. As such, the same version of events perceived through different eyes can be true at the same time (Rubin & Rubin, 2011). Consequently, qualitative research methods help explore these different perspectives and experiences. Research methods tend to be naturalistic and often involve in-depth interviews, participant observation and other data collection methods. Due to the nature of qualitative inquiry, the researcher is the main component of data collection. Through the researcher, experiences, perspectives and other forms of data are interpreted and subsequently disseminated. In accordance with this paradigm, a reflexivity and positionality statement is included below.

2.1.3. Reflexivity and positionality statement

I am a married British-Asian female in her late twenties. Until recently, I was a top-ten nationally ranked female powerlifter who has also competed in a bodybuilding event. I have been involved in strength sports for almost a decade before my recent retirement. I have competed alongside many people, including those who use PEDs and those who do not. During this time, I have forged networks and friendships, which enabled me to gain access to participants in this otherwise hard-to-reach group. My position within the community also equipped me with necessary knowledge and understanding of the dynamics and taboos within this community. Of note were the numerous accounts surrounding PED use characterised by stigmatisation and fear of not being heard. The accounts and perspectives of those who use PEDs influenced my research; I was keen to get their perspectives and experiences across and examine them in greater detail. My initial observations led me to see how their perspectives were missing to those not within the community. Accounts and information relating to PED use were, more or less, contained within the community itself. Dissemination outside the community was rare, due to the fear of stigma. Meanwhile, the information about the risks and dangers of PED use from a non-PED context appeared overwhelmingly negative and stigmatised. Media discussions focused almost entirely on deaths or doping when it came to PED use. The community is very close-knit and can be wary of "outsiders" – indeed, efforts to recruit initially by not stating my background were fruitless, as individuals thought I was a journalist looking to "badmouth" participants. I noticed that to recruit and create rapport successfully, I needed to explain my background and competitive experience to create common ground and connections with potential participants.

2.2. Methods

This section offers a broad overview of the methodological practices used across each study and offer insight into the use of different analytical methods. Detailed procedural information is available within each specific empirical chapter.

2.2.1. Ethical considerations

Each study underwent the necessary ethical protocols before commencing any data collection (see appendices for the relevant ethical approvals). The key underlying ethical aspect related to participants being in a stigmatised population and dealing with sensitive stigmatised topics. Throughout each study, measures were put in place to ensure that the anonymity of participants was preserved. These methodological considerations are outlined below, as well as in each chapter.

2.2.2. Recruitment

Recruiting participants from these population groups is challenging – the main problem arises from the stigma attached to the use of PEDs. In this context, the topic is sensitive and needs careful navigation. Research is sensitive if "…it requires disclosure of behaviours or attitudes which would normally be kept private and personal, which might result in offence or lead to social censure or disapproval, and/or which might cause the respondent discomfort to express." (Wellings, Branigan, & Mitchell, 2000, p. 256). In this context, PED use is a hotly contested and heavily stigmatised behaviour with many negative assumptions attached to it. Consequently, these participants can be hard to reach and challenging to recruit. Combined with occupational sensitivities, the associated legality of use (depending on the country of residence) and even within-community stigma and conflicts, disclosure of experiences and attitudes can be a barrier for research. This element is not uncommon to participants of other hard-to-reach populations (Liamputtong, 2015). As such, researchers have to consider their recruitment methods carefully.

Snowball sampling was used for each empirical study. Snowball sampling enabled a chain reaction of recruitment. My position within the community was one of familiarity; individuals knew me as a competitive powerlifter and researcher. My position allowed me to gain access to those who might not have been so open to divulging their experience. This familiarity helped build trust and rapport between myself and the community. Often, I recruited virtually; this enabled access to a more diverse range of participants from around the world, thereby obtaining different sociocultural perspectives without being limited to locality. More specific online recruitment information is detailed within each chapter.

2.2.2.1. Recruitment from different gym-going cohorts. I made the decision to recruit from a wide range of athletic backgrounds. My participants comprised of amateur and elite-level powerlifters and bodybuilders, coaches and recreational gym-goers. This was deliberately done to explore the experiences and perceptions without limiting myself to one specific gym-going participant groups. Widening my participant cohort enabled me to incorporate a greater range of perspectives which might not have been possible if I had focused on a specific group. Additionally, I was able to explore both aesthetic and performance-based aspects of PED use, which can often overlap.

2.2.2.2. AAS and 2,4-DNP focus. As mentioned in Chapter 1, I chose to focus on two specific compounds: AAS and 2,4-DNP. AAS have been chosen as they are one of the most commonly used, if not the most commonly used PED within the gym-going community (Ainsworth, Shelley and Petróczi, 2018). Notably, the legalities associated with personal possession of AAS in certain countries (such as the UK) mean they exist within a "grey area" of acceptability. This, combined with a lack of understanding regarding female AAS use justify the focus remaining on AAS for two of the three empirical chapters within this thesis. In the context of 2,4-DNP use, its use remains stigmatised and polarised even within this specific community. The "high risk, high reward" nature associated with its use, alongside the relatively little-understood potential physical implications arising from its use, make it extremely controversial within the community itself. Very few PEDs have such a reputation associated with them. Having two groups of substances provides an opportunity to reflect on the similarities and differences in risk perception and navigation through exploring experiences of their use.

2.2.3. Data collection

As per the previous section, naturalistic interviews are a commonly utilised method of data collection for qualitative studies. Interviews enable a rich and detailed description of the topic or action in question through the use of an organic interview structure (Rubin and Rubin, 2012). The term organic reflects how the questions are in no fixed order; instead, it is context and participant dependent. Particularly with these stigmatised populations, interviews give participants the ability to frame their attitudes and experiences in their own words (Liamputtong, 2015). The flexibility and fluidity afforded by qualitative interviewing methods enable participants to set the pace and schedule of the interview. Empirical studies within this thesis used open questions to collect rich and detailed data that follow a fluid interview question schedule. Interviews were audio-recorded and transcribed verbatim. Study 2 was self-transcribed, whereas a professional transcription service was used in studies 1 and 3. Specific interview protocols are available within each empirical chapter and are attached as appendices.

2.2.4. Data analysis

Two types of qualitative analysis were done throughout this study: Study 1 used Interpretative Phenomenological Analysis (IPA) while study 2 and 3 used Thematic Analysis (TA).

2.2.4.1. Interpretative Phenomenological Analysis. IPA is a framework which provided shape and structure to the analysis of their experiences. IPA was chosen in contrast to thematic analysis as the focus was on a specific phenomenon; namely, that of female AAS use. The phenomenological emphasis on the experiences and perceptions of the experiences also justified the use of IPA. I wanted to focus on the experience of each woman and understand her own experiences on an individual level throughout her journey of AAS use. IPA's idiographic focus enabled me to do exactly this. Thematic analysis for the other two chapters enabled a more "generalised" approach which enabled exploration of a broader range of factors and perspectives (such as outgroup and ingroup perceptions, the media and other aspects).

2.2.4.2. Thematic Analysis. Thematic analysis offers a flexible approach to qualitative data analysis without adhering to any specific theoretical framework (Braun, Clarke, Hayfield, & Terry, 2019). Three core "schools" of thematic analysis exist as per Braun et al. (2019); coding reliability approaches, reflexive analysis and codebook thematic analysis.[4] Study 2 utilised codebook thematic analysis. A codebook approach is defined as being in between a more positivistic coding reliability approach and a more constructionist reflexive approach. Two key reasons justify the use of this approach: Firstly, as this was my first qualitative study, a codebook approach was deemed the most suitable as it provided a more guided analysis for the interviews. Secondly, codebook thematic analysis is a valid method for when more specific research questions want to be answered while undertaking a more structured reflexive analytical approach without undertaking more positivistic quantified reliability analytical approaches (Braun et al., 2019; Braun & Clarke, 2006). This study aimed to understand specific facets related to 2,4-DNP use. The

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[4] A coding reliability approach aims to provide a more "quantifiable" and generalisable method of TA through the measurement of coding agreement across multiple coders. See Braun, Clarke, Hayfield, & Terry (2019) for more information.

codebook served as a “roadmap” for the study, mapping out pre-determined “points of interest” in line with the research questions whilst thematic generation remained a fluid and flexible process. My position within the community afforded me the opportunity to amend the codebook as necessary; I was able to take into consideration specific areas of discussion which could potentially be missed by those without this underlying knowledge or understanding. Therefore, I was careful to ensure that the codebook reflected aspects of the participant’s reality. This ensured the codebook retained the reflexive qualities valued by Braun et al (2019).

Study 3 used an open-ended coding reflexive coding approach. This study utilised two cohorts; one cohort of AAS-using patients and one cohort of physicians. This study benefitted from a more open reflexive approach due to the complexity and diversity of experiences and ideas presented within the data. Having this reflexive approach enabled constant revisiting and reconceptualizing of concepts and codes throughout the study, thus enabling more iterative and fluid conceptualizations of the interview data. This was important, as this was an exploratory study of a phenomenon that was not examined qualitatively until recently.

Chapter 3: The female experience of AAS use

Preamble

This chapter is formatted as a manuscript which is being prepared for submission to Qualitative Research in Sports, Exercise and Health. This study is the first of the empirical chapters within this thesis as it moves from the more idiographic to the less idiographic. All participant information within this manuscript was up to date at the time of interview.

Fragile femininity: An Interpretative Phenomenological Study exploring the lived experience of women who use AAS

3.1. Abstract

Little research exists which explores the experiences of female AAS use from their perspective. This study aims to explore the experiences, perceptions and perspectives of female AAS users qualitatively. Snowball sampling resulted in four women volunteering their participation in the study. Using Interpretative Phenomenological Analysis (IPA), four superordinate themes clarify the experiences and narratives detailed by the participants: preparation and anxiety (before AAS use), deviation from feminine identity (during AAS use), the turbulence of cessation (end of AAS use) and rediscovering femininity (post-AAS cessation reflections). The results show the complicated reflection and framing of the feminine identity by participants throughout their AAS use. Each participant anticipated negative side effects, but this did not stop negative emotional feelings arising from them. This study is the first time an in-depth exploration of the AAS-using journey from a female perspective through illuminating the impact of AAS use on women, thus providing information which could prove beneficial for harm reduction purposes.

3.2. Introduction

In the context of human enhancement, definitions of what is normal or deviant continuously evolve; consequently, we cannot use historical norms or values to define boundaries for human enhancement practitioners. In modern times, the perception of the body has shifted from being an unmodifiable entity to an adaptable medium capable of fitting the desired look, function or experience and potentially surpassing ‘normality’ (Lipovetsky & Charles, 2005). Exponential advances in medicine, pharmacology and technology have made pushing the boundaries through human enhancement more accessible. However, such practices raise questions about fairness and their impact on health and wellbeing. Human enhancement impacts regulatory bodies and healthcare in caring for individuals using performance-enhancing drugs (PEDs) (Ainsworth, Vargo, & Petróczi, 2018; Brennan, Wells, & Van Hout, 2014; Hogle, 2005; McVeigh, Evans-Brown, & Bellis, 2012; Menuz, Hurlimann, & Godard, 2013; Sagoe et al., 2015). They can potentially impact individuals' health and wellbeing and challenge governance within sport and society. One widely used group of PEDs are anabolic-androgenic steroids (AAS) (Ainsworth, Shelley, & Petróczi, 2018).

3.2.1. AAS context

AAS are synthetic substances which are structural modifications of the testosterone molecule (Ainsworth et al., 2018; Kanayama & Pope Jr, 2018). These structural modifications maximise the anabolic or androgenic aspects of each compound (Kicman, 2008). In particular, the gym-going community use AAS for their ergogenic effects (Ainsworth et al., 2018). These include increased muscular hypertrophy, improved central nervous system neural transmission, and improved bone density (Hoffman & Ratamess, 2006). However, there are also a plethora of potential adverse effects, including adverse cardiovascular effects (e.g., such as transient high blood pressure and adverse lipid profile changes), psychological aspects (e.g., mood changes), and sexual dysfunction (Hoffman & Ratamess, 2006). AAS are used in cycles. In this context, a 'cycle' (or 'cycling') is a term which describes the duration of AAS use (Ainsworth et al. 2018). Cycles can be as short as four weeks, through to lasting many years without a break. Specifically, the cycle duration depends on the substances used, the purpose of the cycle and individuals' personal choices relating to their AAS use (Ainsworth et al. 2018).

Literature evidence suggests prevalence usage rate of approximately 3.3% of the population, with a higher prevalence of 6.4% among males (Sagoe, Molde, et al., 2014). The general view of AAS use - despite the relatively low prevalence rate – is that it is a growing public health concern (Kanayama, Hudson, & Pope Jr, 2008; Nicholls et al., 2017) partly because it is often associated with potential health and psychological consequences (Sagoe, Molde, et al., 2014; Yesalis, 2001).

3.2.1.1. Female AAS use context. Comparatively speaking, male AAS use and its effects are understood better than female AAS use (Monaghan, 2002). A vast array of quantitative studies exists within the medical literature concerning male AAS use, primarily focusing on secondary male hypogonadism (Monaghan, 2002). This discrepancy possibly stems from the relatively low prevalence rate of female AAS use. Sagoe et al. (2014) quantify this at 1.6%, compared to the relatively higher rates (6.4%) of male AAS use. For women, AAS use can additionally induce virilisation. Virilisation is the development of masculine features in a female individual (Ainsworth et al. 2018). Figure 2 is a diagram outlining some of the potential symptoms of virilisation.

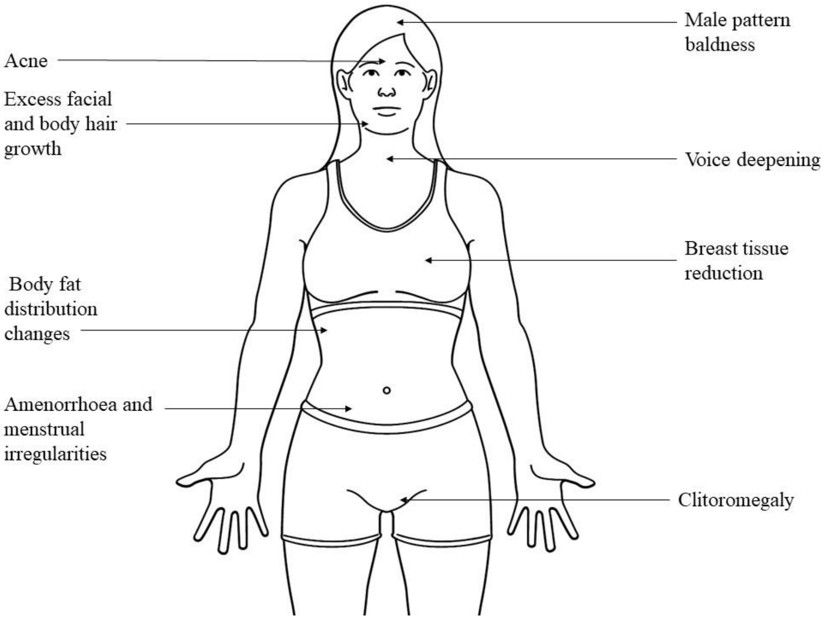


Figure 2. Labelled diagram showing potential virilisation effects of AAS

Despite some understanding of female AAS use (Kanayama, Boynes, Hudson, Field, & Pope Jr, 2007), to date, little research has been conducted to understand the extent and nature of female AAS use further. The small amount of existing literature tends to focus on the physiological aspects of female AAS use (Abrahin, Souza, de Sousa, Santos, & Bahrke, 2017; Kicman, 2008; Nieschlag & Vorona, 2015). However, there is little to no direct detailed research exploring the phenomenon of female AAS use itself; the decision-making processes, the navigation of side effects, and the processes of starting and coming off AAS. The stigma attached to female AAS use means very few women are willing to discuss their AAS use. Some studies have outlined the challenges which face women who use AAS. For example, Monaghan (2002) highlighted how societal ideals of femininity are a constraining effect on female AAS use – muscularity and the development of secondary male characteristics is not deemed part of the feminine ‘norm’. Consequently, this could impact the prevalence rates and available accounts. In a 2-year long ethnographic study exploring the female bodybuilder as a ‘gender outlaw’, Shilling and Bunsell (2009) outline how guarded females were when talking about bodybuilding drug use:

> Female bodybuilders are, unsurprisingly, guarded when discussing drug consumption and this has been a difficult issue to deal with in this paper. The number of dedicated female bodybuilders in the UK is small and any details of drug use/experience would place them at a risk of identification. While not ignoring the issue, we have focused on other dimensions of the transgressions of these women… (p. 156).

3.2.1.1.1. Research question, aims and objectives. This omission of female experiences means a critical aspect of feminine identity and experience in this community is missing within the literature, alongside the impacts the use has on health and wellbeing for women. The current study uses interpretive phenomenological analysis (IPA) to explore the lived experience of female AAS users and thereby fill this gap. The primary research question is: how do female AAS users navigate and experience their AAS use through different phases of the journey? The purpose of this study was to explore in-depth these experiences for each participant within their own words.

3.3. Materials and methods

3.3.1. Research approach: Interpretative Phenomenological Analysis (IPA)

To best address the research questions, IPA was selected due to its ability to yield rich subjective accounts (Smith, Flowers, & Larkin, 2009). IPA provided the methodological toolkit to explore each participants' lived experience through case-by-case systematic analysis preceding whole-case analysis (Smith et al., 2009; Smith & Shinebourne, 2012). Three core concepts define IPA; firstly, the phenomenological component defines the detailed examination of a participants' lived experience and social world (Smith et al., 2009). Narratives are created descriptively (observing the lived experience without assigning meaning) and interpretatively (creating a narrative through revealing and interpreting the lived experience) without attempts to make them objective (Peat et al., 2019). Secondly, the double hermeneutic component defines meaning-making via a fusion of participant and researcher perspectives (Peat et al., 2019; Smith et al., 2009). The participant reflects and comprehends their world and experiences, and the researcher makes sense of these very reflections and sense-making accounts (Peat et al., 2019;

Smith et al., 2009). The final element of IPA is its idiographic approach. Each participant is examined as an individual case and thereby 'bracketed off' before moving to the next case (Peat et al., 2019; Shinebourne, 2011; Smith & Shinebourne, 2012).

3.3.2. Recruitment and selection

Recruitment commenced after obtaining ethical approval from the Faculty Research Ethics Committee (see appendix A). Contact was made on social media groups using the lead authors' established networks. These networks were chosen as she had established rapport with this niche community (as in Ainsworth et al., 2018) thus facilitating recruitment processes through pre-existing trust and familiarity (Liamputtong, 2007). This method of opportunistic purposive sampling is in line with IPA's philosophy; women with direct experience of AAS use could volunteer to share their lived AAS-use experience (Shinebourne, 2011; Smith et al., 2009). The inclusion criteria consisted of being female, fluent in English, over 18 years of age and having experience with using and coming off AAS. No specific cultural, ethnic, age or other demographic identifiers were used in order to understand experiences from different groups.

3.3.2.1. Participants. Four women volunteered their participation. Table 4 provides a contextual synopsis of each participant. Pseudonyms used throughout anonymise participants. Each description consists of information given by the participant during the interview, including demographic information. The information within these passages was current at the time of the interviews.

Table 4

Participant synopses at the time of interviews

Name	Synopsis
Anna	Anna is an early forties white British female from England who currently works within a people-facing sales role. At the time of the interview, she was in a relationship. She is a competitive powerlifter, having started using AAS several years back to help recover from an injury. She did not take any breaks from AAS during this timeframe. At the time of the interview, she had been off-cycle for several months.
Jenny	Jenny is a married 30-year old Caucasian powerlifting coach who resides in the USA. She is a retired elite-level female competitive powerlifter. At the time of the interview, Jenny was pregnant with her first child. She has been using AAS on and off for several years, before coming off AAS permanently earlier last year.
Sandra	Sandra is a single early fifties Caucasian woman living in the USA who works in a people facing sales role. She is also an amateur competitive female physique bodybuilder. Sandra has been competing in women's physique for several years. Her AAS use has been on and off, depending on the goals of her training cycle.
Alice	Alice is a married late 20's Asian-American competitive amateur female bikini bodybuilding competitor residing within the USA. She has recently completed graduate school. She has been using AAS on and off for multiple years. She has always enjoyed fitness, alongside musical hobbies.

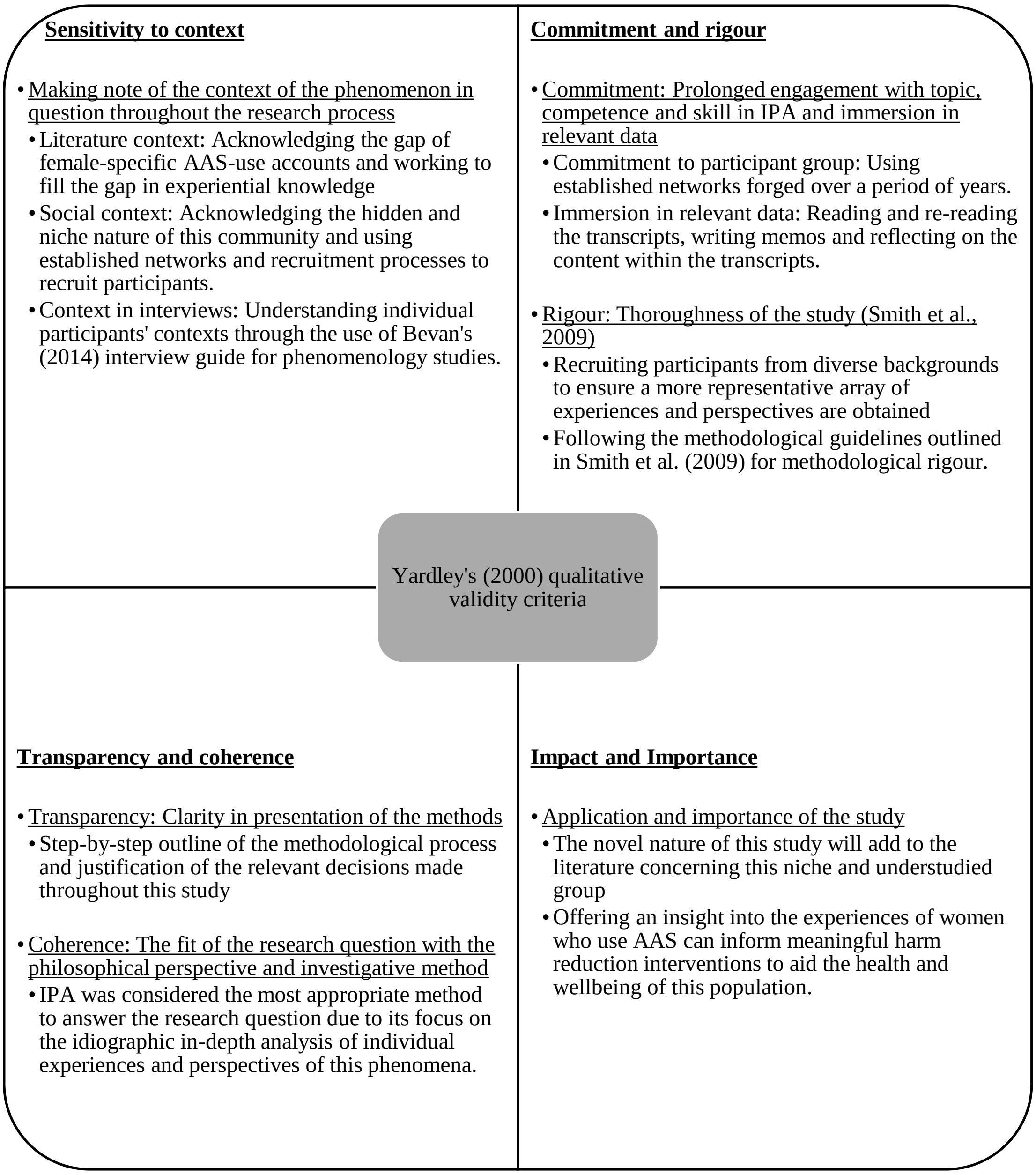
3.3.2.2. Data Collection: Semi-Structured Interviews. The interview guide consisted of semi-structured questions (see appendix B for the interview guide). The interview structure based on Bevan's (2014) interview structure provided a multi-faceted guide for the interviewer. However, this acted as a general guide, keeping in line with the principle in IPA that interviews are flexible and guided primarily by the participant (Smith et al., 2009). Throughout the interview, each participant answered the questions as per their individual focus and experiences in no particular order. While each participant was asked similar questions due to the topic area (e.g., ‘How did you start using AAS?’), specific probing questions were asked to provide greater detail on their individual perspectives, reflections and experiences.

Contextualisation questions were asked as per the Husserlian approach that experiences within a participant’s lifeworld stand out against a contextual backdrop (Husserl, 1970). As stated in Seidman (2006), interviews need to develop via a point of providing context to give a focal point for these experiences. Contextual questions focused on understanding their training history (e.g., ‘Tell me about how you got into training?’). These gave crucial insights into their motivations for AAS use. Other questions explicitly focused on their experiences of their AAS use. These questions were open-ended and focused on the effects of AAS (‘What side effects did you get from AAS?’) as well as the effects of coming off AAS (‘Tell me about what coming off AAS was like for you?’). These questions enabled each participant to focus on the particular aspects they perceived to be most pertinent for them, thus keeping in line with the idiographic approach of IPA. Finally, imaginative questions added a more dynamic element to the interview (Bevan, 2014). Bevan (2014) suggests implementing individualised imaginative questions to explore the stability of the phenomenon in question. Through visualising the same phenomenon in a different context, key insights were gathered, providing a unique perspective of their experiences (Bevan, 2014). All interviews were conducted via video or phone calls due to participants' locations. Participants chose the interview format. The mean interview length was 42 minutes. After each interview, memos were made by the interviewer to note immediate reflections. After data collection was completed, data analysis began.

3.3.2.3. Data Analysis: Interpretative Phenomenological Analysis.

Following the process outlined by Smith et al. (2009), each transcript was firstly read and reread multiple times. This was followed by inductive and in-vivo line by line coding concurrent with initial analytical observation generation. Iterative coding and analytical observations continued throughout this initial stage. Secondly, after coding finished, the initial emergent thematic generation occurred. Codes of conceptual similarity were thematically grouped and inter-code connections explored in greater detail. Once codes were organised thematically, inter-theme connections were analysed alongside the researcher's analytical observations. Thirdly, once thematic analysis was complete, analysis of this participant was considered completed. This case was subsequently bracketed and the next case was examined following the procedure outlined above. Each case was individually analysed on its basis before the final step of between-case comparison occurred through superordinate theme generation. The generation of superordinate themes facilitated pattern recognition and observing and reflecting upon any individual differences between participants. Creating a narrative account including verbatim excerpts from participant's transcripts, alongside the researcher's analytical commentary, facilitated this stage.

3.3.2.4. Rigour. The guidelines for rigour outlined in Smith et al. (2009) are Yardley's (2000). Briefly, Yardley (2000) presented four broad principles which good rigorous qualitative research is comprised of sensitivity to context, rigour and commitment, transparency and coherence and lastly, impact and importance. Figure 3 outlines the application of these principles to the current study.



Sensitivity to context

- Making note of the context of the phenomenon in question throughout the research process
  - Literature context: Acknowledging the gap of female-specific AAS-use accounts and working to fill the gap in experiential knowledge
  - Social context: Acknowledging the hidden and niche nature of this community and using established networks and recruitment processes to recruit participants.
  - Context in interviews: Understanding individual participants' contexts through the use of Bevan's (2014) interview guide for phenomenology studies.

Commitment and rigour

- Commitment: Prolonged engagement with topic, competence and skill in IPA and immersion in relevant data
  - Commitment to participant group: Using established networks forged over a period of years.
  - Immersion in relevant data: Reading and re-reading the transcripts, writing memos and reflecting on the content within the transcripts.
- Rigour: Thoroughness of the study (Smith et al., 2009)
  - Recruiting participants from diverse backgrounds to ensure a more representative array of experiences and perspectives are obtained
  - Following the methodological guidelines outlined in Smith et al. (2009) for methodological rigour.

Yardley's (2000) qualitative validity criteria

Transparency and coherence

- Transparency: Clarity in presentation of the methods
  - Step-by-step outline of the methodological process and justification of the relevant decisions made throughout this study
- Coherence: The fit of the research question with the philosophical perspective and investigative method
  - IPA was considered the most appropriate method to answer the research question due to its focus on the idiographic in-depth analysis of individual experiences and perspectives of this phenomena.

Impact and Importance

- Application and importance of the study
  - The novel nature of this study will add to the literature concerning this niche and understudied group
  - Offering an insight into the experiences of women who use AAS can inform meaningful harm reduction interventions to aid the health and wellbeing of this population.

Figure 3. Diagrammatic summary of qualitative validity criteria (defined by Yardley (2000)) applied to this study.

3.4. Results

This section presents four subordinate themes in chronological order of the AAS-use narrative. The analysis resulted in four superordinate themes. These are presented in Table 5 .

Table 5

IPA superordinate themes and subordinate themes

Superordinate themes	Subordinate themes
Preparation and anxiety (before AAS use)	• Making the decision to use AAS • Anxiety regarding threats to femininity • Control and boundaries
Deviation from feminine identity (during AAS use)	• Gradual onset of side effects • Discomfort and pain of virilisation
The turbulence of cessation (end of AAS use)	• Making the decision to come off AAS • Emotional upheaval • Dissipation of virilisation
Rediscovering femininity (post-AAS cessation reflections)	• Shifting of identities and new norms • Body image and function perceptions • Coming off, health and fertility

3.4.1. Preparation and anxiety (before using AAS)

This section uncovers the preparation undertaken and the anxieties experienced by the participants before beginning their AAS use. These are categorised under the subordinate themes of making the decision to use AAS, the anxiety regarding threats to femininity and aspects surrounding control and boundaries.

3.4.1.1. Making the decision to use AAS. All participants began their training journeys without intending to use AAS. Reasons for starting strength training varied. For example, Alice explained the influence of social media in this decision-making process:

> …I'd always been kind of like active, I like ran… but I wasn't like super happy with how I looked, I saw lots of images on my Pinterest and like Instagram about all these beautiful women, so I was like "okay, if I want to look like that, I need to train like that" and so that's how I got into like bodybuilding. (Alice)

Alternatively, Anna outlines below how strength training was primarily healing and enabled her to recover from the debilitating effects of a car accident:

> …I can't say disabled, because obviously I could walk etc., but quite a lot of pain all the time, to being completely pain-free and being able to train. So basically, the idea was to build up muscle to support the spine and take it from there… (Anna)

Similarly, each participant had different motivations for AAS use. These reasons broadly fell under the umbrella of self-improvement. For Anna, the main reason for her first cycle was "…purely not from a strength point of view initially, but was because certain ones are known to help the joints, to help the discs, and that is why I started to use some Nandrolone in particular." (Anna). For Sandra, the reason was predominantly aesthetic focused. She describes how she "… didn't like the way I looked, I wasn't hard enough in my opinion, I didn't think that I was, not that I wasn't lean enough but I wasn't, I didn't feel like hard enough…" (Sandra). For Jenny, if it was a shortcut to getting certain results, she too wanted to take that shortcut:

> …I just kind of started hearing about it that other people were doing it and that other girls were doing it and I was like well yeah I want to do it too if it's like a shortcut, that's why I was doing it because it was like a shortcut [ok] and that's why I started. (Jenny).

For Alice, her AAS use began when her coach informed her it would enable Alice to be competitive and reach the national-level competitions. Alice acknowledged her competitiveness and wanting to be the best she can be:

> …he was like, you know, "if you want to get to the national level, most of the girls there are using something and you don't have to but it's going to be a much longer and much tougher road if you want to go that road." So, I was like, well I mean I like being really competitive and doing well at whatever I do so I'm going to go for it. (Alice).

Participants' motivations for commencing AAS use are heavily rooted in self-improvement, akin to the reasons for beginning training. For them, using AAS was seen as a step which was a 'level up' from training without using AAS. Particularly when making the transition from just 'working out' to 'training' for a competitive goal, this resulted in a shift in participant's motivations and contributed to the decision to use AAS.

3.4.1.2. Anxiety regarding threats to femininity. Following the decision to use AAS, participants experienced feelings of anxiety primarily relating to potential side effects. All participants acknowledged there would be side effects; however, anxiety remained regarding how they would individually react to the substances. The trepidation experienced by participants prior to starting AAS were related to perceived threats to femininity. This was two-fold; as Sandra described, "…the big side effect is your face changing and looking more masculine and that I wasn't willing to do so that was what I was worried about." (Sandra). For Alice, the second aspect "…was like irreversibility versus, you know, fixability." (Alice). This fear is expressed differently with Sandra through the amount of research she did before starting her AAS use:

> …even the Anavar, it took me, literally researched Anavar for a year before I even thought about taking it because you know, you're basically changing your hormones and it's a scary thing. (Sandra).

The term "even the Anavar" is indicative of the commonly held perception that Anavar is a "weaker" compound; it is often recommended as a first cycle compound for female AAS users. Despite its perceived "weakness", Sandra still did considerable research before beginning her AAS use. Researching the compound before using it is also indicative of the strong need to make an informed decision; the ability to take ownership through making a choice is important to participants.

3.4.1.3. Control and boundaries. From the beginning, participants were determined to maintain control over their AAS-using decisions. This was expressed by laying down boundaries about what is acceptable and what is not acceptable in the way of side effects. Sandra did this through a risk/benefit analysis relating to the use of AAS:

> …until you decide that you want to take the risk and it is a risk, you're really not going to know how it’s going to affect you, when you come on or off. You just don’t know, it’s the chance that you take. (Sandra)

For Sandra, regardless of how much research she did, there was still a strong element of the unknown as she would not know how compounds affected her until she actually used them. The level of individual variation meant predictability was not guaranteed.

This decision-making capability is important primarily for mitigating the risk of developing unwanted side effects (either through dosages or compound choice). Whilst they cannot control their individual sensitivity to compounds, they can control the compounds they use, thus potentially lessening the risks of using AAS. This decision-making capability related to both taking AAS and making compound choices;

> …and it’s my decision whether I want to do it or not. Or what I want to do, cause there's certain things that I won’t do. (Sandra)

For example, when asked which compounds she would not do, Sandra discussed Trenbolone (a highly risk androgenic AAS compound):

> Tren, I won’t do it. That’s one of the things a lot of women do in prep and I won’t do it, I don’t know why I won’t do it, I don’t know, it kind of scares me, I don’t know why. (Sandra).

The word “scares” indicates the fear associated with using compounds on the other side of the spectrum; compounds used by very few women. Essentially, the more potent the compound, the bigger the risk of developing side effects and beyond that, the bigger the risk of developing permanent side effects. This concern is similar to those raised by Alice regarding the “irreversibility” of side effects. Compound choices seemed heavily related to the goals in mind, alongside how “female-friendly” they are. Sandra outlined this:

> … there will be certain anabolics that are weaker that are okay for women and then you start, and when you start getting into other ones like Tren, to me that’s just a little too much. I’m not going to compete in the Olympia, I’m not going for my pro card, what am I doing? (Sandra).

Note the word ‘weaker’, implying their perceived suitability for women. Exerting control over compound choices and the choice to use AAS is indicative of participants’ attempts to protect their femininity and mitigate side effects as much as possible.

Control was also exhibited through regulating disclosure of use. For Alice, she outlined how she “…like[s] honesty but…also like[s] information control…” (Alice). For Alice, her requirement for information control outweighs the element of honesty relating to her AAS use. This decision-making ability is important for stigma management; through information control, participants exert control over who is “allowed” to know about their use and who isn’t. This is important for mitigating negative judgements, particularly in a community as stigmatised as female AAS users.

3.4.2. Deviation from feminine identity (during AAS use)

This section concerns sub-themes surrounding the time during AAS use. The subordinate themes within this section explore the experience of the gradual onset of side effects and the discomfort and pain associated with virilisation.

3.4.2.1. Gradual onset of side effects. During their cycles, participants commented on the gradual onset of side effects. Jenny experienced it as:

> … a very gradual thing, it's not like I just like woke up one day and had a beard or anything, it was super gradual and I'd have like a couple more hairs… and then one day I was like "oh I'm just going to shave them off" and I was like, "oh my face is so smooth, so maybe I'll go and have one once every few weeks" and they kind of got maybe more frequent and then it ended up eventually after a couple of years or something, it was like every day… (Jenny).

Notably, the differences in expectations and reality for both events indicate how, for Alice, it was not as drastic as she assumed it would be. She compared the experience to "…losing your virginity for the first time, it's like 'sex is so scary, oh my god' and then you do it and you're like, 'oh I don't have STD, I'm fine.'" (Alice). This particular example indicates a fear of the unknown, particularly in the lack of direct experience. What does it feel like? How will I be impacted? Secondly, this segment indicates a "deflowering" of sorts; a growing up, or maturation perhaps, in their training career and choices. After all, using AAS was considered the "next step" in participants' training lives. The second facet of this quote indicates how the initial severe side effects she expected did not appear, and that, perhaps initially, her fears were unfounded.

3.4.2.2. Discomfort and pain of virilisation. All participants reported experiencing side effects from AAS use. However, the specific side effects which caused distress varied from individual to individual. Anna explained how she "… started to notice…a lot of hair loss from my head which was quite devastating…"(Anna). Jenny's experience of hair loss was perhaps more sudden, as she describes how "…one day I was like really self-conscious about like putting my hair back because you could see like this hairline…" (Jenny).

It was not only unusual hair growth or loss that they were uncomfortable with; Anna described her experience with hair growth:

> …[a] change of texture, so very wiry, very strange, curly hairs that I'd never had, growing in very strange places like my neck, my face started growing facial hair. I was constantly shaving. (Anna).

Hair quality and location are important aspects of femininity for these participants. The texture, location and amount of hair suggested a gradual shift towards masculinity; these women were describing excess body hair growth, alongside potential male pattern baldness. Long hair on the head, alongside fine body hair is traditionally considered to be feminine features. Losing these characteristics signifies a departure from the feminine norm and entering uncharted territory. Having to shave on a near-daily basis is a constant reminder of the push towards masculinity for the participants; the changes are in their face, and they cannot get away from these changes.

Other side effects included voice changes: for Alice, her singing voice was a part of her core identity. Being a soprano for many years, alongside being known for her singing voice, Alice describes the process of her losing her voice almost as if she is grieving its loss:

> …like during the cycle I'd like always check to make sure it wasn't dropping too low, and so I'd record myself singing and then at some point I was like, oh no, this is like really different. And then there's like this app that helps you, you know, figure out if your voice frequency is like, it actually labels it, it's like feminine, androgynous, masculine and you know, before it always fallen into very feminine, and then I landed in androgynous, I was like, oh no, people can tell. And then at some point when I wasn't paying attention… it like put me in masculine and I was like, oh my goodness, so that was a bit of a shock, you know… I think I cried, I'm pretty sure I cried multiple times over the last, you know, couple of months about this voice or the changes in my voice… my voice changed like pretty significantly… I was hoping that it would come back but I used to be a soprano and now I can't reach any of the notes I used to, yeah. But that's been hard, I'm still trying to come to terms with it, you know, losing my integral part of my identity. (Alice).

The pain from losing this integral part of Alice's identity is palpable. Her changes in her voice are, again, an indication of a deviation from the feminine towards the masculine. This change in voice crossed a boundary that she had set in stone and was categorically uncomfortable doing so. This is not only a threat to her identity as a feminine individual, but also a threat to her identity as a soprano and singer. A lower voice is a change commonly associated with male puberty. To add some context; Alice is a bikini competitor. Traditionally speaking, the bikini class within bodybuilding is a hyperfeminine category for women (Tajrobehkar, 2016). Women are encouraged to be lean, but not too lean. Bikinis are brightly adorned two pieces, with high heels and specific stage posing to exaggerate the female form.

With this in mind, this shift towards masculinity can be a considerable challenge to overcome psychologically. Masculine traits are almost an antithesis for bikini competitors during competition.

Ultimately, all of the participants experienced virilising side effects. For each one, they drew different boundaries on what was acceptable and what was not. Each participant determined what their levels of acceptability were, and each one came to terms with the onset in different ways. However, there was a shared sense of discomfort and struggling to cope with the onset of these side effects. The substantial impact these had on their body image and perception of selves was strongly related to how far their bodies deviated from their feminine norm.

3.4.3. The turbulence of cessation (end of AAS use)

This section explores the experience of ending their AAS use. The subordinate themes are making the decision to come off and the emotional upheaval of coming off.

3.4.3.1. Making the decision to come off. There are two pathways for AAS-use cessation. The first is coming off between cycles. Alice and Sandra both describe coming off in these terms, saying coming off is not an option for either of them:

> I mean you know, I've taken eight-week breaks, I can take even longer, you have to ride it out because you can't be on it constantly, you have to come off, you have to… (Sandra)

Alice explains in further detail the connection between her goals and coming off. For her, coming off was related not only to her health, but also her goals:

> …the health risks of doing it, year-round are not worth like, you know, don't match up with my goals... I'm not trying to be a fitness model

> and like look good year-round, I just want to look for like competition and that’s it, so yeah, it didn’t match up with my goals but I could see if someone was a fitness model and needed to look good all the time, then they would stay on cycle all the time… [Coming off] is what I need to do in order to reach my goals…as far as balancing health and goals. (Alice)

As outlined, Alice reflects on how it might be considered “necessary” for those who make a livelihood from their appearance to stay on year-round, despite the associated health risks. There is an inherent need to “look good year-round” which might supersede the health benefits of coming off. Nevertheless, for these participants, coming off was considered mandatory. This is indicative of the consideration participants had of the impact AAS use has on their health and wellbeing. The terminology of a “break” shows how coming off AAS is considered a respite for the body.

The second pathway is permanent AAS-use cessation, as with Anna and Jenny. For Anna, this point was reached when she mentioned how distressing she found the physical changes when looking in the mirror:

> …every time I looked in the mirror, I didn’t see a woman, I saw a man, and I was like “I don’t like this anymore”. (Anna).

Due to her personal discomfort with her aesthetic appearance, Anna decided to come off AAS permanently:

> …It was only as time went on that I started to think “you’re not really looking like a woman anymore.” and that’s when I started to really dislike it and decided that this isn’t for me anymore. (Anna)

Jenny’s unplanned decision to come off coincided with her reaching her powerlifting goals:

> …it was never really a planned thing though, it was never like, "ok I'm going to hit these numbers and like retire", I just guess I felt fulfilled after those last couple of meets… (Jenny)

3.4.3.2. Emotional upheaval. The experience of coming off AAS differed across participants. Sandra described feeling

> …Depressed… not severely depressed cause I don't have depression issues, but you kind of feel, I guess there is a difference, you kind of feel sad I guess…it's definitely more mental, that's the harder part, than the physical part... (Sandra).

For Alice, coming off presented other challenges of coming off "cold turkey" such as adjusting to a loss in strength:

> …it was like cold turkey and I did have a lot of like strength loss, which I wasn't expecting. Yeah, that was, I almost think part of it was like psychological too… when I'm on cycle I'm able to push a lot more weight, and I feel a lot more confident in doing stuff, whereas when I'm off cycle, I'm a lot more conservative…just like really focusing on like form and things like that… (Alice)

Sandra experienced similar challenges when coming off AAS. She describes the loss in strength as akin to having a "bad day" in the gym:

> …I mean everybody has a bad day, you know when you PR [personal record], you know, and then all of a sudden, two weeks later, you can't even lift what you did before you PR'd, it's like, you know, it's upsetting but that's just the way it goes, you're just not going to be as strong… (Sandra).

Sandra also described the negative impacts associated with experiencing physical joint pain whilst coming off;

> …plus also, you know, it also helps with joint, you know, your joints, lubricating of joints, your joint recovery and then when your joints start hurting too that didn't hurt before, that also messes you up, you might not be able to work out as long, you might, you know, you hurt a little more, that might hurt you, your legs, if it's a leg day, you might not be able to walk, instead of one day, three days, you know, stuff like that, so it helps with recovery and joint lubrication and everything like that. (Sandra).

These accounts demonstrate the emotional upheaval associated with coming off AAS. It is a multifaceted experience, extending beyond the reported depression; it is also inclusive of the emotional turbulence and difficulties in adjusting to their body's capabilities.

3.4.3.3. Dissipation of virilisation. For each participant, most side effects dissipated over time. For example, the receded hairline did recover for Jenny:

> …then one day I was like really self-conscious about like putting my hair back because you could see like this hairline, that did get a lot better, like it's not, I have not thought about that in a long, long time you know, it's like normal now so I guess that it did go back. (Jenny).

The words "I guess" show some uncertainty concerning whether it has "truly" returned to normal. Nevertheless, the realisation she has not thought about it for a "long long time" shows how thoughts concerning her hairline have not arisen for a considerable length of time. Jenny also described feeling lucky as she did not expect anything to return to normal;

> I wasn't anticipating that anything would grow back, I thought that's the way it was going to be… I really feel super lucky because I feel like other women they don't get as lucky… (Jenny).

The term “feeling lucky” perhaps indicates “getting away” with her use of AAS; particularly for Jenny, her use of AAS was experimental, with harsher compounds being used compared to more cautious compound use of other participants. Though she accepted the possibility of side effects becoming permanent, she was nevertheless relieved when they gradually dissipated after coming off permanently.

Another aspect of virilisation dissipation is related to age. Anna discusses how youth can have an impact on the side effects due to the hormonal differences,

> …because if a woman’s younger and she comes off she’s got quite a lot of oestrogen still, so she may have less side effects because she’s got higher levels of oestrogen. (Anna).

The role of oestrogen here is almost perceived as a “protective” substance against the androgenic side effects. Traditionally considered a “feminine” hormone, it is often decreased in women who experience menopause. For Anna, her age means she has less oestrogen than someone younger. Therefore she does not have as much protection from oestrogen as someone younger.

3.4.4. Rediscovering femininity (post-AAS cessation reflections)

This section covers the reflections and experiences of the participants’ post-AAS cessation period. The subordinate themes within this section explore the shifting of identities and new norms, body image and function alongside coming off, health and fertility.

3.4.4.1. Shifting of identities and new norms. Multiple participants expressed a shift in their core identities – whether this was through a return to what they perceived as feminine for themselves (as in Anna's case), or whether this is adjusting to the effects permanent side effects can have (such as for Alice). For example, not all side effects dissipated. Alice had to adjust to permanent voice changes:

> …my voice changed like pretty significantly… I was hoping that it would come back but I used to be a soprano and now I can't reach any of the notes I used to, yeah. But that's been hard, I'm still trying to come to terms with it, you know, losing my integral part of my identity…I've kind of accepted my voice as it is now, or I'm like, well you know, I can live with it and this is just part of growing up, not growing up but like you know, people will have changes in their identity and this is just one of them, it will be fine. (Alice)

The adjustment to this permanent side effect is a notably painful but, inevitably necessary, process. The hope mentioned by Alice indicates a desire for a return to normal, perhaps to be one of the 'lucky' ones as described by Jenny. However, the journey to acceptance of this new norm (in this case, the new normal pitch and tone of her voice) is seen as a process of maturation and "growing up". When side effects have become permanent, a level of acceptance is necessary in order to come to terms with new norms. Alice described how she has had to shift her self-perceived aesthetic gender identity from being traditionally feminine to being considered more androgynous. Alice describes how she feels "…okay with [looking] androgynous, because you know, I have short hair, like I can do the whole sporty look, whatever…"(Alice). Acceptance for Alice is the core part of moving on from the initial pain of encountering permanent side effects.

For Anna, stopping her AAS use has given her an improved quality of life and is indicative of a shift to new focal norms. The cessation of AAS indicates a shift in identity as a competitor, with a different mindset, priorities and goals;

> …I feel more confident about how I look, I feel good, I never care if I miss a lift, if I miss a lift, I miss a lift… to me, being a woman is more important, so I want to look good, I want to feel nice. If strength's gone down, it's gone down. I don't really care. I'd rather look like a woman, feel like a woman, feel attractive, feel good about myself, and still go to the gym and still lift, and still compete but understand that it's not going to be at the same level. (Anna)

"Feeling like a woman" is considerably more important for Anna – the return to femininity brought a multitude of positive aspects. For example, Anna associated being off-cycle with reconnecting with others in her social circle alongside feeling balanced, healthy and, more importantly for her, feminine and confident. The sacrifice in strength and getting to her powerlifting goals is worth it for her improved quality of life.

3.4.4.2. Body image and function. Off-cycle was associated with multiple physical changes. For example, Jenny discusses how her "…face has gotten so much softer in the last two years…I would get like cellulite on the back of my legs and on my butt, I was like less hard". (Jenny). The terminology "less hard" and "softer" demonstrate a gradual return to more feminine characteristics. "Hardness", as described by Sandra, is another term for lower body fat percentage. The shift to a higher body fat percentage is an indicator of femininity. For Anna, she felt comfortable with her higher body fat percentage:

> I've got fat, I'm not too kind of lean, but I feel so, so much better when I look in the mirror. I feel so much better when I look in a mirror, how I feel, how I look and that's important to me. (Anna)

For Anna, regardless of her increased body fat percentage, her self-esteem and perception of her body were significantly higher than before. Her improved self-confidence and self-esteem are worth the "cost" of losing leanness and gaining body fat. Her femininity is established through the return of a higher body fat percentage.

3.4.4.3. Coming off, health and fertility. Jenny, like other participants, used the return of her menstrual periods as an indicator of health. She explains how, upon return of her periods after AAS cessation, "…it's like 'ok like everything's fine', I think that's how I felt like, ok my body still works…" (Jenny). The verbiage "my body still works" demonstrates how important fertility is for female users. At the time of the interview, Jenny was pregnant in her third trimester. She remarked feeling "…like I had a good run and I mean I'm healthy now and like I can make babies now and so everything happened for a reason or that was just like my path." (Jenny). Childbearing and health seem to be intrinsically linked for Jenny. The return of periods is an indicator of both health and femininity. Thus, the relief is understandable when they returned for Jenny.

The ability to bear children was also considered paramount for Sandra and Anna. Both are older females who are post-menopausal. They both remarked they would not use AAS if they were younger. For Sandra, this was rooted in the impact on fertility specifically using testosterone would have:

> …if I was in my twenties or thirties, I would never, just wouldn't, it could affect your fertility, why would you do that, you don't know, even if you're thinking you never want a kid, in your twenties or thirties, how would you know, you just don't know what's going to happen, why would you mess with that, it's not worth it, for what, for muscle, it's stupid, to me, that's just my opinion. (Sandra).

The focus on testosterone might stem from its perception as a predominantly "male" hormone; perhaps a boundary which should not be crossed until certain conditions are adhered to. The heavily masculine aspect of testosterone might be seen as a significant threat to female fertility for Sandra, thereby deeming it unsuitable for younger female users. Anna expressed a similar notion related to fertility, saying younger women "…should just be very careful so if they're young, and in particular, you know they might want a family one day, well, that could be harder." (Anna).

Fertility and childbearing abilities are considered critical to retain. Notably, this mindset appears more pronounced for both of the older participants, Sandra and Anna. Perhaps it results from a post-menopausal mindset, reflecting on the changes to fertility and the associated impact on the feminine identity that comes with the menopause. Being in the unique, contradictory position of undergoing a uniquely female phenomenon, while encountering the loss of uniquely female experiences (such as the menstrual cycle) might impact the personal importance these participants attach to female fertility.

3.5. Discussion

For the first time, this study provides a fresh understanding through the application of IPA to four individuals' narratives. The findings corroborate other accounts of female identity navigation in sports and non-sports settings, with the added novel complex interplay between gender identity and AAS use.

3.5.1. Preparation and anxiety

Participants approached their AAS use in different ways. For example, Sandra conducted extensive research and sought to understand the potential side effects. Others, such as Jenny, had a more unconstrained approach to AAS use. These differences in perception can be contextualised within a risk management framework.

A post-modern risk approach to risk and hazard perception outlines that hazards are socially constructed through the lens of culture (Fox, 1999). In this context, AAS themselves are not considered a hazard. Hazards for these participants include potentially permanent virilisation, specific virilisation side effects and the impacts of these aspects. AAS. Risk is outlined as the possibility of permanent deviation from the societal definition of feminine norms. As Fox (1999) outlines using an example of ecstasy, ecstasy becomes a hazard when the potential risks outweigh the potential benefits. For our participants, the risk associated with AAS use was mitigated through compound choice, dosages used, cycle lengths, time off-cycle and researching a variety of avenues. However, all participants were aware that the associated risks of virilisation and health impacts would never be completely mitigated. Thus, the benefits of AAS use (e.g., physical strength, muscular hypertrophy, wellbeing and other effects) outweighed the risks through risk mitigation conducted by the participants on an individual level.

3.5.2. Deviation and feminine characteristics

Participants within our studies described the gradual onset of side effects. However, they also describe the psychological discomfort associated with the development of side effects. In line with other studies, this is potentially due to the blurring of boundaries between masculine and feminine, a highly individualised boundary which was experienced by all participants in different ways. The journey of what it is to be feminine and how the participants navigated feminine identity threats is concurrent with other accounts of femininity and muscularity within sports. Other studies within this niche community have focused on the navigation of the feminine identity for female bodybuilders (Shilling & Bunsell, 2009; Wesely, 2001). These studies cast a more holistic eye over the construction, navigation and continuum of the feminine identity within the context of a female bodybuilders' lifestyle. The emphasis is on posing and clothing, weight training programs and other aspects of competitive female bodybuilding. One study on female bodybuilders focuses on the impact of weight training and nutritional regimes upon the feminine gender identity (Boyle, 2005). Within this study, the pressure placed upon female bodybuilders demonstrates 'appropriate norms' for feminine standards within society. Participants in this study took control of their training and nutritional regimes in order to balance the fine line between performance and femininity. This control is not dissimilar to the boundaries and controls imposed by the participants within the present study – decision-making processes determine what compounds they will use, how they will use them, when they come off cycle and other aspects of AAS use. In line with the female bodybuilders, participants often decided to maintain control over their aspects of femininity. However, within the Boyle (2005) study, it seems that boundaries are initially self-imposed through individual decision-making processes. Upon further examination, it appears that the standards they must conform to regarding femininity are dictated by a primarily white, heterosexual masculine audience or judging panel. The ideas of femininity are flexible within the present study; participants enforced their boundaries and ideas of what they considered acceptable deviations from femininity. To some extent, these aspects of 'acceptability' still fall within the remit of societal feminine norms, similar to the standards outlined in Boyle (2005). Notably, while the study above have women who discuss becoming 'too big' as negative and excessive deviation from the feminine, this was not mentioned as an issue by the participants within the present study. Muscularity was considered a positive aspect, and not necessarily incongruent with their ideas of femininity.

3.5.3. The turbulence of cessation

In line with male studies on AAS cessation (Griffiths, Henshaw, McKay, & Dunn, 2017), participants emphasised the importance of coming off for health reasons. However, for female participants, there is an additional effect of mitigating unwanted virilisation side effects, something which does not affect male AAS-users. Similar to the participants in Griffiths et al. (2017), some female participants reported turbulent withdrawal periods and psychological upheaval while coming off AAS. For some individuals, it was more pronounced than with others. These differences suggest that, to some degree, individual susceptibility is responsible for the severity of psychological upheaval and coming off cycle. However, the cycle duration and taking breaks between cycles are potentially important determinants of AAS cessation difficulties. Further research can elaborate on this possibility.

3.5.4. Rediscovering femininity

Rediscovering their femininity was a complex, yet welcomed process. Every participant had to adjust to new personal norms of femininity. Thus the term ‘rediscovering femininity’ was used. These identity reconstructions after AAS cessation are analogous to the processes of biographical disruption (Bury, 1982) or biographical flow (Faircloth, Boylstein, Rittman, Young, & Gubrium, 2004). While these two concepts are discussed extensively in critical illness contexts, similarities exist between those experiencing chronic or acute illness events and participants’ perceptions of their changing bodies from AAS use. Categorising it as one or another is challenging due to how our participants reframe and view their bodies after coming off. For example, Alice’s experience with her permanent voice change is biographically disruptive; her identity and physical feminine features were brought to the forefront of her mind when beforehand they were taken for granted through being an “absent present” (Malcolm and Pullen 2018). Secondly, her questioning of her self-identity from a gendered context is Alice questioning her self, another component of biographical disruption; am I still feminine? Am I losing my femininity? Thirdly, the impact of socialisation activities had a negative impact in terms of her psychological wellbeing. However, in time, she accepted and reframed her new identity, shifting from feminine through to androgynous. This shift is contextualised within ongoing AAS use with regular breaks in usage.

Similarly, Anna reframed her post-AAS body in a novel way; here, we notice a biographical “flow” narrative (Faircloth et al., 2004). She acknowledges the readjustments she has to make. However, they are taken in a positive context and considered part of an ongoing life narrative. Particularly regarding her own gender identity and the meanings she ascribes to being feminine, the impact her AAS use has had has been part of a narrative, and not considered particularly disruptive. A similar experience can be noted by Jenny, who considers her process of AAS use and cessation to be part of an organic flow of her feminine narrative. With Sandra, despite struggling with body image issues and temporary psychological setbacks, she has acknowledged these changes are, again, a part of an ongoing narrative which do not define her core identity. For these women, there were aspects of biographical disruption present in the threats to their feminine identity and questioning their selves. However, they have also adjusted their perceptions of their post-cycle feminine identities and accepted personal new norms.

Another notable aspect was the importance placed on fertility. Literature relating to female fertility and femininity, the closeness of femininity, fertility and health have been corroborated extensively (Komatsu et al., 2014). For our participants, health and fertility were closely related concepts. The idea of losing one’s fertility, as in the Komatsu et al. (2014) study, is determined to be a severe deviation from one’s feminine identity. Perhaps, as mentioned in Komatsu et al. (2014), the idea of losing childbearing abilities is indicative of a threat to the feminine identity. In this study, potentially losing one’s fertility was an unacceptable side effect for some participants while for others, it was considered an acceptable risk with some participants even accepting the “worst-case scenario” of female sub-fertility. It remains unclear whether it is a generational aspect relating to the ideas of femininity and fertility, as it was the older participants who considered female fertility to be precious and attached higher importance to this aspect, compared to the younger participants.

3.5.5. Strengths

This study offers a novel insight into the female experience of AAS use; The established rapport built with this community by the first-author gives a unique insight into this population that is otherwise difficult to reach. Participants were from different countries, ethnic backgrounds, age groups and competitive backgrounds. This cohort diversity enabled the exploration of a variety of experiences and perspectives in greater detail.

3.5.6. Limitations

In line with IPA, the sample size is small, and the cases cannot be generalised. Nevertheless, the in-depth interviews and analysis enable the addition of a more detailed account of the female AAS-using experience to the existing literature.

3.6. Conclusion: Further study and recommendations

This study offers a novel insight into PED use rarely seen within the existing literature. For the first time, through these narratives, a greater understanding is offered regarding the patterns of usage amongst women who use AAS. While some similarities are present between female and male AAS use, these results shed light on the vastly different challenges surrounding women. Understanding the experiences, motivations, perceptions and physical and psychological side effects of AAS use in women can meaningfully inform harm reduction policy. Harm reduction workers, medical professionals and those who work with women who may use AAS can use the information within to further their understanding of this community. The recruitment methods outlined within this study can perhaps help inform future research initiatives by implementing the recruitment practices. Further research can look in more depth at the impact cycle length, compound choice and dosages have for the experiences of AAS cessation in women. Building upon these findings can help develop meaningful harm reduction interventions specific for women who use AAS.

What this study adds

This paper focused heavily on the individual lived experiences of risk navigation, risk perception and mitigation through a gendered lens. The narratives uncovered throughout this paper uncover the journey of female AAS use in greater depth than before. Accounts of control and ownership over decisions were prevalent throughout. This was relevant not only in the context of dosage, cycle length and compound choice, but also related to disclosure. Chapter 4 (study 2) will build from these findings as it aims to uncover, in greater detail, the perceptions surrounding control and risk perception with a different compound: 2,4-dinitrophenol (2,4-DNP). Of note will be the differences in side effects, the onset of potential side effects and the associated risks, as well as a focal broadening from the idiographic through to the interpersonal and community-related factors.

Chapter 4: Control and the use of 2,4-Dinitrophenol

Preamble

This is a manuscript which was published in the International Journal of Drug Policy in 2018 (Ainsworth, N. P., Vargo, E. J., & Petróczi, A. (2018). Being in control? A thematic content analysis of 14 in-depth interviews with 2, 4-dinitrophenol users. *International Journal of Drug Policy*, *52,* 106–114.). This version of the manuscript is stylistically amended in terms of formatting to remain consistent with the layout of the rest of the thesis. However, the content remains unchanged from the published version.

Being in Control? A Thematic Content Analysis of Interviews with 2,4-Dinitrophenol Users

4.1. Abstract

Background: 2,4-Dinitrophenol (2,4-DNP) is a compound with multiple industrial purposes. Currently unlicensed for human consumption, it is used by the gym-going population for drastic, short-term body fat loss. Nonetheless, physiological mechanisms can lead to potentially fatal hyperthermia. Reported fatal incidents have caused concern and highlighted the need for intervention. Understanding decision-making leading to 2,4-DNP use alongside the perceived outgroup attitudes is vital to forming effective harm minimisation policies targeting current and potential users. First-hand accounts from this elusive population are scarce.

Methods: Fourteen novel and experienced users (13 male, 1 female) were recruited via “snowballing” techniques. Semi-structured interviews were conducted, comprising 28 questions. Thematic content analysis was conducted using 37 codes.

Results: Four characteristic themes emerged: 1. Users considered the Internet to be a crucial multifunctional resource directly impacting their 2,4-DNP use. 2. Users “respected” 2,4-DNP, proactively taking harm reduction measures. 3. Attitudinal polarisation towards 2,4-DNP within the gym-going community was consistent in all accounts. 4. Users perceived outgroup populations to have inherently negative attitudes towards their use. These themes fell under the all-encompassing theme of “being in control”.

Conclusion: For the first time, this study offers a rich detail of attitudes toward 2,4-DNP use by giving a collective voice to users. The element of control over every aspect of the users’ life appears to be a significant contributor to the

successful risk-management of 2,4-DNP use. In the absence of an established safe upper limit and effective regulatory control, education is critical to harm minimisation.

4.2. Introduction

The use of performance-enhancing drugs (PEDs) among bodybuilders around the world has been abundantly discussed in literature (Abrahin et al., 2014; Nakhaee, Pakravan, & Nakhaee, 2013; Perry, Lund, Deninger, Kutscher, & Schneider, 2005; Sagoe, Andreassen, & Pallesen, 2014; Sepehri, Fard, & Sepehri, 2009). Based on self-reported surveys, prevalence rates for PED use among gym users ranges between 0.4% to 35% (Abrahin et al., 2014; Hitti et al., 2014; Khullar et al., 2016; Lazuras et al., 2017; Molero et al., 2017; Sagoe, Molde, et al., 2014; Simon et al., 2006; Striegel et al., 2006; Stubbe et al., 2014). Within this range, PEDs prevalence figures vary widely across substance types, timeframe and methods used to establish prevalence. Specifically, much focus has been on anabolic steroid use. Direct questioning methods typically yield a lower and more likely prevalence rate compared to indirect methods.

Uncertainty about the true prevalence rate aside, information concerning use patterns in this community is still limited, due to the attached societal stigma. The bodybuilding community appears to hide their substance use, and distorted perceptions are predominant in the general population (Evans, 2004; Gonzalez Francis Keaney, Alejandro, 2001). PEDs known to be generally used by bodybuilders are anabolic-androgenic steroids (AAS) (Kicman, 2008; Reardon & Creado, 2014; Sagoe, Molde, et al., 2014) and peptides such as human growth hormone (Meinhardt et al., 2010). Fat burners are also used, to create a larger caloric deficit for fat loss (Jeukendrup & Randell, 2011), either through appetite suppression, direct effects upon users' metabolism, or both. However, one compound that has flitted in and out of use is 2,4-dinitrophenol (2,4-DNP).

4.2.1. Overview of the compound

2,4-DNP is a member of the dinitrophenol chemical family. These chemicals have a wide variety of industrial applications (Harris & Corcoran, 1995). 2,4-DNP raised interest upon discovering that ingestion caused significant weight loss (Harris & Corcoran, 1995) and consequently, the compound was prescribed as a weight loss aid (Hardgrove & Stem, 1938; Harris & Corcoran, 1995; Horner, 1942; Parascandola, 1974). Between 1933 and 1935, an estimated 100,000 patients were given 2,4-DNP (Tainter et al., 1935). Studies concerning human oral exposure comprise primarily of case reports and clinical studies dating between 1932 and 1938 (Harris & Cocoran, 1995). These studies frequently had limitations as human trials did not include participant matched control groups (Harris & Cocoran, 1995). This has created difficulty in separating side effects caused by 2,4-DNP to potential pre-existing conditions of participants. Reliable accounts of 2,4-DNP's effects on humans thus lack in current literature.

2,4-DNP works through a variety of dose-dependent physiological mechanisms. Alongside being an uncoupler of oxidative phosphorylation, 2,4-DNP is also a chemical ionophore (Grundlingh et al., 2011). The resulting proton electrochemical gradient shift from this process means this potential energy dissipates as excess heat, rather than ATP conversion (Grundlingh et al., 2011; Wallace & Starkov, 2000). At high doses, ingesting the compound results in an elevated body temperature alongside increased caloric expenditure, leading to fat loss. Possible side effects also include hyperthermia, tachycardia, skin discolouration or rash (if allergic), nausea or vomiting, abdominal pain, agitation and headache, excessive sweating potentially resulting in electrolyte imbalances (Kamour et al., 2015). Some studies have suggested long term risks relating to peripheral neuropathy (Phillips & Singer, 2013). Moreover, others have suggested the possibility of cataract formation from prolonged exposure (Allen & Benson, 1935; Boardman, 1935; Kniskern, 1935; Lazar, 1935). However, mechanisms remain unclear and potential harms – apart from media reports of fatalities - are relatively unknown.

In addition to the level of acute health risks, there is a distinct differentiation between 2,4-DNP and AAS regarding effort. Because of its mechanism of action, 2,4-DNP use may appear as a shortcut for weight loss compared to dietary adherence. Notably, 2,4-DNP use has acute effect on lifestyle and wellbeing. Despite this, it is still considered less effort to use 2,4-DNP compared to AAS. This will be discussed in further detail later on.

Currently, 2,4-DNP is not licensed for human consumption globally. No therapeutic dosage and duration, or safe upper limit, is established. Despite this, users are not dissuaded from using 2,4-DNP for fat burning purposes, and can easily access it from online sources.

4.2.2. Method of use

The route of administration of 2,4-DNP is oral, taken either as tablets or capsules, once or twice a day. Based on users' online accounts and self-reports, 2,4-DNP appears to be commonly used in cycles (McVeigh et al., 2016; Petróczi et al., 2015). Most 2,4-DNP cycles are brief − lasting anywhere from one to four weeks, but rarely longer (McVeigh et al., 2016). Typically, 2,4-DNP cycles are variable and dependent on a number of factors, both internal (i.e., bodyweight) and external (i.e., weather conditions). Users will often determine the ideal dosage solely through their bodyweight, not factoring in external determinants.

4.3.2.1. Accessibility and Motives for Use. Sale of 2,4-DNP for human consumption is presently illegal in the UK due to health concerns ('Warnings issued over deadly DNP "diet drug"', 2013; "New warnings issued over deadly DNP 'diet drug'", 2014; 'FSA action over 'fat burner substances', 2013). Consequently, users now take advantage of its easy accessibility via the Internet (McVeigh et al., 2016; Petróczi et al., 2015). An additional challenge is the ease with which 2,4-DNP can be obtained; as long as it is advertised “not to be used for human consumption”, 2,4-DNP can be sold without limitations (Petróczi et al., 2015). Compounding the issue are discussion boards, which users utilise to seek guidance and share experiences (Barratt, 2011). These factors counterbalance efforts of regulatory bodies to prevent access and use of 2,4-DNP.

2,4-DNP appears to be utilised by the gym-going population owing to its unique muscle-sparing properties (Goldgof et al., 2014). The existing limited literature suggests that motives for using 2,4-DNP are primarily tied to the short-term aesthetic goal of losing considerable amounts of body fat (McVeigh et al., 2016; Petróczi et al., 2015). Similar motives were found amongst young non-exerciser adults in hypothetical situations; those who wished to rapidly lose a considerable amount of weight were the most willing to take the risk with 2,4-DNP (Hoxha & Petróczi, 2015).

Studies exploring prevalence and the experiences of users with regards to motives, reasons and risk perceptions associated with 2,4-DNP use are inadequate or non-existent. To date, research has evidenced that 2,4-DNP users make self-perceived conscious and informed decisions about 2,4-DNP and are well-prepared for the side effects (McVeigh et al., 2016; Petróczi et al., 2015;). Willingness to take risks with 2,4-DNP has been linked to body image and magnitude of the desired weight or fat loss (Hoxha & Petróczi, 2015; Petróczi et al., 2015). However, studies investigating this matter are limited. There appears to be a clear gap in knowledge and disconnect between 2,4-DNP users and the scientific community researching voluntary 2,4-DNP use.

4.3.2.2. Aims and Objectives. Whilst prevention via warnings about the danger of 2,4-DNP could be an effective strategy for the naïve potential users, this approach is unlikely to deter those who are knowledgeable and experienced PED users. Prevention via controlling the supply has deemed difficult because of the widespread availability of the drug through the Internet. Where deterrence and control fail, there is room and need for strategies that primarily aims at harm-reduction. In order to explore 2,4-DNP use and implement harm reduction measures for this population, further evidence-based information is required. Though some understanding of the physiological effects of 2,4-DNP are evidenced through case reports and animal model experiments, very little is uncovered regarding psychological factors. Due to 2,4-DNP use being considered high risk and potentially dangerous behaviour even within the gym-going population, users tend to be very cautious when disclosing their 2,4-DNP use. As such, they are a hard-to-reach population, resulting in studies harvesting data from the Internet forums and discussion boards (e.g., McVeigh et al., 2016).

A better understanding of this population can be reached by examining attitudes and subjective experiences with 2,4-DNP of the users. This study, for the first time, set out to provide a more thorough and comprehensive qualitative overview of users’ experiences through thematic content analysis of semi-structured interviews. In particular, we aimed to explore 2,4-DNP users' attitudes towards the Internet as a tool, perceived attitudes of in-groups and out-groups towards their 2,4-DNP use, as well as exploring 2,4-DNP use through participants' attitudes towards the compound. This, in turn, can inform practically relevant and meaningful harm-reduction policies which are accepted by this population.

4.2. Methods

4.2.1. Participant recruitment

Recruitment consisted of a purposive sampling strategy carried out online. "Snowballing", the recruitment of participants from a hidden population through peer referral (Biernacki & Waldorf, 1981) procedures were utilised. This involved making initial contact with "gatekeepers" of various bodybuilding forums discussing 2,4-DNP use to gain better access to potential participants. The researcher was active in these forums and familiarised with their administrators. Discussing the study with gatekeepers helped credibility and made recruitment far easier than having approached individuals directly. Online recruiting from this population was challenging; the main reasons being the sensitive nature of discussing such compounds and a perceived lack of anonymity.

Specific exclusion/inclusion criteria for participants were being over 18 years of age and having previously done, or were currently doing, a 2,4-DNP cycle. Credibility of participants' accounts was individually judged by the level and accuracy of the specific details and information by which they described their experiences with 2,4-DNP (Gergen & Gergen, 2000).

Utmost care was taken to ensure participants' confidentiality, and this was emphasised when discussing the details of the study. Self-assigned alphanumerical codes were used for transcription and data analysis to maintain confidentiality and anonymity. Ethical approval was granted for the project by the Research Ethics Committee of the Faculty of Science, Engineering and Computing, Kingston University (see appendix C). Informed consent, voluntary participation, confidentiality and right to withdraw at any time from the study were all discussed with participants pre-interview, alongside any other queries.

4.2.2. Measures: semi-structured interviews

Semi-structured interviews were employed. The interview consisted of 28 questions (see appendix D for the interview questions and appendix E for the demographics questions), which were created by the research team and explored motivations, reasons, expectations, side effects, use of other drugs, knowledge of 2,4-DNP, peers and purchase. Interviews were designed to facilitate adequate dialogue between the interviewer and participant. Capitalising on the researcher having an in-depth understanding of the environment and surrounding culture, open questions were used as much as possible. Where possible, the interviewer asked the participant to expand upon answers in order to gather more information.

All interviews were conducted via Skype (v. 7.21.0.100 through to v.7.27.0.101) as participants resided in different parts of the world. Audio-only calls were used to ensure anonymity. Due to the stigmatisation of the compound even within gym communities, and its worldwide illegality concerning human consumption, we considered it prudent to utilise audio-only interviews. The locations of participants around the world meant that in person interviews were not possible. Interviews were recorded using a recording app (Audio Recorder, Android Open Source Project) on a smart phone (Samsung Galaxy S5) and uploaded to a password-protected computer.

4.2.3. Data analysis

Transcription was conducted by the researcher (NPA) with the aid of an online transcription application (https://transcribe.wreally.com/). All identifying information was redacted from transcripts.

A thematic content analysis approach was employed to analyse the data (Braun & Clarke, 2006). Due to the nature of the study, a deductive approach was used. This approach fit the methodology best to form themes driven by our theoretical interests in the area. A closed coding scheme was utilised; codes were determined pre-hoc and revised with the research team during analysis. Coding was conducted individually, then compared with the group of researchers to ensure consistency (Weber, 1990). The finalised codebook consisted of 37 codes (see appendix F). Clearly defined definitions of each code were constructed, and every effort was made to ensure consistency during the coding process. Atlas.ti (v.7.1.50) software was used for coding and analysis.

The process of theme formation was conducted by aggregating codes which we considered semantically similar, or which revolved around a similar facet present within the data. Thematic formation was conducted through a number of ways; firstly, frequency counts were analysed to determine if any codes had a large count (grounded), or were connected to other codes. Additionally, codes were pre-grouped into sub-themes before coding commenced. These sub-themes were further organised into over-arching themes, which could be applied to our dataset as a whole (Braun & Clarke, 2006).

The process of thematic analysis (Braun & Clarke, 2006) was organised in a clear framework that assisted researchers during the analytical step of this study. Throughout the process, in order to maintain the flexibility afforded by this methodology, codes were revised where necessary. This included post-hoc codification of text segments. Constantly checking over data, and recoding and rechecking the transcripts enabled the researchers to increase reliability of the codebook.

4.3. Results

4.3.1. Participant sample demographics

The final sample for the semi-structured interviews consisted of 14 participants (13 males and 1 female). The median age was 22 years old (age range of 19–39 years old). All but one participant were aged below 30 years old, with the remaining participant being over 30 years old. Self-reported ethnic origin breakdowns were as follows: 10 were White/Caucasian, one was Asian (Oriental), one was Asian (Indian, Pakistani, or Bangladeshi), one was Hispanic or Latino and one was mixed. With regards to locality, 11 resided in the USA, one in Canada, one in Germany and one in the Netherlands. All participants considered themselves regular gym goers.

Thirteen participants had used some form of PED or were currently using PEDs, with the remaining participant having no history of other PED use. Most participants had used recreational drugs previously (such as alcohol or marijuana). During their 2,4-DNP cycles, only one drank alcohol and two used marijuana. The rest did not use recreational drugs on cycle. Nine participants concurrently used other PEDs on their 2,4-DNP cycles. Participants’ accounts regarding side effects and dosages were consistent with other reports of 2,4-DNP use.

4.3.2 Emerging themes

Thematic analysis revealed four core themes: (1) attitudes towards the Internet as a tool (“The world at your fingertips”), (2) non-participant societal and close peer group attitudes towards 2,4-DNP use ("What they would know about the horror stories"), (3) attitudes of the gym-going community ("There's two extremes…") and (4) participant attitudes towards 2,4-DNP ("I have to respect the hell out of this supplement"). These four core themes are related to each other through varying degrees, encapsulated in the overarching theme of "being in control" (as shown in figure 4) and are vital in understanding 2,4-DNP users' experiences.

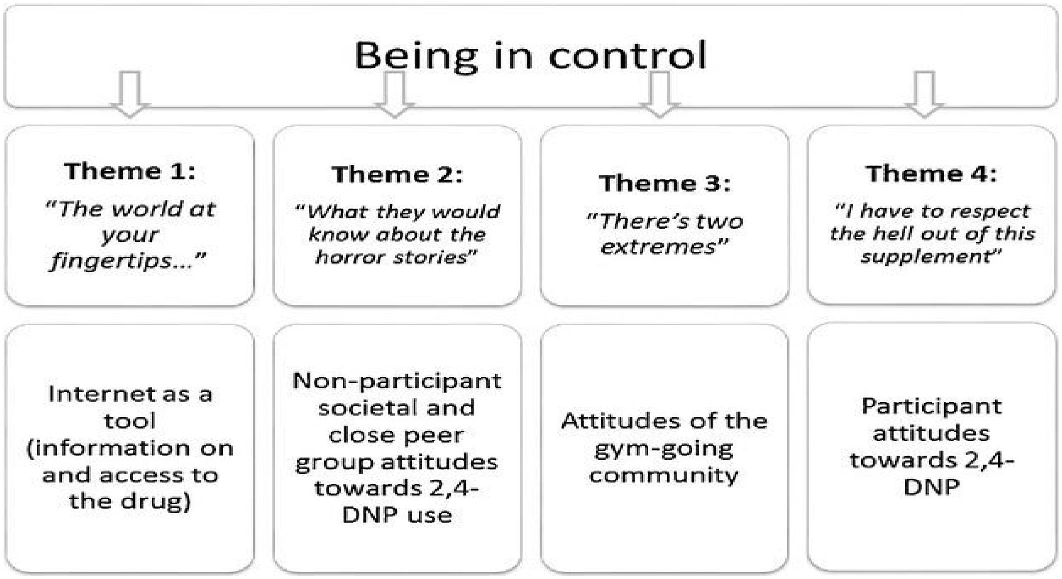


Figure 4. Visual presentation of emergent themes within this study

The following sections are organised into the aforementioned overarching themes and further described through key concepts which emerged from analysis.

4.3.2.1. Attitudes towards the internet as a tool ("The world at your fingertips…"). For our group of participants, the Internet was a vital tool. Not only did our participants have access to the vast array of information related to 2,4-DNP, they were also able to share experiences with other peers using the drug. By bringing such a variety of shared experiences and knowledge sources, one participant described it as "the world at your fingertips" (Male, the Netherlands).

The secrecy within these communities can make it difficult to obtain information and even 2,4-DNP sources. However, some participants had doubts regarding advice given over the Internet:

> …you're getting all this information not from a medical doctor, you know, from a bunch of dudes on the internet. And as much as it sounded like enough people have used it and put in the time and collectively pooled their experiences and stories that gave me a good base, it's still always a thought in the back of my mind because you know, I don't know how my body personally will respond to this, even though I'm just taking the one dose, I have no idea… (Male, USA).

This excerpt hints at the risk present not only through ingesting 2,4-DNP, but also through taking advice from this online community. The wide accessibility of the Internet meant anyone could potentially offer advice, whether it is correct and safe or not. Some participants consequently had to be careful sifting the "broscience" (commonly accepted term in the community for non-scientifically based information) from the science;

> One thing I had to learn to do not just with DNP but with uh, steroids as well is to filter the information and take everything with a grain of salt to learn what is considered I guess you can say broscience or you know, things

> that people discuss and not really have scientific backing for? Versus reliable anecdotal evidence just because there isn't too much scientific evidence on a lot of these products that we're using. So lots and lots of research and lots and lots of digging through mud I guess you could say, to make sure that the information I had was more or less reliable. (Male, Canada).

In short, our participants acknowledged the power of the Internet as a rich source of information. There was awareness that getting information from anonymous sources on the Internet was risky, and consequently participants were cautious when using it. Peer experiences were considered vital, despite the need for careful interpretation.

4.3.2.2. Perceptions of societal and close peer group attitudes towards 2,4-DNP use ("What they would know about the horror stories"). Within this section, participants' perceptions of society, friends and family's attitudes towards 2,4-DNP use are discussed separately. An important distinction between personal attitudes and outgroup's attitudes emerged strongly from the interviews. Both society's and social groups' attitudes towards 2,4-DNP were thought to be shaped by media reports of fatal cases. A further differentiation within friends dependent on their inclusion or exclusion from the gym-going community was also evident.

4.3.2.2.1. Perceived perceptions of society towards 2,4-DNP use. In 2015, there was notable international media attention for the death of a young woman from a 2,4-DNP overdose (Morris, 2015, July 23rd). Many participants thought it to have had a significant impact on 2,4-DNP use perception by non-PED using outgroups;

> I imagine the average person we'd run into on the street, if they knew about DNP at all, what they would know about is the horror stories that, you know, come on the new… And, you know, their

> judgement of me using DNP would then be based on that, you know, very, very biased, very case-specific um, information. (Male, the Netherlands).

The use of the word “biased” implies that the public has a one-sided opinion, and this was a viewpoint shared by the whole cohort. When explaining why outgroups would consider 2,4-DNP negatively, participants commented on “laypeople” relying on news reports and superficial information;

> …you know, people fear what they don't understand and you know, perhaps rightfully so. But if people would do a little bit of research, before they give their opinions, I think we wouldn't have as much of an issue with it… I think the lack of education about DNP um, and all the other PEDs just causes issues you know. If people know how it worked, there wouldn't be a huge issue with it. It would just be, “let's make sure you do it safely”. But you know, that's not how it is right now. (Male, USA).

Interestingly enough, some participants thought this negative viewpoint to be beneficial; “the last thing we need is more people that have no idea what they're doing, getting a hold of it and killing themselves with it. It's a dangerous compound, you know.” (Male, USA). Several participants drew parallels between 2,4-DNP use and AAS use, saying 2,4-DNP use has a “very similar vibe as steroids have, where you hear about only the bad things that can happen and you never look at all the benefits.” (Male, USA). AAS use is often associated with an aesthetic extreme of large amounts of muscle mass and consequently seen as an aesthetic outlier.

When discussing whether this attitude would change in the future, one participant was optimistic regarding future perceptions of 2,4-DNP: “I think at least, based on America, [laughs], everyone here is looking for that magic skinny pill that helps you lose weight…" (Male, USA). Weight loss is a relatable goal for the majority of the general public, as it fits with the "traditional" societal norms of beauty, particularly in Western societies.

The idea of an uninformed public is clear through these excerpts; the public is perceived as having "no idea" regarding what they are doing, alongside making hasty judgements based on a prominent media story. An ingroup/outgroup divide emerges from the data. This could account for the secrecy which surrounds the community, and could impact help-seeking behaviours.

*4.3.2.2.2. Perceived attitudes of friends and protecting self-image***.** In general, participants were hesitant to inform their social networks of their 2,4-DNP cycles. It was perceived that naïve individuals held biased views towards this practice and only ingroup members could have an informed and valid opinion.

Participants sometimes divided their friend groups into "bodybuilding friends" and "non-bodybuilding friends". This was crucial in their eyes; related to the earlier concept of the "layperson's" lack of education and misconceptions. One participant said they

> …didn't want them to uh, think that I was some crazy drug addict either because if my friends outside the bodybuilding community heard that I was using this performance enhancing drug, I think their initial reaction would be "oh my gosh you are doing drugs, that's bad" and I did not want them to think that at all. (Female, USA).

Fundamentally, participants viewed only ingroup gym-goers as trustworthy in relation to the accuracy of their opinions of 2,4-DNP. They were very concerned of outgroup’s prejudices and negative opinions of drug use, and how they could potentially be damaged by negative stereotypes.

4.3.2.2.3. Protecting the family. The decision whether to tell friends and family about drug use can be difficult. Our cohort feared closure and non-acceptance, particularly with family. Those who kept their use away from family had various justifications for not informing them of their 2,4-DNP use, with one stating “what they don't know won't hurt them.” (Female, USA). One participant elaborates on his decision to tell some of his friends and family:

> I'm pretty open about my PED use so it was something that, um, most of my friends were kind of interested in when they found out. You know, I have done a good job of explaining stuff to people so um, I didn't have any problem telling most of them. I kept it on the down low for the most part cos of… my parents, cos they weren't huge fans of it. But everyone else I was pretty open with. And, um, you know, it was a good experience from that too, I had other people that'd, you know, if something were to go wrong, they would know about it at least…it wouldn't be a whole bunch of people wondering what happened. (Male, USA).

This particular individual’s reasoning for informing his friends and family stemmed partly from a safety perspective. The usage of the word “at least” indicates that this was a minimum requirement for them, made on a personal level. Informing a small group of people for safety reasons was suggested as good practice.

4.3.2.3. Perceived attitudes of the gym-going community ("There's two extremes…"). Participants almost universally acknowledged that there was growing interest within the gym-going community for 2,4-DNP use; some individuals were more "open" to its use, whilst others considered it to be wholly dangerous and unnecessary to any fat-loss goals individuals might have:

> … as with many things, there's two extremes: people who are very much for it you know, who supported using and people who you know, call it "The Devil" and say no, you should never use it. And there's people in between… (Male, the Netherlands).

Some participants offered potential reasons why some individuals in the gym-going population might disapprove of 2,4-DNP use; "…a lot of people don't like that there is this pill that you can take which causes you to lose fat" (Male, Canada). These people believe that there is an extremely high possibility of abuse. 2,4-DNP is viewed negatively because it is seen as a "no effort" pathway to reaching weight loss goals. 2,4-DNP is considered different to other PEDs: with other PEDs, the general understanding is that you still have to work hard and be consistent, whereas with 2,4-DNP, "you take it and it works" (Male, Canada), implying training and diet are not needed.

4.3.2.4. Participant attitudes towards 2,4-DNP ("I have to respect the hell out of this supplement"). Our participants were almost overwhelmingly positive about their use of 2,4-DNP, although they emphasised the need to "respect" the compound due to the potential adverse effects, alongside its lethality at certain doses;

> Right, my opinion is that it can be used very safely, and very effectively, to get great results, in a short period of time. But, the other side

> of the coin that, the other side of the coin is, you know, this is a fact, is that it is lethal at a certain dosage you know. There is all these adverse effects you know, such as the cataracts, it messing with you, with your thyroids, your metabolism, all these different things. It can adversely affect you that way. I think if you know what you're doing, and you do it properly, it can be used very safely and very effectively. (Male, the Netherlands).

For other participants, similar themes of respect and “doing it properly” were notable. it is crucial that underlying attitudes towards 2,4-DNP are “… based on the foundation of ‘I have to respect the hell out of this supplement’ and I can't ever get out of turning into this mindset of getting impatient or taking more is better.” (Male, USA).

According to another participant, the “wrong way” can lead to consequences “as severe as, you know, death. Or you know, having to deal with PN [peripheral neuropathy] symptoms for a long time or developing cataracts” if you do it the “wrong way”. (Male, USA)

Most acknowledged that high doses were dangerous and condemned individuals taking high risks;

> …they're running a gram a day and I think that's reckless and asking for something to go terribly wrong. I believe the half-life is somewhere around 36 h, so I mean there's no way to get it out of your body other than waiting. And if you gotta wait 36 h for half of it to get metabolised, there's nothing you're gonna be able to do to keep yourself alive and your body just starts cooking… (Male, USA).

Upon further elaboration, when asked if they would ever push the boundaries with dosages, almost every participant said no. One went so far as to state that “it'd be a… one time experience thing [laughs]…" (Male, USA). Another stated "Not in a million years. For me…there's really no need, why risk messing up my body, you know. It's a marathon, not a sprint." (Male, USA).

In contrast, our participants strongly advocated for harm reduction measures as being the "right way" to approach using 2,4-DNP. One participant stated the importance of implementing "…due diligence and background, getting the blood work you need, taking the supplements and cycle support you need." (Male, USA).

When asked if they would recommend 2,4-DNP to anyone else, there was a definite polarisation. Some stated they would recommend it, provided certain conditions were met,

> I would definitely recommend DNP to people given that I have sufficient background with them. Erm, for someone for example online as I do most of my discussions online, I would not recommend it freely just because, I would give my opinion on it but I wouldn't actually tell them whether or not they should do it. (Male, Canada).

However, others went so far in the other direction;

> I would not recommend DNP to my worst enemy. It is, in my mind, it is a poison as well, I take it because I want the results. I do, if somebody told me they were taking it, as long as they've done their research, I will wholeheartedly support them. But I would never recommend it to somebody. I'd rather them find out about it on their own, do their own research and fully understand and grasp what DNP can do, what potential side effects are, what you can really gain from it before attempting it. And I would never, I would never supply it to anybody, I would never recommend it. (Male, USA).

Our cohort considered themselves to have a strong respect for the compounds, grown out of the research they had conducted before using 2,4-DNP. Most participants strongly advocated for individual research before embarking on a 2,4-DNP cycle and implementation of harm reduction measures. Polarised attitudes towards recommending 2,4-DNP could be, in part, due to its lethality and severity of potential adverse effects.

4.4. Discussion

Our results give a number of novel insights regarding how 2,4-DNP users approach their use, as well as how perceived public perceptions influence their behaviour. It is clear that the majority of users get their information almost exclusively from the Internet. Users consider themselves well-educated on the risks and effects of 2,4-DNP, with most having done what they considered to be extensive research before embarking upon a cycle.

The four themes can be viewed through the overarching thematic lens of control, present to some degree in all the sub-themes discussed. It was clear how important the Internet was with regards to users' 2,4-DNP experiences. Users turned to the Internet for a number of purposes; from sourcing 2,4-DNP, to researching the compound and cycle details, as well as peer-to-peer experience sharing. In this sense, it was considered a powerful tool that allowed the sample to exert control over this risky practice. In particular, the Internet enabled users to exhibit greater control over their 2,4-DNP experiences in the following ways:

Firstly, the anonymity the Internet can provide was considered a valuable asset. Users can choose to be as anonymous or identifiable as they wished. There are a number of methods used to research and obtain 2,4-DNP which leave no trace. With regards to PEDs in general and the stigma attached to them, anonymity is extremely important for users. Many stated they did not want friends or family to know, due to the surrounding negative attitudes.

Secondly, the wide variety of PED-related information available via the Internet makes it a powerful tool for research. For example, several participants were able to find research papers about 2,4-DNP use effects on humans, increasing their knowledge on the compound's effects. Additionally, users could get anecdotal information from specific forums. Users were able to control which of these sources of information they utilised, based on their level of knowledge and trust in the information source.

Thirdly, participants had a wide variety of suppliers and vendors from which to choose. Different suppliers provide different dosages per capsule, types of 2,4-DNP (whether it was crystal or powder form), and even possibly supply other PEDs for participants.

Users' attitudes towards public perception of 2,4-DNP influenced who they told about their use. Many users made the conscious decision to not divulge their drug use to their family (and often friends). Some made the distinction between "gym going" friends and "non gym-going friends". The stigma attached to 2,4-DNP use has many similarities to stereotypes associated to the use of PEDs in general. Some participants likened it to the overwhelmingly negative attitudes prevalent in society towards AAS use. Notably, some participants perceived this negative stigma as a benefit, in order to prevent any "laypeople" encountering and ingesting the drug. Most participants in this sample had experience with previous PED use, therefore considering themselves well-versed in harm reduction in similar contexts. In contrast, the general population was not as well educated or knowledgeable about the necessary harm reduction measures necessary with any PED. Participants made it clear they were different from the general public due to their knowledge and experience with PEDs, as well as training and diet.

An additional point to consider is the distinction even within the gym-going community between 2,4-DNP and other PEDs regarding effort. The use of 2,4-DNP has been reported to increase basal metabolic rate by 11% for every 100 mg ingested (Grundlingh et al., 2011). The gym-going community considers 2,4-DNP a "short cut" compared to other methods of losing weight, since a rigid diet is not necessary for the drug to be effective. Conversely, AAS use is associated with pushing beyond genetic "natural" limits, a perceived necessity for certain disciplines such as bodybuilding.

Finally, the control theme underpins all aspects pertaining actual 2,4-DNP use. Participants controlled their lifestyle and other substance use while on 2,4-DNP and all but one benefitted from having experience with other PEDs. Users in this study also carefully controlled what, when and how much they revealed about their high-risk behaviour to their social groups and differentiated based on how well-informed they believed they were. Users also considered their social image when choosing not to tell friends about 2,4-DNP use. This high degree of control, coupled with respect for this very potent but highly toxic chemical suggests very clearly that users do not haphazardly take risks with 2,4-DNP. Rather, users search for information, educate themselves about the drugs and side effects, keeping a controlled lifestyle and not exceeding the amount they felt was "safe".

Participants were well aware of the risks associated to 2,4-DNP use. Many participants had a "threshold" dose which they would not bypass due to their concern about unwanted side effects. In particular, participants were concerned about death.

Whilst participants seemed keen to take the risk of ingesting 2,4-DNP, the risk appears to be a “calculated” one, rather than an impulsive decision.

What is clear from the interviews is that participants would take as many measures as they felt were necessary to mitigate negative effects and yield only positive outcomes from 2,4-DNP use. According to the sample, negative societal effects (by not informing certain social groups of their use and maintaining anonymity) and negative physical effects (through the use of supplements or drugs, as well as through self-experimentation) could be contained and controlled. For participants, controlling and mitigating negative effects was crucial and each participant exercised their control by making certain choices within their goals and possibilities.

It can be suggested that the control element found in our cohort’s narrations reflects commonalities with eating disorder symptomatology (Marzano-Parisoli, 2001). A distinction between “practical” control (in this context, controlling as many elements as possible to reduce harm from the compound) and “pathological” control (control which stems from a pathological root) is nonetheless necessary. Media reports indicate that in those suffering from eating disorders or some other pathological conditions (e.g., exercise addiction) and use 2,4-DNP, often fatally (e.g., Moore, 2017, July 27th; Philby, 2013, April 23), death or serious health conditions were related to overdosing with 2,4-DNP. It remains unknown whether overdosing were due to impurity; the lack of knowledge and understanding or loss of control over the measures taken for weight loss. Further research is warranted to compare and contrast elements of “practical” control, necessary when using a highly lethal compound such as 2,4-DNP and the “pathological” control characteristic of eating disorders or exercise addiction.

4.4.1. Comparisons with past research

In part due to difficulties in recruiting from this population group, studies on attitudes of 2,4-DNP users have been scarce. Qualitative studies which include thematic analysis are even rarer. Petróczi et al. (2015) administered a semi-qualitative, self-reported survey to 35 2,4-DNP users. Similar to our results, the Internet was a major source for obtaining information on 2,4-DNP as well as for acquiring the actual substance. Users were aware of the health risks and made an informed choice to use the compound regardless.

A netnographic study was undertaken by McVeigh et al. (2016). This study examined online community comments from 2,4-DNP users, using thematic analysis. The results uncovered novel descriptive information focused on purchasing, dosages, outcomes, side effects and cycles. Individuals' attitudes towards 2,4-DNP partly mirrored our results; user groups utilised scientific studies and discussed use from a physiological perspective. Whilst McVeigh et al. (2016) compared 2,4-DNP users to novel psychoactive substance (NPS) users, we identified differences between 2,4-DNP users and AAS users.

(Gottardi & Fimognari, 2010) suggested a spectrum of two extremes of AAS users; the 'first extreme profile' is an individual who has a high hazard knowledge and correct risk perception − though the perceived high reward is worth the risk in their eyes. The second user is the 'second extreme profile', an individual who perceives a moderate amount of reward, yet risk and hazard perception related to AAS are limited.(Gottardi & Fimognari, 2010) suggested most users will fall between these two extremes. It is possible to extend this scale to 2,4-DNP users − the majority of our participants acknowledge the high risk and numerous potential hazards associated with using the substance. However, the high reward (high amount of fat loss in a short amount of time) is worth the calculated decision they made. Thus it is possible they would fall under the “first extreme profile”.

This is also reflected in the amount of 2,4-DNP users ingest. In our and similar studies, 2,4-DNP users appear to be significantly more conservative with their doses when compared to AAS users. Parkinson & Evans (2006) found that the average dose of AAS used has increased from 1997 (where the reported dosage was 500 mg) to 2006 (where dosages of 1000 mg and more were reported in the study). Whilst no studies exist to determine typical 2,4-DNP dosage, informal suggestions range between 200 and 600 mg, with potential users being advised to start off at the lower end and gradually taper up if they can do so (Petróczi et al., 2015). AAS users are mostly concerned about long term effects (Parkinson & Evans, 2006), and side effect increases with increasing doses and number of AAS taken concurrently (Bolding, Sherr, & Elford, 2002). Long term risks versus short term risks could potentially influence the risk and hazard perception of each user group, and this perception of acute harm could impact the dosages and methods of use in AAS compared to 2,4-DNP.

4.4.2. Limitations and future directions

Procedural limitations were present within this study. One of the main limitations was sample size. Despite the interviewer being an “insider” for the community, recruitment was still challenging due to the high level of suspicion among community members. Additionally, recruitment was conducted in a short period of time (approximately four weeks). It is possible that a larger sample could be recruited over a longer period. However, it should be noted that a sufficient level of data saturation (Fusch & Ness, 2015) was reached with our sample; similar themes were appearing repeatedly, and a point had been reached where no novel information was appearing.

Self-selection bias is an element present within this study. Many of the users in our sample were open about their drug use, as well as educated on it to some degree. However, providing representative information of 2,4-DNP users was not our intent. We aimed to provide an in-depth description of the 2,4-DNP decision-making processes. Future studies could perhaps recruit from gyms as well as other online avenues to diversify study populations, thereby opening up a new pool of participants who could discuss a different array of attitudes and experiences.

Whilst we attempted to recruit from a diverse range of participants, it is clear most participants were white Caucasian males. This might be due to the stigmatisation of female PED use; female drug use in general appears more stigmatised than male drug use (Hecksher & Hesse, 2009; Van Olphen, Eliason, Freudenberg, & Barnes, 2009). Fewer women are willing to be open about their PED use compared to males. Scientific understanding of female PED use is much more limited compared to male PED use. Future research could potentially investigate female-specific 2,4-DNP use and decision-making.

4.4.3. Recommendations for prevention and harm reduction policies

It has been previously suggested in the context of AAS use that deterring people via exaggerated scare tactics and only emphasising negative effects has limited effectiveness (Petróczi, Dodge, Backhouse, & Adesanwo, 2014). Rather, an evidence-based harm reduction approach appears to be more effective in reducing health costs (Goldberg, Bents, Bosworth, Trevisan, & Elliot, 1991). Another potential direction for future research would be gathering more participants from a wider cultural pool. Currently there is little research to determine whether cultural background influences how individuals approach PED use (in particular, fat burners such as 2,4-DNP). This could be accomplished via cross-country research.

Prevention of use by presenting evidence-based information could be effective for non-users interested in initiating 2,4-DNP use. However, additional approaches should be considered for experienced 2,4-DNP users, who might not be so easily dissuaded from use. Additionally, the easy availability of the substance through the Internet makes "harm-minimising" by controlling substance access challenging. It has been suggested that harm reduction in this context should focus on decreasing drug-related harm, as opposed to reducing drug use (Hunt et al., 2003). In the context of other PED users, this is a well-established concept, for example through the use of needle and syringe service providers (NSPs). Notably, NSP programmes also provide information on maximising the effects obtained from AAS in order to minimise the amount used (Kimergård & McVeigh, 2014).

In the past, AAS users have been reluctant to take advice from doctors as they feel they are more educated on AAS and other PEDs than health professionals (Pope, Kanayama, Ionescu-Pioggia, & Hudson, 2004). Future research could examine if similar processes occur in a representative 2,4-DNP user cohort, determining whether similar perceptions towards medical professionals are present. Considering the findings of this study, 2,4-DNP users are pro-actively engaged in avoiding potential harms but engage in preventative measures in an isolated manner. This protective factor can be reinforced and supported by acting on possible negative attitudes towards health professionals.

Health professionals and other groups of people in contact with 2,4-DNP users should also understand that this population considers itself well informed about the risks involved. Our cohort utilised scientific studies (where possible) in order to determine dosages and educate themselves on side effects. It must also be remembered that this user group bases decision-making on other users' experiences, and realises that experimenting with such a substance without adequate medical supervision is inherently extremely risky.

Findings also highlight the importance of creating and maintaining community relations with the target population; the depth and richness of information gathered during our qualitative interviews brought forth many valid harm reduction recommendations from our cohort, for example informing a close friend when starting a 2,4-DNP cycle. Additionally, it can be empowering for the community to be part of policy creation. It is imperative to forge a connection with the PED-using community, and actively involve them in policy creation as much as possible. Considering the submersed nature of the PED using population and the high risks involved in using 2,4-DNP, developing effective communication strategies that better inform research, policy and preventative measures is vital. Harm reduction is an important standpoint in promoting a non-judgemental attitude and improving communication with the PED using population (DeCorte, 2001).

In a community where peer experiences are highly valued, peer-to-peer education schemes, presenting information in a non-judgemental light, and advocating the benefits of moderation in consumption whilst cautioning against excess could have beneficial outcomes for the gym-going population. Considering the dose-dependent danger associated with 2,4-DNP, this moderation-based approach would be far more effective than withholding information to prevent use. Taking all of this into account, policy creation could potentially occur through well-conducted participant action research (PARs) initiatives (Baum, MacDougall, & Smith, 2006).

4.4.4. Conclusion

Participants concluded that if used with caution, 2,4-DNP is highly effective and efficient as a fat loss agent. However, many also remarked upon its dangers. The main concern, in addition to adverse physical effects, was the risk of death. Most considered "respect" for the compound to be important and pivotal to reduce adversities. Internet has a powerful role and interactions with peer groups online shaped perceptions towards 2,4-DNP and other PEDs. Attitudes towards 2,4-DNP use are particularly polarised and complex within in-groups.

Further research on 2,4-DNP use within gym-goers is warranted. Understanding users' motives and decision-making processes is crucial to develop better interventions and policies. It is also a priority to adopt a non-judgemental approach and avoid further marginalisation of 2,4-DNP users. Instead, using their experiences to devise prevention, education and valid harm-reduction strategies could be beneficial to public health initiatives.

What this study adds

This paper uncovered some key insights into risk management, perception and mitigation relating to 2,4-DNP use. From chapter 2, some notable similarities exist concerning risk perception and mitigation. For example, though the potential side effects were different for each cohort, controlling dosages and cycle lengths were key elements of controlling for unwanted side effects. Additionally, disclosure in both cohorts stemmed from the perception of stigmatisation. This was mitigated through controlling disclosure. This element of disclosure, alongside the gap in the literature concerning the patient-doctor relationship form the basis for the next study; a thematic analysis work investigating influential factors into the patient-doctor relationship with AAS-users. Through study 4 (chapter 5), a greater understanding can be built concerning the perception and navigation of risks within a different context; that of the clinical interaction. Additionally, the next study will bring “out of community” perspectives of risk relating to PED use through the exploration of doctor’s accounts and perceptions.

Chapter 5: Outgroup perceptions of PED-related risk through the exploration of the patient-doctor relationship with AAS-using patients

Preamble

This chapter leads on from the last in two ways: firstly, by moving from the idiographic (chapter 2) through to the in-community perspectives through to this chapter which includes out-group perspectives. Secondly, this aims to build upon the risk perception, experience and navigation outlined in the previous two chapters by exploring the risk of stigma and anticipating stigma in greater detail. This also aims to explore what risk means to those likely to come into contact with PED users.

Two sides of the same coin: A qualitative exploration of experiential and perceptual factors influencing the clinical interaction between doctors and Anabolic-Androgenic Steroid using patients

5.1. Abstract

Background: Modern patient-doctor interactions involve complex interplays between patient and doctor autonomy. This complexity is intensified in stigmatised populations, such as anabolic-androgenic steroid (AAS) users. Regardless of their class C classification, possession for personal use is legal. Despite this, previous research indicates that medical providers express negative perceptions and poor knowledge of AAS and AAS-using patients, and AAS-using patients perceive doctors negatively. Exploring this unique clinical interaction in greater detail could provide a holistic understanding of the underlying dynamics and help foster a more cohesive collaboration. For the first time, this study qualitatively examines the influential factors upon the clinical interaction as identified by both cohorts.

Methods and Findings: This is an exploratory two-cohort qualitative study. Participants were recruited via purposive snowball sampling in the UK. In line with the interpretivist paradigm, an interview-based qualitative study design using an inductive thematic analysis method was used to elicit detailed experiential data. Individual in-depth interviews were audio-recorded and transcribed verbatim. Data were analysed utilising iterative inductive thematic analysis.

Twelve participants (six AAS-using patients, six medical doctors) were individually interviewed. Six themes were identified: four themes for AAS-using patients (perceived riskiness of disclosure, low expectations of clinician knowledge and skill, perceived power imbalance and identity as an AAS-using patient and anticipation of mislabelling) and two for doctors (professional and contextual barriers and professional role quandary). The overall picture suggests that the primary factors impacting this clinical interaction involve stigma management techniques among AAS-using patients and dealing and coping with clinical uncertainty for doctors.

Conclusions: Blurred lines regarding enabling versus management create a problem impacting both patient and doctor. Further discussion remains regarding the role of doctor and patient autonomy. Greater clarity is required regarding what constitutes as appropriate management. Improving access to healthcare services and guided AAS cessation, if necessary, are vital for effective harm-reduction.

5.2. Introduction

Modern medical interactions can be a delicate balancing act. Ostensibly, both patient and doctor share the same objective of better health outcomes for the patient. However, what exactly defines a "better" health outcome can differ significantly between both sides.

Shared-decision-making models of medicine create debates concerning the clash between patient and doctor autonomy (Millenson, 2017; M. Parascandola, Hawkins, & Danis, 2002; Sandman, Granger, Ekman, & Munthe, 2012). Continually growing patient autonomy expectations and greater accessibility of information mean the role of the patient and doctor remains unclear, and professional role boundaries become ill-defined (Yagil & Medler-Liraz, 2015). These lines are further blurred when working with individuals exercising their rights to push limits through using morally charged performance-enhancing substances, such as Anabolic-Androgenic Steroids (AAS).

AAS are synthetic substances used for performance and aesthetic enhancement within the gym-going community (Ainsworth et al., 2018). Despite its Class C classification in the United Kingdom (UK), possession for personal use is not illegal (Ainsworth et al., 2018). A significant increase in AAS use within the 16-24 age range has been documented in the UK (Broadfield, 2017). In lieu of precise prevalence rates, actual rates of use are suspected to be considerably higher than reported rates of use (Ainsworth et al., 2018). AAS use results in several potential ergogenic effects; these include muscular hypertrophy and strength increases (Ainsworth et al., 2018). However, several possible adverse effects can arise from AAS use; these include hypogonadism, cardiovascular aberrations, mood changes, and other effects (Ainsworth et al., 2018). It is these side effects that cause medical concern. For doctors, mitigating these side effects is thereby of clinical importance. Within a harm-reduction context, the patient-doctor interaction is considered a critical factor in preventing drug abuse (Hawk et al., 2017). Therefore, ensuring adequate medical engagement through addressing a cohort's needs is paramount to mitigating potential harms.

In a harm reduction context, poor patient-doctor interactions can be rife with mistrust and unclear expectations (Yagil & Medler-Liraz, 2015), leading to needs not being met (Backhouse & McKenna, 2011; Yu, Hildebrandt, & Lanzieri, 2015). The resultant poor care engagement contributes to worsening health outcomes, a process seen in other stigmatised populations (Backhouse & McKenna, 2011; Yu et al., 2015). Additionally, healthcare avoidance can lead to missing the diagnosis and treatment of other risky behaviours in some AAS using patients, including recreational drug use (Yu et al., 2015).

While there is limited research examining the clinical interaction within an AAS use context, a systematic review exploring pan-European doctors' attitudes towards doping practices showed a limited amount of AAS knowledge despite exhibiting mostly negative attitudes towards doping (Backhouse & McKenna, 2011).

Moreover, studies uncovered healthcare providers expressing more negative attitudes towards AAS using patients and eating disorder sufferers than towards cocaine users and healthy adults (Yu et al., 2015).

Despite a shared goal, the literature highlights an incongruency in what optimal health outcomes mean for each cohort. The paradox between shared goals and a disharmonious interaction warrant in-depth investigation. To this end, uncovering the contributory factors would provide an improved understanding of this clinical interaction.

5.2.1. Aims and objectives

This study aims to explore what contributing factors influence the patient-doctor interaction qualitatively. More specifically, it investigates how they influence the interaction through exploring the perceptions and attitudes of each cohort.

5.3. Method

5.3.1. Design and Setting

This exploratory qualitative study is conducted within an interpretivist philosophical paradigm. This qualitative study design was chosen due to our focus on the lived experiences of participants using naturalistic data collection methods.

5.3.1.1. What is interpretivism? Interpretivism, also known as social constructionism (Creswell & Poth, 2018), is the philosophical position which asserts that reality is fluid (it changes with context) and subjective (different individuals perceive a shared event or experience differently). Factors such as values or pre-existing experiences can shape these realities (Gibson, 2016). The primary research aim of interpretivist paradigms is to understand the lived experiences of others and explore how factors such as values, culture and pre-existing experiences shape their perceptions of their experiences (Creswell & Poth, 2018; Gibson, 2016).

5.3.2. Recruitment and Sampling

After obtaining institutional ethical approval (see appendix G), recruitment commenced. We aimed to purposively recruit information-rich participants who could provide insight on the topic in question (Patton, 2015). Inclusion and exclusion criterion guided this purposive sampling process. The inclusion criteria for each participant in both cohorts were a minimum age of 18 years old and residence within the UK. For AAS using patients, either being current users of AAS or having a prior history of AAS use were the only cohort-specific eligibility criteria. AAS using patients did not have to have seen a doctor for AAS-specific issues; this was to explore their perceptions relating to disclosure of use when visiting the doctor for a separate issue. For the medical doctor cohort, cohort-specific criteria enabled either retired or currently working doctors to participate. No specialism restrictions were imposed. There was no requirement for doctors to have had clinical experience with AAS using patients; this is to understand how they perceive their role as practitioners instead of direct clinical experience and their perspectives on AAS-using patients.

Both online and in-person recruitment methods were used to obtain more diverse data throughout the UK. Sampling strategies are outlined below:

5.3.2.1. Doctors. The first author used online groups and preliminary connections to find participants (snowball sampling). A range of specialities, age, sex and clinical experience with drug use and AAS using patients were recruited to obtain a diverse range of perceptions and experiences.

5.3.2.2. AAS using patients. Due to the self-contained and niche nature of the communities, the first author recruited AAS-using participants through her gym-going community networks. After identifying online community gatekeepers, they were given a prepared statement to disseminate the research brief (snowball sampling) (Bengry, 2018). Gatekeepers disseminated this brief on their online communities. Individuals expressing interest in participating were contacted via one-to-one messaging or email by the first author.

5.3.3. Data collection

5.3.3.1. Interview questions. In line with the interpretivist paradigm, semi-structured interviews were used. The flexible, non-directive nature of semi-structured interview empowers the participant to organically explore experiences or viewpoints they feel are most pertinent. Simultaneously, semi-structured interviews ensure information relevant to the research question is collected due to the question guide (Roulston & Choi, 2018). Question creation was a collaborative, iterative process in conjunction with the co-authors and peers in both participant cohorts (Chamberlain & Hodgetts, 2018; Liamputtong, 2007b; Roulston & Choi, 2018). Interview questions were created based on the exploratory aims of this study. We first outlined broad topic areas we considered potentially relevant to the research question (Roulston & Choi, 2018). Questions were formulated to elicit particular experiences or perspectives of each participant. A "mirror" format enabled similar questions were used for both cohorts; this helped obtain their perspectives on this shared experience (see appendix H for the full interview schedule and appendix I for the demographics questionnaires). The final question protocol consisted of five primary areas with questions grouped under each category: perceptions of PEDs, including problems and management (e.g. "how do you feel about AAS use?"), impact of prior experiences with doctors or patients (e.g. "how does it feel to obtain medical care as an AAS user"/"what experiences have you had of working with AAS using patients?"), perceptions of the community (e.g. "how do you feel the AAS-using community feel about doctors in general?"/"how do your colleagues feel about AAS use or users?”), attitudes on disclosing use (e.g. “how do you feel about disclosing use to your doctor”/”how do you think patients feel about disclosing AAS use?”) and expectations and/or medical knowledge related to AAS use (e.g. “how do you feel about your current knowledge on AAS?”/”how do you feel about your current medical knowledge of AAS as a clinician?”).

Questions acted more as a general guide for the interviewer rather than a rigid schedule; participants could choose to elaborate on any points they deemed critical, as well as retain a more natural flow of dialogue (Chamberlain & Hodgetts, 2018; Liamputtong, 2007b). In stigmatised populations or those with time constraints and other restrictions, the use of collaborative, flexible interview approaches between researcher and participant are warranted (Chamberlain & Hodgetts, 2018; Liamputtong, 2007b), in line with the co-creative facet of the interpretivist paradigm.

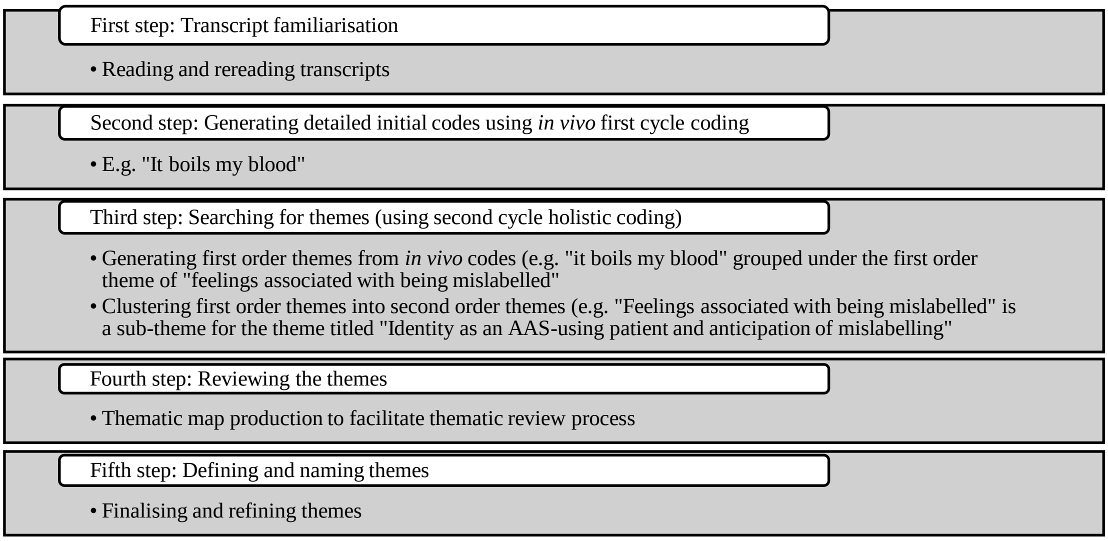
5.3.3.2. Procedure. One-to-one one-off semi-structured audio-recorded interviews were done in person, over the telephone or online video calls (i.e. Skype). Individual interviews were used to explore participants’ personal experiences and beliefs in a private setting; this was important considering the stigma associated in this context (Chamberlain & Hodgetts, 2018; Liamputtong, 2007b).

Interviews were not conducted in work settings. Each participant was interviewed in a location of their choosing. The first author conducted all the interviews. Each interview began without recording to build rapport with the participant (Roulston & Choi, 2018). Verbal consent was obtained from each interview at the beginning of recording through the reading and agreement to a consent paragraph (Roulston & Choi, 2018). Anonymised paper forms and online responses were used to collect demographic information. Each participant was assigned an alphanumerical identifier to preserve anonymity. Participants were offered the opportunity to review their transcript, but all declined the offer. Interviews and recruitment continued until data saturation (O’Reilly & Parker, 2013) had been reached, as deemed by the first author in agreement with the co-authors. Data saturation occurred when no new emergent patterns were evident, and data was repeating itself (O’Reilly & Parker, 2013).

Each audio-recorded interview was between 37 minutes and 79 minutes in length (mean interview length = 55 minutes). In total, 663 recorded minutes of interviews were conducted for both groups, generating 298 pages of interview data for analysis.

5.3.4. Data analysis

NVivo.10 software was used to analyse the data. Data analysis was conducted using an inductive, iterative thematic analysis from Braun and Clarke’s (Braun & Clarke, 2006; Braun et al., 2019) method by NPA. This approach was used to reinforce the inductive, naturalistic approach used within interpretivist paradigms. Figure 5 outlines the analytical process in brief.



First step: Transcript familiarisation

- Reading and rereading transcripts

Second step: Generating detailed initial codes using *in vivo* first cycle coding

- E.g. "It boils my blood"

Third step: Searching for themes (using second cycle holistic coding)

- Generating first order themes from *in vivo* codes (e.g. "it boils my blood" grouped under the first order theme of "feelings associated with being mislabelled"
- Clustering first order themes into second order themes (e.g. "Feelings associated with being mislabelled" is a sub-theme for the theme titled "Identity as an AAS-using patient and anticipation of mislabelling"

Fourth step: Reviewing the themes

- Thematic map production to facilitate thematic review process

Fifth step: Defining and naming themes

- Finalising and refining themes

Figure 5. Image showing the process of thematic analysis as per Braun and Clarke's (2006) method.

Firstly, transcripts were read and re-read multiple times by the first author for familiarisation. Interviewing and analysis were concurrent. Secondly, initial code generation occurred through *in vivo* coding. First-cycle coding consisted of *in vivo* coding for each transcript to retain the participants' perspectives by using their own words (Saldaña, 2016). Detailed line by line coding was used for the first two participants of each cohort, after which *in vivo* coding was done on a sentence by sentence approach for each participant. After extensive immersion with the transcripts and *in vivo* coding completion, the third step of thematic analysis (searching for themes) commenced. This process was facilitated using a second-cycle holistic coding strategy; this clarified intergroup conceptual commonalities throughout transcripts through initial cross-transcript clustering of coded segments according to conceptual similarity (Saldaña, 2016). This process identified first-order themes through grouping *in vivo* codes into conceptually similar thematic groups. These first-order themes were clustered further into broader second-order themes, which were more applicable to each cohort. Continual production of in-depth memos from the first interview facilitated this step of thematic analysis. Utilising memos enabled continual analysis and reflection upon the data in greater detail, contextualising concepts and experiences (Lempert, 2012). The fourth step of thematic analysis, thematic review, consisted of producing several preliminary thematic maps throughout on paper to visualise and refine conceptual connections, as per Braun and Clarke (Braun & Clarke, 2006; Braun et al., 2019). The fifth step of defining and naming the finalised themes reflect a pattern of shared meaning-making across participants, inclusive of divergent attitudes and experiences (Braun et al., 2019). Thematic refining occurred in conjunction with the co-authors. The analytical process was non-linear throughout and involved revisiting transcripts regularly to ensure applicability.

5.3.4.1. Quality criteria. Due to the paradigm used within this paper, alongside the thematic analysis method, the quality checklist outlined in Braun and Clarke (Braun & Clarke, 2006) ensured adherence to a consistent, robust approach to thematic analysis while keeping in line with the flexibility thematic analysis offers. COREQ guidelines were also used to adhere to qualitative quality control standards in health science publications.

5.4. Results

5.4.1. Participants

Six doctors and six AAS using patients were recruited (n = 12). Table 6 outlines relevant demographic information. Each participant has a culturally appropriate pseudonym for readability purposes. All doctor participants were currently practising in the National Health Service (NHS). All AAS using patients are gym-goers, with some having competitive bodybuilding experience.

Table 6

Participant demographic information (AAS-using patients and doctors)

Pseudonym	Category	Gender	Age range	Education level	Ethnicity
Adam	AAS using patient	Male	35-44 years old	University (postgraduate)	White
Matthew	AAS using patient	Male	45-54 years old	A-level or equivalent	White
Peter	AAS using patient	Male	25-34 years old	A-Levels or equivalent	White
Frank	AAS using patient	Male	45-54 years old	GCSE or equivalent	White
Oscar	AAS using patient	Male	18-24 years old	A-levels or equivalent	White
Nathan	AAS using patient	Male	25-34 years old	University (Undergraduate)	White
Philip	Dr (SEM)	Male	35-44 years old	University (postgraduate)	White
Preeti	Dr (GP)	Female	35-44 years old	University (Undergraduate)	Asian (British)
Lorna	Dr (Psychiatrist, harm reduction)	Female	35-44 years old	University (Undergraduate)	White
Anita	Dr (GP)	Female	45-54 years old	University (Undergraduate)	Asian (British)
Aman	Dr (A&E)	Male	35-44 years old	University (Undergraduate)	Asian (British)
Laura	Dr (ITU)	Female	25-34 years old	University (Undergraduate)	White

Note. A&E, accident and emergency; AAS, anabolic-androgenic steroids; A-levels, advanced level qualifications (UK school leaving qualifications); Dr, doctor; GP, general practitioner; ITU, intensive care unit; SEM, sports and exercise medicine

5.4.2. Themes

Within this section, themes are organised in group perspectives: AAS using patients and doctor themes.

5.4.2.1. AAS using patient themes. Table 7 outlines the AAS using patient specific themes and subthemes.

Table 7

AAS-using patients’ themes and sub-themes

Themes	Sub-themes
Perceived riskiness of disclosure	Making the decision to disclose The disclosure-honesty relationship
Low expectations of clinician knowledge and skill	Poor level of clinician knowledge Expectation of poor clinical style
Perceived power imbalance	“Us versus them” Inability to relate to clinicians Doctors as gatekeepers
Identity as an AAS-using patient and anticipation of mislabelling	Self-perceived differences between AAS and ARD use Feelings associated being mislabelled

Note. AAS, anabolic-androgenic steroids

Four themes were present, each with subsequent sub-themes: perceived riskiness of disclosure, low expectations of clinician knowledge and skill, perceived power imbalance and identity as an AAS-using patient and anticipation of mislabelling.

5.4.2.1.1. Perceived riskiness of disclosure. Perceived riskiness of disclosure was characterised by the decision-making process behind disclosure and a relationship between disclosure and honesty.

5.4.2.1.1.1. Making the decision to disclose. The process to disclose AAS use in a clinical interaction is an informed and calculated decision-making process. As will be clear in the accounts below, the actual decision-making process before disclosing is more complicated than it may appear. Several individual factors are taken into consideration. For example, one reason why an individual may not disclose is due to the experience of stigmatisation. Nathan elaborates on the negative feelings associated with disclosing his use, showing how disclosing can be risky by creating discomfort and embarrassment through experiencing stigmatisation:

> …it's a general question… do you use performance enhancing drugs? At the doctor's you might say, no… I have held things back and I've been embarrassed with it, you know, going in and saying to people, going to seeing doctors about my use because of how you're judged on it. – Nathan, M, AAS-using patient

Disclosing and being fully honest seemed particularly pertinent when a threat to life was established. One user stated that if major organs were affected, it was essential to divulge all information to get appropriate and essential care;

> NPA: So when you say if I thought it would help them what situations would you consider the information to be important?
>
> Frank: Problems with your heart or problems with your liver or kidneys, anything like that, you've got to tell them, it helps them work out what's wrong with you, if you don't tell them they're not getting all the

> pieces of the jigsaw so they can't do anything to help you so you've got to give them all the information you can. - Frank, M, AAS user

These accounts suggest that there is a threshold between anticipating judgment and getting appropriate treatment. For Nathan, it was more important he received the correct medical care for a serious abscess than avoiding stigmatisation through disclosure. What this quote demonstrates is how disclosure appears to be a choice up to a certain point. When it is a life or death situation, as perceived by the individual, disclosure is not a choice, but a necessity:

> I mean it's more important to be honest than, to make sure that I was okay because when I got to hospital, if I left it, it could have got into my blood and it could have been game over and when I got in hospital, my leg got even worse by the night time, I couldn't walk cause of my leg so if I'd left it and I hadn't been honest, it could have been, I could have been in a really bad way so I had to do it for my own health. - Nathan, M, AAS user

5.4.2.1.1.2. The disclosure-honesty relationship. Participants described a paradoxical relationship between disclosure and honesty, depending on the context of the disclosure. For example, Peter describes how if he was honest with his doctor, he would not have obtained what he considered to be appropriate treatment. Here, his understanding of the medical problem at hand becomes a factor in his decision to disclose his AAS use. Below is an interaction detailing receiving medication for acne:

> NPA: What do you think would've happened if you were honest with him?
>
> Peter: I probably wouldn't have got the help I needed. I probably wouldn't have got the medication that I wanted.

NPA: Why would that have been?

Peter: Because they seem to think that because I was taking them out of my own choice that I shouldn't be allowed to have the medication to treat certain side effects that come with it. - Peter, M, AAS user

In summary: for AAS-using patients, disclosure was perceived as a risky process in a multitude of ways. Participants reacted accordingly by carefully considering the decision to disclose. In particular, risks are balanced between encountering stigmatisation, judgement, and experiencing adverse health outcomes. Combined with the perceived relevance of their AAS use to the medical problem and their self-perceived grading of the medical problem itself all feed into the perceived risk associated with disclosing their use. Based on the risk associated with being honest, participants would carefully control which information they would give to the doctor. This withholding of information and control of disclosure appears to be an attempted redistribution of power, as they aim to retain agency throughout the medical interaction.

5.4.2.1.2 Low expectations of clinician knowledge and skills. Participants not only perceived disclosure as being risky; they also often described their low expectations of clinician skill, understanding and knowledge.

5.4.2.1.2.1. Poor level of clinician knowledge. For some participants, it was a lack of clinician knowledge which impacted the interaction. This is considered pertinent when working with a patient cohort who have, at the very least, a basic level of understanding. This clash in perceived knowledge levels can create problems within the medical interaction. The impact of this upon the clinical interaction is plain to see; participants will be less likely to engage in medical interactions if they anticipate doctors having little to no knowledge about the topic. Matthew outlined how AAS-using patients will "shut off" when encountering scaremongering and incorrect information about AAS from clinicians:

> …the average user does know the basics and though you still get those idiots that don't have an absolute clue what they're doing there's a lot of information out there. And when a professional… when they give advice that is either dated or proven to be incorrect, they [the patients] used to shut off. "You don't know what you're talking about; I'm not going to listen to you anymore". And it's very damaging for them in their engagement…But when they come out with ridiculous stuff like, "Everything you've got wrong with you is down to steroids", and, "Yeah, that's because of steroids". "Oh, your heart's going to explode, or this is going to happen. This might…", come on. You know, you're just shutting people off. – Matthew, M, AAS-using patient.

5.4.2.1.2.2. Expectation of poor clinical style. For others, it was not necessarily the level of knowledge, but the expectation of a poor clinical style rife with judgement that negatively impacts the clinical interaction. Frank describes how the subtle negative nature of an interaction makes him feel:

> … it's a general whole, it's hard to put into words here, they just look at the original problem, that was bad for you, you shouldn't have done that, well that's not helping the case, we all know there are side effects, we know that when we start taking them, I'm just here for a wee bit of help… - Frank, M, AAS-using patient.

Frank went into the interaction with a particular desired outcome in his head ("a wee bit of help"). Yet, this subtle judgemental interaction invalidates his informed decision to use AAS. This element of the interaction is unwanted and demonstrates the clash in goals for the clinical interaction. Other negative interactions also demonstrate subtle interactions, evoking feelings of being patronised and negative judgements:

> I can't remember what they were saying but you know when someone's being patronising to you, and then, its more, little comments or how they say things and also how they look at you, you know, they give me that look, disappointing look at you... - Nathan, M, AAS user

Of note is how participants perceived the underlying judgement and negative perception within these interactions. A stigmatizing or negative clinical manner is perceptible, no matter how subtle. For some participants, first-hand experiences of a more overt stigmatizing clinical manner came to mind;

> And I've got a few cases of first-hand experience where I've received prejudice and I've seen dismissal. I was once admitted to hospital with a suspected brain aneurysm…. So a consultant came round and they said, "Well we can see that your liver enzymes are elevated". "Yeah". "And I know that, you know, have you used steroids?" I said, "In the past, yes". "Oh, well that's what it will be then and that's what's causing the problem in your head". And I went, "Woah, woah, woah, woah, woah". I said, "If you look at my records you'll see I was in here some months ago, unrelated issue. Full set of bloods done", "Yeah", "and you'll see that my liver enzymes are fine and normal". "Yeah". "I've not used in seven-month period. So your assumption is wrong". I've said, "The fact is I'm currently on antibiotics but you never bothered asking that, did you?" This resulted in the consultant walking off in a huff and 12 hours later I discharged myself from hospital having received no further medical treatment. - Matthew, M, AAS user

For Matthew, his knowledge of his body and his results enabled him to “stand up” for himself in this interaction. Matthew’s example showcases how being at the end of this clinician’s swift assumptions can feel. The interaction seems steeped in hostility, without any collaboration. His self-advocacy appears to be a protective factor in clinical interactions, in anticipation of poor clinical manner.

The excerpt below demonstrates how a poor clinical interaction characterised by poor clinician manner can be disappointing. Peter describes feeling let down and as if the doctor did not care about their wellbeing. Feelings of disrespect and frustration are evident in this experience:

> …it kind of made me feel like he didn’t care what happened to me, he didn’t care. Like as a doctor they should know things you know, like they’re medical professionals, they should know enough to know that there are good things and bad things about them… And the fact that you can go and, if you’ve got a heroin addiction, you go to the doctors and they’ll help you, you know. If you’re on steroids everyone looks at you like you’ve just walked into a church and pissed on the floor, like they hate it. So I think let down may be the right term because why should I be treated any different because of the things that I do, you know? It’s completely legal within the eyes of the law to take them, so why should a doctor not be willing to help you, you know? Fat people get help if they’re eating, like if they’ve got an addiction to food if you like, so why shouldn’t I have the same you know, the same rights. – Peter, M, AAS-using patient.

“Feeling let down” shows how certain expectations are had regarding the clinical interaction and role of doctors. This is similar to Frank when he stated how he wanted a “wee bit of help”. For Peter, getting medical help was a “right”, on par with other similarly stigmatised patient cohorts. Clearly, there is a clash between patient and doctor expectations from the patient's perspective. Not obtaining the help they required demonstrates the expectation of poor clinical manner. The prevalence of this interactive style is summarised when Peter mentions how "surprised" he felt when, rather than being combative, he had a non-judgemental and collaborative interaction with the clinician;

> I was relieved [laughter]. But also shocked, he was more helpful than I was expecting…with him, I was really comfortable, like I felt like I could literally tell him everything and there was no judgment. He wasn't judgemental at all, he was actually there wanting to help me rather than judging me and trying to educate me and force opinions down my throat. – Peter, M, AAS-using patient

It is important to note that other positive doctor experiences were characterised by feelings of collaboration, non-judgemental approaches and acceptance within clinical interactions:

> It was one GP I had experience with who was non-judgemental of my choice to use and though he trod the line of management but not enablement very well, and he understood why and he understood the goals but he also understood the dangers. And so obviously his primary was to try and minimise my risk and hopefully prevent me from using but he accepted that it was my choice and if I was going to choose to use then he guided me on what areas I needed to be aware of and what to look out for. - Matthew, M, AAS user

In short; AAS users want to feel like they have a more active role in managing the risks from their AAS use. Positive experiences are an important factor in helping create stronger interactions through enabling the patient to feel respected and comfortable. Currently, participants anticipate low levels of clinician skill and knowledge in relation to AAS-use, thus negatively impacting the interaction through poor engagement.

*5.4.2.1.3. Perceived power imbalance***.** Within the AAS users' interviews, there was a perception of a power imbalance which manifested as an "us versus them" belief. Additionally, participants mentioned struggling to relate to their clinicians within interactions. This struggle, in turn, has a strong negative effect upon engagement within the clinical interaction.

5.4.2.1.3.1. "Us versus them". This perception serves as a reminder for the AAS using patient regarding their role in the clinical interaction as being passive and as a "lower status" compared to the doctor:

> So when you go and see a high-end endocrinologist or a high-end cardiac specialist or a high-end plastic surgeon, doesn't matter what specialism they're in, straight away you feel very subservient. You feel like you're in a room with someone who's really important and really special and that you need to be a little bit, you know, beneath them. - Matthew, M, AAS user

The term "subservient" is a powerful word which demonstrates Matthew's perception. Feeling subservient indicates how the interaction does not feel equal, nor collaborative; rather, it indicates elements of paternalism and control. Matthew then expands on this notion through discussing the "ivory tower" element. An "ivory tower" perception means it is challenging for the AAS-using patient to relate to the clinician;

> GPs very much have the sort of ivory tower persona attached to them, not them deliberately doing it themselves but they're viewed in this, you know, lifestyle of purity and never done anything wrong and aren't unhealthy in any way, shape or form and so therefore you're going to judge me, and to a degree that's backed up quite often that they do. - Matthew, M, AAS user

5.4.2.1.3.2. Inability to relate to clinicians. Living in an ivory tower is indicative of the perceived power discrepancy between AAS-using patients and doctors. One core defining component related to the ivory tower factor was the inability to relate to clinicians. The importance of lived experience and relatability is outlined in this excerpt. It demonstrates how important understanding and acceptance are for AAS-using patients seeking help for problems related to their AAS use, and the impact the lack of relatability has on patient engagement:

> Matthew: Prime example… I'm going to stick the Head of REDACTED Endocrinology Department on a stand and I'm going to stick (Male bodybuilder name REDACTED) on a stand. I'm going to fill the room with steroid users. I'm going to tell them who the two people are and I'm going to ask them to pick who they're going to go to for advice. Do you know where they're going?
>
> NPA: Where do you think they would go?
>
> Matthew: They're got to (Male bodybuilder name REDACTED). Course they'd go to (Male bodybuilder name REDACTED) because he looks like he knows what he's talking about.
>
> NPA: Yeah. Of course.
>
> Matthew: He's lived it because he had real-world experience. The Head of REDACTED Endocrinology has never lived it, he's just read about

> it, so he can't tell you what it's like to wake up at three o'clock in the morning…covered in sweat. He can't tell you what it's like to be having sex with your partner when you're on tren [trenbolone] and actually getting the urge to harm them. He can't tell you what it's like to sit there when you're doing 100mg of tren and crying into your porridge because you're watching Lassie and you can't cope. He's never been there.
>
> NPA: Of course, yeah.
>
> Matthew: So who would you talk to? Who would you go to? You'd go to the person that's relatable. – Matthew, M, AAS-using patient

5.4.2.1.3.3. Doctors as gatekeepers The perception of a hierarchical dynamic and the consequent lack of relatability serve to widen the communication gap between patient and doctor. Related to this hierarchical dynamic is the perception that doctors are service gatekeepers. This can lead to the perception of doctors as service gatekeepers, rather than being collaborative. This factor is defined by a clear perspective of what the doctors' role is with regards to this cohort. AAS users discussed the concept of a general practitioner (GP) having a "duty of care" and defined their duty of care as giving them opportunities to monitor their health, and not act as an authoritative, judgemental figure:

> But I don't think it's a good idea blankly to refuse people to look at their own health markers due to the GP disagreeing with their own ethical considerations, I don't think that's their position at all. As a GP they have duty of care. I can't imagine them turning away many heroin addicts, when I think about it, saying, no you've done it to yourself go and deal with it. To me a GP is there to care and look after you and trust you and they break that trust and they talk to you like an authoritative figure in that state, when

> they’re not. They’re there to care for you, not to tell you what you should and shouldn’t be doing, essentially. - Oscar, M, AAS user

In line with this viewpoint is their desire for doctors to accept their AAS use as an informed decision. One participant’s use of the word “a grown man” indicates the desire to acknowledge their decision to use AAS as a mature, informed choice. This participant outlines how they want their decision to be respected, rather than being told what to do:

> Like I’m a grown man, like I know what I’m about to do, I know what I have been doing and okay, it may not be the smartest thing I’ve ever done in my life, but I’ve weighed up the pros and cons. I’m not asking you to tell me what I should do, I’m asking you to help me make it the best version I can, you know. - Peter, M, AAS user

Participants clearly outline the desire for their choices to be respected, and the desire for a more collaborative approach. However, a perceived power imbalance feeds into the categorisation of doctors residing in an “ivory tower” and living a “lifestyle of purity”. The subsequent feelings of subservience and hierarchical differences make it a challenge for AAS-using patients to relate to clinicians, thus negatively impacting the clinical interaction. In addition, the roles of doctors as being authoritative “gatekeepers” feeds into participant perceptions that their needs are not being addressed on their terms and create a struggle to obtain their desired outcomes.

5.4.2.1.4. Identity as an AAS-using patient and anticipation of mislabelling. Of note is the impact AAS-user's self-identities and labels had upon the medical interaction. This, combined with their perceptions towards alcohol and recreational drug (ARD) users, impacted how they felt when they were being grouped together with these individuals. This identity threat has a notable effect on the interaction by resulting in negative emotional feelings, in turn facilitating poorer engagement.

5.4.2.1.4.1. Self-perceived differences between AAS and ARD use. Notably, there were quite significant differences in the self-perception regarding AAS use and ARD use. For example, AAS use is associated with a strong sense of being a responsible individual contributing to society;

> NPA: What differences are there between steroid users and recreational users?
>
> Frank: That's a hard one, I really don't know how to put it into words, well for me personally steroid use helps me, because of my age the engine in the body doesn't run as smoothly as what it used to and I get a lot of aches and pains in my knees and my joints...but you see a lot of the recreational drug users that go out at the weekend, going on a bender, some of them in a spot, getting into mega debt because they have missed work so I've never done that, I have never had to miss a day's work due to it so I think this is totally different. - Frank, M, AAS user
>
> …But I'm not causing a nuisance to people, I don't go out stealing to be able to afford my steroids, I don't you know, hide away and sit in a bloody alleyway somewhere leaving dirty needles on the floor. You know, I pay for my steroids out of money that I've earned from a job that I work. I'm not on the dole. . . If you're claiming Jobseekers and doing stuff like that, then

> you're an idiot in my opinion because you should be focusing on food and living. . . I'm safe, I clean everything, I dispose of everything in the sharps bin. The sharps bin goes to the doctors to get disposed of or to a tattooist and then they dispose of it for me. All my empty vials go in a bag, in a Tupperware pot, then in the bin. . . I don't leave needles around for a five-year-old kid to pick up and jab themselves with. - Peter, M, AAS user.

5.4.2.1.4.2. Feelings associated with being mislabelled. Considering these differences, there is notable anger at being labelled by doctors as a "drug user" due to the associations with ARD users:

> Let's just it boils my blood, there is no way you can put me on par with a heroin user or a cocaine user or anything like that, it's totally different, it's not even in the same ballpark really so it does, let's just say, boil my blood. - Frank, M, AAS user

Clearly, participants fiercely value their identity as a functional and responsible member of society; their drug use is instrumental and functional. The purposes are for self-improvement. This is a stark contrast to the perception of ARD users, who are perceived as reckless and irresponsible. Thereby, the consequences of being miscategorised as an ARD user, particularly by a medical professional, can be unsettling. For Adam, the additional risk of miscategorisation as a street drug user from disclosure led to compartmentalisation and feeling stigmatised after disclosing his AAS use. Adam describes how he feels "dirty" when being categorised alongside recreational drug users and "junkies":

> …It kind of makes you think, "I just feel dirty now. I just feel I've been put in that bracket again." I suppose, you have your Hollywood image

> of your junkie and you've just been put in that box. – Adam, M, AAS-using patient

These accounts show the power of words; how important their self-identity and self-perception is. AAS users wanted their use differentiated from alcohol and recreational drug (ARD) use. These differences appear to be related to how contained their AAS use is and the impact on the environment and community (in terms of functionality versus non-functionality, resources utilised, and other related aspects). For example, the effects of their AAS use on their society and community is different and perceived as comparatively low risk. However, the negative perceptions associated with ARD use (high risk for community and environment and using a large number of societal resources) mean there is frustration at being associated with ARD users. Participants felt their AAS use was as a controlled, conscious decision made for self-improvement purposes. In contrast, ARD use was considered reckless and non-functional and associated with negative experiences such as being in debt or being jobless. The impact of these perceptions upon the interaction are clear, as participants outline feelings of anger and frustration at this mislabelling. These passages highlight the importance of understanding the labels this cohort attach to themselves, alongside the differentiation between "functional" versus "recreational" use and utilising this within the clinical interaction.

5.4.2.2. Doctor themes. Table 8 outlines two core themes identified by the doctor participants: professional and contextual barriers and the professional role quandary.

Table 8

Doctor themes and subthemes

Theme	Sub-themes
Professional and contextual barriers	Impact of experience and resources Lack of guidelines
Professional role quandary	

Note. AAS, anabolic-androgenic steroids; ARD, alcohol-recreational drugs

5.4.2.2.1.Professional and contextual barriers. There was a distinct relationship between experience and resources. Experience was shaped by clinical exposure, which in turn also shaped resource allocation for certain clinicians. A lack of either led to uncertainty and difficulty in clinical interactions, or perceived difficulty in lieu of direct contact. This was further compounded by a lack of guidelines, which created further difficulties in the clinical interaction by not providing organizational safeguards or specialist pathways to seek information and help from.

5.4.2.2.1.1. Impact of experience and resources. Doctors often commented on how rare AAS users were within their typical patient cohorts, alongside the limited amount of training provided on substance misuse in general throughout their medical career:

> Well it's not something that, I mean we may have covered it briefly in medical school. I think we had one, our medical training was very much kind of case base, so you'd have a case. I think I recall having one case where it was mentioned. But it's not covered, and perhaps that's because it's not that common. But yeah, it's a gap in my knowledge, I imagine it's a gap in quite few kind of my equivalent people, my peers. (Laura, F, ITU).

For some clinicians, this low clinical exposure presents problems differently. Lorna explains the structured nature of resource allocation and the challenge associated with assigning resources to issues which do not appear to be prevalent. The problem with a low clinical prevalence rate means limited resources get allocated for that particular cohort, in favour of more immediate healthcare concerns. As a result, resources are not allocated to cohorts for which a large demand does not exist. Consequently, there can be risks associated with "stepping outside" the set targets;

> Sometimes the dilemma is that if you don't meet your targets you will suffer financial penalties. So, if I put a lot of resources into something which no one's shouting at me as a problem [yeah], I run the risk of missing other targets and then losing my service. So, [I see, yeah] it's actually, there are very strong disincentives these days to actually step outside of what you're commissioned to do… – Lorna, F, Dr (Psychiatrist)

For Anita, she reflects on the hypothetical prospect of how a lack of knowledge and resource availability can impact her role as a clinician during an interaction with an AAS-using patient. Her perceived lack of knowledge and the lack of resources mean the clinical consultation would be "tricky". Her concerns revolve primarily around not meeting the patient's outcomes:

> Certainly me as a doctor being able to educate the patient that I'm doing the right thing giving him the information that I don't know much about it, but also telling him the facts that the resources are very limited. I know I may not be helpful here to him, at that present time, but certainly to see people I would be struggling so I get a mixed feeling that the consultation should maybe be a bit tricky to what the patient's expectation may not be

> fulfilled there and then which I hope he or she will understand why it is. (Anita, F, GP).

The potential impacts of limited exposure were clear; a lack of exposure facilitated feelings of uncertainty, and participants reflected on how uncomfortable this lack of knowledge made them feel within their patient-physician interactions. But what about improved exposure? One doctor explained the importance of increased patient clinical exposure in improving doctors' abilities to deal with specific cohorts through improved confidence:

> . . . The more you see something the more confident and familiar you are just managing off that but the less you see something, the more you have to kind of go back to the guidelines and make sure that you know what you're doing. - Laura, F, Dr (ITU)

Aman outlines the impact of increased exposure. Aman, who encounters AAS users in a non-clinical gym context as a gym-goer as well as clinically, strongly differentiates between AAS users and ARD users and speaks positively of AAS-using patients:

> We can't compare these people with the street drug users, abusive of over the counter drugs, or the cocaine users or the morphine users or any other ketamine users, we compare them no, absolutely not. . . If you are talking only about the steroid patients, they're nice, they're very gentle, they talk to you very nicely and they will tell you the truth that they're lifting this weight and it ruptures or they come up with depression. . . they are educated, well mannered, well behaved and they listen to us, they will do exactly what we ask them to do as well. And we do treatment no problem, and they're well mannered, they're not aggressive. . . And because I've got a

> constant people around me that use steroids, so my vision towards those guys has changed a lot. . . – Aman, M, Dr (A&E)

This excerpt highlights how, through regular contact with this cohort in a non-clinical context, the increased familiarity has facilitated a more positive shift in perspective and confidence when treating this patient cohort.

5.4.2.2.1.2. Lack of guidelines. Another key facet was a lack of guidelines available to manage AAS-using patients. A distinct lack of organisational referral pathways or clinical guidelines can negatively impact the clinical interaction. Preeti outlines the challenges of working with a niche clinical cohort without accessible pathways into secondary care by using the example of gender reassignment patients and care pathways. Here, the feelings of uncertainty are palpable, and the example shows clearly how a lack of organizational pathways negatively impacts a clinician's confidence if they are unsure:

> . . . very different [situation], gender reassignment. It's niche, it presents actually more than it has ever before but managing that is incredibly specialist, managing the hormone treatment, prescribing the hormone treatment, knowing where to start the regime, that is incredibly niche but actually that is falling in primary care but under the guidance of secondary care with a clinic for men, consultants have got the remit, they've got the protocols that they want to use for that. So if I have a patient who comes to me who would like to transition, he needs to, I don't know where to start with that so I need to find out how to manage it so that means looking at local service, who do I refer him to, so if I have a patient who comes to see me who has got a question that I can't answer I will go and find

> out the answer, it may not be managing it but it may well be going well actually you need to see this person in the sports clinic and it might be private. So that's the clinical needs, if I've got a person ask me a question I might not be able to answer it there and then, I might not even manage it because it might not be me, it might need to be somebody who deals with it day-to-day who is safe, who has the experience, who has the credentials to manage potential side effects, adverse outcomes, somebody not reacting in the predicted manner to their regime, I have no idea where to start with anabolic steroids and coming off them, I don't even know where to start taking them so I can't give you that advice and so therefore I would need to outsource that… - Preeti, F, Dr (GP)

For Preeti, a lack of pathways or guidelines create a serious problem. Without that organizational framework and associated backup, Preeti describes feelings of anxiety and uncertainty. And yet the existence of guidelines and protocols does not supersede the importance of experience. For Preeti, even if there were appropriate guidelines and resources, Anita describes how a lack of exposure to these patients would mean she did not feel comfortable administering care:

> As a GP, I can do many things but should I and that's where it comes down to, that even if I've got guidelines and protocols about how to manage somebody having issues with anabolic steroids I'm not necessarily going to because I won't have the experience of dealing with it on a repeated basis. . .
> - Preeti, F, Dr (GP)

5.4.2.2.2. Professional role quandary. All participants agreed that information and helping with decision making was within their clinical remit. However, there was a notable clash regarding management: it was unclear whether management was within the remit of GPs or not. Outsourcing to more knowledgeable services or units appears to be a method of professional risk management. Some doctors stated they saw themselves as providing information or being an interpreter of information. The assumption is that there is a large amount of information out there, and AAS users might not necessarily possess the tools to interpret it accordingly:

> But I guess it's about providing the high-quality stuff. And about finding a way to direct people to these resources, say for example, if you get a steroid user, I might be able to say to them, well, if you're going to, go to here because you know you've got safety information, you've got a bit more about how to use it in a controlled manner obviously I recommend you don't but if you're going to do it as best you can sort of thing. - Laura, F, Dr (ITU)

However, this is a paradoxical perspective, as one GP acknowledged wanting to give more information but simultaneously lacking the knowledge to do so:

> Certainly me as a doctor being able to educate the patient that I'm doing the right thing giving him the information that I don't know much about it, but also telling him the facts that the resources are very limited. I know I may not be helpful here to him, at that present time, but certainly. . . I would be struggling... - Anita, F, Dr (GP)

The harm-reduction psychiatrist stated their role would be very similar to ARD users within the context of substance misuse through behavioural changes and psychological support:

> Well, I guess I would argue that if someone's got a problem controlling their use of a substance, there's going to be a huge amount of overlap. A lot of the addictive behaviour's going to be the same. The difference might be in what you do about it, your understanding of what the impact might be. No, a lot of the stuff we do isn't actually getting people off drugs, it's reducing harm or helping them make changes, making things a bit safer, a bit less unpleasant. So yeah, I mean I would always expect that I would be utilising a lot of my skills in say behavioural change, motivational interviewing. I think these things would all be the same, but there are specifics that I should know about steroids that I know that I had someone else turn up I would have to go and look it up again. - Lorna, F, Dr (Psychiatrist)

Some saw themselves as an advocate for their patient. This sport and exercise medicine (SEM) doctor perceived their role to be one of risk management and patient protection, particularly in an environment where numerous power dynamics might be at play:

> If I was the doctor for an amateur rugby club and somebody said "the coach has been giving me injections" or "asking me to take X, Y and Z" then my responsibility would be to the player who'd been my patient to educate them on the risks of what they were doing, the health risks in particular. If it was clear that it was coming from the coach then I'd have to find a way to get more evidence, also if it wasn't clear I'd have to get more evidence, if it was clear or if there are others who are saying the same things then I'd have to find a way to talk to the coach about it. . . I would talk to the coach about the risks of the medication that they were recommending, explain that they were

> illegal, that there were significant health risks in doing so and also that they are in a position of authority and power over the players and therefore that would be potentially an abuse of that position if they were requiring them to take them. - Philip, M, Dr (SEM)

These accounts provide a clear clash in expectations and perceptions regarding the management of AAS users. There seems to be a clash in what constitutes a doctors' duty of care, with no clear line of referral or external support. Multiple roles exist within the doctors' sphere of clinical practice; and yet, the role when treating AAS users is not well-defined and left to a subjective assessment of the practitioner. This factor can create uncertainty, anxiety and the perception of not meeting desired health outcomes on either side of this interaction. Ultimately, these clash in goals between their desired goals (health outcomes) versus the goals of the AAS users (performance-related) are summarised in this quote:

> Acknowledgement, yes there is always acknowledgement, yes it causes this, yes it causes this but there is always a refusal to do what we want them to do. Because their focus is different and our focus is extremely different. - Aman, M, Dr (A&E)

Doctors in this cohort expressed uncertainties about their role with AAS-using patients. Self-perceived roles tended to range from an educator role through to gatekeeper roles and patient advocate roles. These difference in perception of roles mean there is little structure in what the doctors' role is within these medical interactions. This lack of clarity facilitates feelings of uncertainty, thereby potentially clashing with AAS-using patients desired clinical outcomes and negatively impacting the patient-doctor interaction.

5.5. Discussion

To date, this is the first qualitative study investigating this interaction from these two specific perspectives simultaneously. The concurrent cross-group analysis provides a more holistic and in-depth understanding than previously available. This study provides clinically valuable insights into this interaction upon which interventions and guidelines can develop.

The findings from this study emphasise the importance of clinical contact in building clinician confidence, particularly with hard-to-reach patient cohorts. Professional role identities are fragmented and unclear, leading to inconsistent care and clinician uncertainty compounded by the lack of guidelines and resources.

AAS users often withhold disclosure of their AAS use as a stigma-reduction mechanism. Throughout their accounts, an underlying perception of a power imbalance is present, with stigma management methods attempting to mitigate this through retaining control. Roles and expectations of doctor and patient are ill-defined, leading to an incongruent and inconsistent interaction.

5.5.1. Comparisons with other studies

Due to the novelty of this study with these cohorts in this context, qualitative studies do not exist to provide a direct comparison. However, similar accounts are present in different healthcare contexts (for example, in transgender patients; (Poteat, German, & Kerrigan, 2013). The following sections outline comparisons with stigma management for AAS users in other stigmatised identity contexts, and comparisons with studies investigating clinical uncertainty and exposure for doctors.

5.5.1.1. AAS user-specific perspectives. A comparative survey study conducted within the USA by Pope and colleagues (Pope et al., 2004) indicates AAS users distrusting doctors and holding inherently negative attitudes towards doctors compared to non-AAS users. AAS users rated physician AAS knowledge significantly lower than non-AAS users, and the majority of participants (56%, 27 out of 44 AAS users) did not disclose their use to their doctors (Pope et al., 2004).

In this study, selective disclosure of AAS use is a carefully controlled process treated as a calculated risk-management method. Through selective disclosure, participants focused on prioritising health versus avoiding stigmatisation. Selective disclosure also aims to retain control over medical care obtained, through the self-perceived relevance of AAS use to a medical problem. Participants were also wary of disclosing due to the anticipation of mislabelling as an ARD user– this led to feelings of anger at being miscategorised with ARD users. This process of selective disclosure was also perpetuated by an "us versus them" mentality amongst participants; an inability to relate to doctors, alongside prior negative experiences deepened the chasm between these groups.

AAS use is a concealable stigmatised identity as per the definition in Quinn (2017); concealable stigmatised identities are ". . . culturally defined as distinct from the nonstigmatized, negative stereotypes exist about their character, and poorer outcomes exist at the group level.". It is well-established that AAS use is associated with negative perceptions from the general public (Griffiths, Murray, & Mond, 2016) and healthcare professionals (Backhouse & McKenna, 2011; Yu et al., 2015). Concealability occurs through various pathways, including withholding disclosure (Chaudoir & Fisher, 2010). We can, therefore, contextualise these experiences through a stigma framework. The effects of enacted stigma (direct negative experiences) and perceived stigma (societal and clinical cultural stigma) significantly impact medical engagement amongst stigmatised cohorts (Quinn, 2017). The decision to disclose AAS use is not one taken lightly. A theoretical model is offered through the Disclosure Processes Model (Chaudoir & Fisher, 2010). This model contextualises the when and why of disclosure processes in stigmatised populations. In line with this model, participants' accounts of controlling disclosure revolved around anticipating negative effects, such as anticipated stigma, miscategorisation as an ARD user and withholding of medical care. Similarly, a balancing act of anticipated stigma versus inappropriate medical care is congruent with the avoidant-process mechanism in the Disclosure Processes Model.

One important element which was evident in participants' accounts was the interplay between knowledge and power. In line with a recent systematic review and thematic synthesis, patient knowledge was not enough to participate in a shared-decision making medical interaction (Williams, Elwyn, & Edwards, 2014). Power was also necessary for patients to feel involved in their care. Several accounts show a clear perception of a power imbalance from AAS users; this took the predominant form in their inability to relate to clinicians, as well as experiences consisting of request refusals and perception of doctors as service gatekeepers.

5.5.1.2. Doctor perspectives. Doctors' accounts established that medical professionals operate in a very structured way as often as is permissible; documentation such as National Institute for Health and Care Excellence (NICE) guidelines provide a valuable heuristic for doctors to refer to when treating certain conditions. A lack of guidelines or resources available for medical practitioners means there is little to no standardisation of care when working with AAS users.

Individual experience combined with clinical knowledge of AAS use means the perspective each doctor brings to the clinical interaction is undoubtedly more subjective than before. Combined with a lack of clinical guidelines and resources, these factors combine to create a potential role quandary as doctors are uncertain as to what is defined as appropriate care for AAS-using patients. Experience through exposure was cited as being important for clinician confidence. Specifically, a lack of clinical exposure was associated with decreased clinical confidence and a lack of resources. The importance of exposure for clinical confidence is not novel; intergroup contact has been shown to improve clinician confidence through familiarity and increasing knowledge (Pescosolido & Manago, 2018). The participant who had regular non-clinical contact with AAS users felt confident when treating them. They were also more adamant in separating them from ARD users. In contrast, those with limited contact with AAS users expressed greater uncertainty. Using clinical heuristics in the face of uncertainty is a well-documented process (Eddy, 1984). However, this risks oversimplification through gross categorisation of identities which clash with patient self-perceptions, thereby contributing to poor engagement.

Medical providers' accounts are consistent with accounts revolving around a doctors' role in shared decision-making practices. A study examining doctor role identities (Yagil & Medler-Liraz, 2015) outlined a process of role adoption depending on numerous factors. Multiple identities and clinical roles were present within these accounts, most notably through the difference in perspective regarding their role with AAS users.

5.5.2. Strengths and limitations of this study

This study is the first to explore and offer insights into this complicated clinical interaction. UK-wide purposive sampling, both online and in-person, helped obtain a wide range of experiences and perspectives. This diversity in perspectives ensured that theoretical saturation was reached. Recruiting doctors with a variety of experiences with AAS users helped gather a broad set of perspectives and explore the impact of contact on doctor confidence.

Limitations of this study include the all-male participant group for AAS users. This could be due to the increased number of AAS users being male, or female AAS users perhaps being less likely to seek help from doctors for medical problems. Female AAS users might have a different experience with doctors; however, due to their rarity, it was not possible to obtain their perspective.

5.6. Conclusions and areas for further research

Understanding each side of this clinical interaction is a step towards potentially informing public policy and healthcare professionals concerning the needs of AAS using patients. This study offered an opportunity for a niche and concealed community to share their experiences and perspectives. By doing so, doctors and other healthcare professionals can begin understanding the specific challenges facing AAS users when seeking medical help. In turn, doctor-specific challenges are uncovered and offer an opportunity for doctors to reflect on the challenges of resource allocation and clinical uncertainty. Further perspective uncovers the roles of patient autonomy and doctors within the interaction with a stigmatised, health-literate patient.

Much remains to be done to help build clinical confidence with doctors working with similar unfamiliar patient cohorts. In an age with growing access to information sources and a growing desire for patient autonomy, there remains a need to clarify the doctors’ role in these interactions. Future studies could further explore stigma-management processes within AAS users. This information would provide a greater understanding of population-specific effective harm reduction measures. The focus should remain on improving access to healthcare services and offer guided AAS cessation if deemed necessary.

In a broader context, the findings of this qualitative study raise potential queries regarding doctors' preparedness for potential future drug decriminalisation initiatives; within the context of the "pseudo" decriminalisation of AAS (due to its legality for personal possession), the challenges faced by these medical professionals raise further questions concerning the impact on medical practice changes in drug policy could have. We anticipate these challenges will be relatable to many other practitioners reading this study.

What this study adds

The aim of this study was to explore the influential factors upon the clinical interaction as defined and focused on by participants. The key elements of risk within this study focus primarily on issues relating to stigma and uncertainty. The primary different in this study is the context of risk differing from the other two chapters and the introduction of an out-group perspective regarding risk and PED use. The effects of clinical uncertainty have a demonstrable effect on the interaction for PED-users, resulting in patient uncertainty.

This chapter concludes the empirical studies within this thesis. What remains is the contextualisation of the findings within each study through the use of a theoretical lens. This shall be done in the upcoming discussion section.

Chapter 6: Discussion

The aim of this thesis, broadly, was to explore the perceptions, navigation and experience of risks associated with PED use. These results will be contextualised through the lens of the Risk Society Model (RSM) as outlined in the introduction (Beck, 1992). Reflections upon the ethical facets associated with researching the very topic of PED use and being a cultural insider will be offered as well.

6.2. The experience of risk

The use of qualitative methods meant lived experience was a core component of every empirical chapter. The experience of risk was defined by the perception and navigation of risks. This section highlights how the perception of risk can be discussed from a sociocultural perspective and how risk is navigated through the use of control.

6.2.1 Risk perception: A social-constructionist approach

The results from each empirical chapter demonstrate how risk perception is a highly individualised process dependent on several personal and sociocultural factors. The use of a social constructionist approach to hazard navigation is, therefore, pertinent for this thesis. A social-constructionist approach to risk questions the problematising of risk, alongside suggesting that risk may be a matter of individual perception (Beck, 1992). Fox's (2002) paper asserts that hazards are constructed socially:

> We may accept that discarded needles and other sharps (possibly infected by blood-products) exist as real objects, but in and of themselves, these objects do not constitute a hazard. They become hazardous under certain circumstances, principally if conditions arise such that they may come into contact with and pierce the skin of a person in their vicinity. *And we*

> *know this event is hazardous, not through some 'natural' quality of this event, but because we appraise it as undesired or adverse, based on bodies of knowledge about blood and the risks of infection associated with various blood-borne diseases such as hepatitis B and HIV. The transformation of an 'inert' object into one possessing hazardous characteristics thus occurs only as a result of our evaluations of risk, that is, the likelihood of an adverse result from an incident. Such evaluation may be based on anecdote or personal experience of danger or security. More formally, it may be based on a particular 'discourse' (an authoritative body of knowledge): that of risk assessment.* Thus it is only in the analysis of risks that the hazard comes into existence: if the risk is assessed as zero or close to zero, the inert object would remain just that (regardless of whether it 'really' does possess hazardous characteristics). (Fox, 2002, p. 170, italicised emphasis added).

This understanding of hazard and risk applies to PED use: in and of themselves, PEDs are inert objects. However, under certain circumstances, and depending on our bodies of knowledge and experience, they can become hazardous substances. This is ascertained through the process of risk assessment. Throughout the three empirical chapters, risk assessment occurred on an individual level. In Chapter 3, the risk assessment of AAS use was influenced heavily by societal perceptions of the feminine body. For the women in the study, their ideas of femininity stemmed from societal norms. However, each woman had different boundaries and perspectives as to what elements of femininity they were comfortable with “losing” and which elements could not be compromised, no matter what. What it meant to be feminine for each participant heavily influenced their perception of the hazard of virilisation and, therefore, acceptable risks of side effects. Besides, the occurrent of virilisation was not the only hazard to consider; the temporal element of permanence was an additional hazard. Thus, risk assessment accounted for their goals, compound strength, individual tolerance and their personal boundaries of acceptable and unacceptable side effects.

Chapter 4 outlined the hazard and risk perception associated with 2,4-DNP use. The primary risk here ties into the possibility of dying from the 2,4-DNP use. Again, we see an element of permanence; the uncomfortable nature of side effects is a hazard considered “worth the price” for the sake of almost effortless and consistent body fat loss with the risk of irreversible hyperthermia and death. Personal values and attitudes towards their drug use informed their perception of their 2,4-DNP use. Their use of knowledge resources, such as the Internet and the wider PED-using community, informed their perspectives on 2,4-DNP use. Interestingly enough, this is evident through the understanding that participants would not tell other individuals to use 2,4-DNP; the notable point here is there is a difference in risk assessment between personal use and “encouraging” someone else to use 2,4-DNP. The difference in opinions concerning whether they would tell someone else to use 2,4-DNP can be reflective of how individual the risk-assessment, and indeed perception, can be within this context.

Chapter 5 describes a complex interplay of the individual factors influencing risk and hazard perception for AAS-using patients and doctor participants. Hazards for PED-using participants primarily revolved around experiencing stigma and possibly not obtaining the care they required from medical practitioners. Risk assessment and the negative societal perception culturally inform hazard perception of PED use and drug use in general. Individual factors amongst AAS users include their own AAS knowledge and prior experience with clinicians. For clinicians, the primary hazard was the danger of enabling PED use. Clinicians struggled with the lack of guidelines and information available; thus, they felt they were entering the unknown. In particular, a clinician's personal experience and perspective of their job role influenced their clinical decision making substantially.

Therefore, instead of adopting a singular approach to hazard and risk perception and management (as per the "scientific" approach outlined in Beck 1992), risk perception is a complicated process influenced by many personal and sociocultural factors. Each individual has their values, boundaries and priorities with which to analyse the hazards and benefits of PED use. This extends beyond the PED-using community; we can also see this amongst the doctor participants within chapter 5. To ignore the sociocultural perspectives that each physician has would ignore some crucial insights into their clinical decision-making.

6.2.2. Risk navigation: The element of control

Risk perception is highly individualised; as mentioned previously, personal and sociocultural factors play a large role regarding what participants perceive to be an acceptable risk and what is unacceptable. Building from this notion of risk perception is the navigation of risk through control. Whilst this element of exerting control is more universal across participant accounts, the specific *acts* of exerting control remain very individualised and dependent on personal choices and experiences. The navigation of risk through exerting control could be considered a method of anchoring self-identity; control entails implementing and adhering to or even reframing personal boundaries in the context of unwanted change, which in turn help retain an individuals' sense of self and identity. This relates to the body remaining an anchor within an increasingly uncertain society; control is a form of self-expression and identity, expressed in different ways due to many individual influential factors. What may be one person's perception of "control" is another individual's perception of "risk". This is a direct effect of the risk perception and identification processes explored earlier.

Throughout all three studies, we can see control being exerted in a myriad of ways and how a lack of control can create challenges and difficulties.

6.2.2.1. Navigating risk relating to physical side effects. In empirical chapter 3, the primary risk associated with PED use was namely that of virilisation associated with AAS use. Yet, participants still understood this possibility and continued to use AAS for their end goals. In line with a sociocultural perception of risk, the hazard in question (permanent virilisation) had differing levels of risk (probability of occurrence) attached depending on the participant's boundaries and goals. Additionally, different participants had different boundaries and ways of mitigating this hazard as much as possible. Participants took control over their dosages, compounds used and the advice they obtained from the community and other sources. Particularly with coming off, for participants, it was an active decision-making process which was carefully considered and made for their own personal reasons. Nevertheless, side effects still occurred. Overall, the experiences are a complicated mixture of positive and negative viewpoints; the increase in strength and lean body mass was overshadowed by the development of masculinising features for some. For some, their personal boundaries of "acceptable" side effects were violated, leading to a drastic shift in identity to compensate. This deviation from their identity is uncomfortable and forces some participants to change their perception of their own gender identity. The concepts of biographical flow and biographical disruption in chapter 3 contextualise the narratives presented of this phenomenon. In the context of control, this could be seen as taking ownership of their identity either through stopping AAS use to retain a feminine identity or reframing their own identity.

Chapter 4 outlines the risks associated with 2,4-DNP use. Within this cohort, the primary risk was the possibility of death. 2,4-DNP is a compound which, as of now, does not have an antidote in the event of an overdose. Each participant, again, took measures to mitigate their own risks associated with 2,4-DNP use and its risks. Just as with the female participants in chapter 2 controlling the dosages, compounds used and acceptable side effects, participants controlled their dosages, diet, training and environment very carefully when using 2,4-DNP. This careful control exhibited concerning their 2,4-DNP use demonstrates the respect they hold for the compound and its lethality.

Through mitigating physical side effects, PED-using participants reinforced their identity of individuals focused on being safe and in control. The mitigation of side effects involved controlling dosages, choice of substances and cycle lengths amongst other factors. The implementation of limits and, when considered necessary, the creation of new limits is indicative of a paradoxical process of “static flexibility”; adhering to certain personal limits, yet willing to reframe and shift in the context of new information or bodily changes. This concept of “doing it properly” ties in with similar principles covered in Monaghan (2002) and is a key factor in differentiating these individuals from “users” to “abusers” as defined by individuals. However, risks to identity still remain, as will be explained next.

6.2.2.2. Navigating risk to identity. All three studies discussed the relationship between risk and identity. Of note, one consistent finding from each study is how the experience of stigma is considered a psychological hazard for PED users. This finding corroborates the finding in Monaghan (2002) regarding stigma and PED use and builds on the principle of being safe and controlled individuals.

As described in chapter 5 and previously explored throughout, PED-using participants do not perceive themselves as “drug users” in the same vein as recreational drug users. PED-using participants describe the anger and discomfort experienced when being labelled a “drug user” alongside recreational drug users by doctors. For these participants, PED use is a form of self-improvement and a purposeful, goal-oriented process. Whether this is through aesthetic, occupational or performative goals, PEDs themselves are an instrument utilised for the purpose of self-set goals. Thus, the separation between PED “users” and recreational drug users who are termed “junkies” within this study is apparent. This separation corroborates the experiences outlined in Monaghan (2002). This identity differentiation has been seen previously in other non-PED contexts, namely under the name discursive discrimination (Rødner, 2005; Boreus, 2004).

The concept of discursive discrimination within a drug-use context has been explained in greater depth in Rødner (2005). This study outlined the difference between self-presentation and the concept of the “Other”. The concept of the Other was outlined in Boreus (2004) through a process called “othering”. In short, individuals in the study overemphasised good properties and actions and underrepresented bad behaviour during the self-presentations. Concurrently, they emphasised the bad behaviour and actions of “the others” and underrepresented the good behaviour and action of “the others”. Any similarities were consequently downplayed, or not even mentioned at all.

Of note is the particular point about this identity separation from recreational drug users as a response to a hostile social environment which attaches negative traits to drug use. This is further enforced by the accounts given by physician participants, which tended to be negative about recreational drug using patients. Thus, for AAS-using patients, this separate identity is indicative of moving away from the perception of “deviance” and all that is associated with drug use to form a positive self-identity. PED users outline how their use is defined by research, careful control and mitigating risks associated with PED use. Of note is the association of PED use with self-improvement, a positive goal and motivation for participants. Recreational drug users are termed to be “junkies”, alongside associations with being a “drain” on society, being diseased (through addiction), being dependent and other similar ideas. Yet there was no mention of non-PED drug users who instrumentalise their drug use for self-improvement purposes. This could perhaps be due to the “Othering” process outlined above and how similarities are downplayed or not mentioned at all.

This identity separation makes further sense in the context of empirical chapter 5. Doctors with limited or no exposure to AAS users associated them under the same umbrella as recreational drug users. However, the perceptions and attitudes towards recreational drug users was almost entirely negative. Thus, the identity separation of PED “user” rather than “drug abuser” is understandable amongst a population who anticipate negative reactions and stigma due to their PED use. For these participants, the experience of stigma and the negative associations with being a “drug user” are noticeable throughout their accounts. It goes without saying that the experience of unwanted stigma within their interactions is a highly negative one.

Encountering stigma can be embarrassing, upsetting and cam create a negative emotional effect. Additionally, experiencing or anticipating stigma can negatively impact engagement with medical and harm reduction services. This is demonstrated through how participants treated disclosure as a risky process. Participants mitigated this risk through controlling disclosure of their use. This is in accordance with the Disclosure Processes Model (DPM), outlined previously in chapter 5. Similar processes can be found within empirical chapter 3, as some female participants outline how they control who knows about their AAS use. However, whether this is due to the stigma associated with female use specifically or AAS use in general remains a topic for further research to clarify.

PED-using individuals mitigate the psychological risk of stigma and associated harms through a complex identity construction; one which focuses on labelling themselves as responsible, controlled users who do their research and are able to contribute to the society they live in. Their aims are for the purposes of self-motivation and, in some cases, self-expression of their desire to mould their body as they see fit. This is a clear antithesis to the identity of the stereotypical “drug user” as defined by society, alongside the negative connotations which arise from that label.

The same identity trait of “being responsible” extends to the doctor participants within chapter 5. Doctor participants had clear cut ideas of what it meant to be a doctor, and what this role entails. In line with their self-perceived identities were their ideas of appropriate care; what does enabling mean versus management? For some, being a responsible doctor meant not going beyond what they would consider to be professional duties, for fear of stepping over professional boundaries. Yet this was clearly inconsistent, as what constituted to be professional boundaries were very individualised and dependent on a number of factors such as experience and resources.

6.2.2.3. Navigating risk via knowledge and information gathering. The experiences of information gathering and analysing were outlined in a multitude of ways throughout each study – some female AAS users describe how they did extensive research before “diving into” the unknown of this new path, whilst some preferred adopting a more “experiential” learning style. Doctors and AAS-using patients outline how they got their information about AAS, though to a lesser extent than in the other empirical chapters. In chapter 4, results from the 2,4-DNP qualitative chapter outlined how participants managed their online information intake and sources carefully. Control extends beyond controlling dosages and disclosure; control also exemplifies where participants got their information from concerning PED use.

In line with another element of risk society, Giddens (1999) discusses the concept of globalisation. Globalisation is defined as the strengthening of global social relations connecting distant locations to the extent that events occurring thousands of miles away impact local occurrences and events (Giddens, 1999). In this context, we can use the cyber-networks and improved information access for our participants as an example. Participants derived their information from diverse sources. Thanks to the Internet, journal articles and academic book chapters can be accessed as easily as “community experts” from across the world. Nevertheless, in line with Beck’s (1991) risk society, this increasing technological advance has brought its own challenges. This is arguably the key unexpected risk associated with PED use. Conventional wisdom would not necessarily place having greater information and resources as a potential risk; on the contrary, it would be seen as a benefit. However, now faced with more information than ever before, the risk lies with carefully choosing the correct information sources. Which sources of information are correct? Which individual to trust? How do I know this advice will not harm me? With greater choice comes, in a way, greater risk. Whilst a participant might have been exposed to a limited information pool previously, advocating for "gentler" cycles, they might now come across communities that advocate for harsher and, potentially, dangerous cycles. They might access information they are unable to interpret appropriately, such as journal articles. They might gain greater access to compounds through an improved network of vendors. The associated risks with this are numerous; what is the purity of the substances? What about the dosages? How do I know what I am getting? These questions were outlined throughout. Chapter 3 outlines how female participants demonstrated this aspect through doing extensive research and choosing sources they trusted.

Nevertheless, the specific impact of the Internet within the context of AAS use and risk, whilst it has been elucidated to a degree in all three studies, is challenging to pinpoint clearly. Future efforts need to be made in order to understand the impact greater accessibility to other communities and information sources can have concerning PED use.

6.3. Limitations and reflections

This section will briefly outline some limitations associated with the empirical works, as well as provide in-depth reflections on the ethics of researching PED use and being a cultural insider.

6.3.1. Limitations

Chapter-specific limitations are outlined in more detail within each empirical chapter. The primary limitation of the work presented in this thesis is locality of the participants. Participants were recruited from around the world, primarily using online recruitment methods. As thus, the legislative context is dependent upon their location throughout. Nevertheless, the worldwide perspectives obtained throughout these works highlight strong similarities in experiences, regardless of legislative context. Several aspects of the PED-using experience and risk perspective are universal, transcending locality and legislation.

An additional limitation to consider is the typology of participants interviewed within these studies. PED users are a broad category of individuals – as outlined in each empirical study, each individual makes particular choices and decisions regarding their PED use. However, the individuals who volunteered to participate within these interviews were, on the whole, self-aware and highly conscious of their decision to use PEDs. Aside from one or two individual, every PED-using participant discussed the in-depth research they conducted and the measures they took to mitigate their harms. Oftentimes, they were experienced PED users as well, educated and aware of the risks and hazards associated with their use. While the aim of qualitative research is not to generalise to an entire population, more perspectives from newer users or those who have a different perspective on PED use would have provided accounts from other typologies of PED users. Nevertheless, the unintentional focus on these participants has provided greater clarity and perspective on what harm reduction and risk mitigation strategies look like, as well as potentially providing ideas for practitioners on facilitating within-community experts and educators to promote such practices to those who may be less inclined to mitigate the risks associated with PED use. It should also be reiterated that the aim of qualitative research is not to generalise to an entire population – rather, the aim is to understand in a specific context a particular experience from an individual’s perspective. A similar point can be extrapolated to physicians in empirical chapter 3 – physicians on the whole had little to no clinical experience with PED users, except for one individual who had non-clinical experience and exposure to PED users. Though one physician was contacted who worked extensively with PED-using patients, the conversation was not in a research context and thus could not be incorporated into the final analysis. A future study examining the perspectives and experiences of physicians working directly with PED users could be conducted to determine what clinical exposure and greater awareness can do for this particular interaction.

6.3.2. Reflections on the ethics of researching PED use

It is important to consider the broader ethical issues which in the context of PED use research. Aside from the more specific ethical considerations discussed in each empirical study, there are greater overarching facets to be considered. With this in mind, one example comes to mind.

I had signed up for a network with other academics and professionals who were working in the realm of human enhancement drug use. My interest in researching 2,4-DNP from a harm reduction perspective was therefore made public. Shortly after, I received an email from an academic working in toxicology, exclaiming their surprise at me receiving ethical approval to do research with such a powerful and dangerous compound. They strongly stated their disapproval and suggested research with this particular substance should not occur due to the risk it poses.

In my mind, researching these substances seemed straightforward – one of the reasons I wanted to do this research was to benefit the community. After all, a hallmark of ethical research is the benefit it offers to the community it is researching

(Liamputtong, 2007a). Yet questions came into my mind: what did it mean to be ethical? Why was researching these substances not considered ethical by some people?

To examine this further, we need to consider the concepts of ethics and morality as applied to research. It is widely acknowledged there are three overarching components relating to ethics in research: autonomy, beneficence (and non-maleficence) and justice (Orb, Eisenhauer, & Wynaden, 2001). Autonomy is stated as recognising the rights of participants; their rights to voluntarily participate or decline participation, the right to withdraw from the study at any point without obligation to give a reason and without threat of repercussions. Beneficence outlines that the research must have benefits which outweigh the risks and be worthwhile in and of itself (Marshall, Singer, & Clatts, 1999; Orb et al., 2001). Related to this, non-maleficence is the principle that possible harms must be mitigated and prevented where possible (Carpenter, 2018). Justice relates to the principle of sharing and fairness, stating that participants must not be exploited and abused during the research process (Carpenter, 2018; Marshall et al., 1999; Orb et al., 2001). Of these broad principles outlined, the focus of this particular section will be on autonomy and beneficence, in order to explore the ethics of researching PED use. The ethical principle of justice has been expanded throughout the thesis through the outlines of procedural ethical protocols.

It is imperative to explore some potential reasons why these substances should *not* be researched in this capacity. Two key objections will be noted here and subsequently critiqued, through the lens of the principles of beneficence and autonomy. The first objection is a ideological extrapolation of the immorality placed upon PED use by society. The second objection arises from the interaction I described earlier.

Objection 1: Using these substances is immoral, ergo they should not be researched.

Though this objection might seem very extreme, it is akin to the argument that those who use these substances (and ARDUs as well) should “just stop using them”. Not researching a phenomenon on the basis of morality is, at best, a tenuous objection and at worst an immoral and unethical objection, thus violating the ethical principle of beneficence. Morality is a fluid concept, ever-changing and adapting throughout time (Marshall et al., 1999). Why is PED use immoral in particular? Because it could be considered “cheating”? Is it cheating if participants compete in untested federations or use it without competing in any discipline at all? What rules have they violated?

This trail of thought potentially deprives participants of sharing their experiences and perspectives and works to stigmatise these behaviours, thus impacting help-seeking and creating other negative outcomes for participants (Marshall et al., 1999). This is a clear violation of the non-maleficence principle.

Objection 2: Using these substances is dangerous. Ergo, we should not research them for this reason.

As researchers, we must exhibit caution with the notion of research enabling such behaviours. This objection risks expressing ignorance and imposing a paternalistic outlook. The notion of paternalism and drug-use research has been explored in the context of addiction studies (Pickering, 2018). As qualitative researchers, it is imperative that care is taken to not make assumptions for participants and individuals within the community, thus violating the ethical principle of autonomy. It is the researcher’s duty to respect the fact that these participants have made the decision to use PEDs and conducted the appropriate research to do so. They are aware, more often than not, of the risks and hazards surrounding the use of these substances, as outlined from the results of the empirical work within this thesis. Qualitative research gives participants the opportunities to share their experiences and perspectives. Particularly from a harm reduction paradigm, it is imperative we accept that participants and others within the communities will use PEDs. As researchers, we must move away from a prohibitionist and reductive risk approach and move towards collaborating with these communities to understand the use better and explore their experiences in an empowering manner. This can help not only shed light on their experiences and perspectives, but also help shape the care they may receive from medical professionals and others in that area.

In summary, I suggest that *not* researching PED use in a harm reduction context is unjust and unethical. Research has previously shown how depriving similar populations the opportunity to participate in research can result in further harms to these groups (Bell & Salmon, 2012). It deprives participants of their opportunity to share their perspective and experiences, thus removing lay experiential accounts from the literature. It removes individual autonomy from participants, making the decision on their basis that their use is dangerous and morally wrong. It is also paternalistic and patronising, imposing moral and ethical values on their behaviour from a prohibitionist and protectionist perspective.

Reflecting on the aforementioned experience now, several years later from the first-year PhD student I was at the time, it is clearer that it is a matter of perspective. This particular academic may not have considered it ethical due to his perspective; as a toxicologist, they would be considering the substance from the angle of the death and destruction it has the potential to cause. Yet, this runs the real risk of preventing meaningful research and accounts to exist which can influence harm reduction and healthcare decisions, as well as provide information to a community committed to being educated about their PED use.

6.3.3. Reflections on being a cultural insider

At this stage in the thesis, it is important to reflect on the role of being a "cultural insider" (Suwankhong & Liamputtong, 2015). For example; What does it mean to be an "insider"? What benefits did it lend me in this research? What are the pitfalls?

Discussions revolving around insider and outsider perspectives in qualitative research has been ongoing and continues to be extensively discussed (Dhillon & Thomas, 2019; Suwankhong & Liamputtong, 2015). The term "cultural insider" denotes a researcher who is "inside" the community or population they are studying – also known as a "native researcher" (Suwankhong & Liamputtong, 2015). Being a cultural insider is said to offer a range of benefits which are conducive for qualitative research; namely, the cultural commonalities associated with a particular population lend an advantage in terms of having an underlying and in-depth understanding of behaviours, values, beliefs and knowledge (Dhillon & Thomas, 2019; Suwankhong & Liamputtong, 2015). However, it is not without its challenges either, particularly in an ethical context (Dhillon & Thomas, 2019).

At this point, it is important to establish how I am an insider – as previously established, I was a competitive powerlifter at a high level for a number of years. I am privileged enough to have peers within the community who I know well and have had sustained engagement over a period of years. In the beginning of my research journey, I struggled with the insider/outsider dilemma – being from a positivist background, I was intent on keeping my two identities separate, to “reduce bias”. However, I realised this would not work particularly well while recruiting for the first study I conducted (the qualitative 2,4-DNP study). Below, I discuss a particular experience in this context in greater detail from a diary I maintained:

> I could feel my heart beating in my mouth. My hands went clammy, my mind was filled with a buzzing noise of sorts. I’m pretty sure I even started sweating. A strange fight-or-flight feeling overtook my body. I thought I had done ok – clearly not. Why was this happening? Why was I feeling a knot in the pit of my stomach?
>
> You would think I was talking about being in a competition. In fact, I was attempting to recruit from a performance enhancing drug forum for a study. However, it had gone down faster than a lead balloon. The members were extremely suspicious (“definitely from the BBC, ignore them”) verging on almost caustic and interrogatory. It was in the beginning of my academic career – not the best introduction. I realised, very quickly, that I had gone about this totally the wrong way.
>
> This was the incident that lead me to think about my role as an athlete/researcher. I thought to be totally objective, and distanced, I would merely write a short sentence about the study, offering no insight to myself. Boy, was I wrong. It completely changed my perception of recruitment in the community; this was MY community, one I am a member of. How would I feel if someone did something similar to me?
>
> My partner raised similar questions: ‘What on earth were you thinking? That was a stupid approach, and you know it.’ Deep down, I felt shame and anxiety. Was it going to be this difficult?
>
> I had to totally reconsider my approach to recruitment after this. I went on another forum. This time, I took the time to create an account, contribute to the discussions where possible. Not only because I have ‘lurked’ (read: didn’t take part in discussions), but because it was a smaller, more intimate discussion.
>
> This time, I came prepared with all the documents: ethical approval, my university card, the ethical protocol, any document they might care to read. I went to the administrator (or gatekeeper) of the group. I wrote a longer, more detailed account of who I was (both as an athlete and a researcher), why I was doing this, what this study would entail, and other pieces of information. I made clear that I was not a journalist. I asked for permission to recruit from that group. I felt that similar sense of dread and anxiety creeping up. But I had to bite the bullet, and just do it. After all, you only fail if you don’t even try, right?
>
> ‘Let me talk to the others, and see what they say’ they said. And so I waited. I kept contributing, and anxiously waited and waited. But it worked – I was given permission to recruit from the forum! To say I was delighted was an understatement.
>
> This time, I put a huge amount of effort into the recruiting talk. I was very clear and concise, I offered proof of my identity. And even then, people were

> sceptical. People from the other forum were exclaiming they had ‘run me out’ of the other one, and they would ‘run me out’ of this one too. However, I knew I had shown the gatekeepers proof. I was more solid in my foundation and my information. This time I was not scared off. I explained, clearly, what I was wanting to do and they were welcome to look at the documents I provided the gatekeepers. They never took me up on that.
>
> This situation led me to evaluate my role as a researcher and athlete – how do I deal with a community of which I am a member, that I have friends in? Through the above venture, I made new connections, new friends. And maybe some might say that is a violation of researcher boundaries. However, in a discipline where it is exceedingly difficult to recruit from (and has been noted many times), forming personal connections with people is important. They want to know you are genuine, that you understand their points of view, that, most importantly perhaps, you won’t demonise them. The gym-going community are deliberately secretive for a reason; the constant stigmatisation of their activities have led them to be hostile and aggressive towards ‘outsiders’, whom they perceive might share the same negative viewpoints as the non-gym going population.
>
> From my first attempts, I felt shame partly because I was an outsider in my own community – I was seen as a researcher first, as I did not disclose my athletic side. After that incident, I am more open to any potential participants. I tell them who I am, what sports I do, and emphasise that I am also a researcher. I cannot give them advice on certain elements of their sport, but we do have discussions on various topics. I aim to make them understand that I am not judgemental, I understand some of their thought processes. I make an effort with the gatekeepers of each group.

This experience highlights the benefits which arise from being a “cultural insider” in this context. Due to my sustained engagement within this community, I have come to understand how their perceptions, attitudes and knowledge of PED use have come about, and have listened to many conversations surrounding the risks and hazards associated with their PED use. There is trust on both sides of the researcher-participant interaction as they don’t fear stigmatisation or facing judgement. They feel their perspectives and experiences will be understood better and perhaps, in their eyes, portrayed in a fairer light. My understanding of the compounds that members of the community would use, alongside dosages and cycles and the purposes behind these cycles, meant participants could discuss their use without “sanitising” terms or experiences in greater depth than someone who may not have this knowledge.

And yet, being a cultural insider is not without its difficulties and pitfalls. For example, it is all too easy to take a phenomena or experience for granted due to your repeated exposure to it (Suwankhong & Liamputtong, 2015). There are two key methods I utilised to help combat this: firstly, the inclusion and perspective of co-authors who are “outsiders” in the communities being researched. The benefit of having an “outsider” perspective is clear – they are able to see experiences or phenomena in a different context, having had no prior engagement or experiences with this particular community. This is important, particularly in the context of disseminating results to outgroup populations and communities who will benefit greatly from understanding these experiences. Each of the empirical studies within this thesis were conducted alongside co-researchers who did not engage with this community, and thus can be considered “cultural outsiders”.

Despite being a cultural insider with the PED-using community, I also experienced what it meant to be a cultural outsider in the final empirical study. I am not a medical doctor – however, both of my parents are medical doctors. I have grown up with a simultaneously distant and detailed understanding of what it means to be a doctor within the NHS – distant because I am not a doctor and thus do not understand the day-to-day life from a direct experiential perspective. Yet, it is still detailed, as I am privy to the discussions of the day-to-day events from a young age, perhaps moreso than the general population. As has been outlined previously, being an insider/outsider can perhaps be considered a continuum (Dhillon & Thomas, 2019). This was highlighted for me through the final empirical study – that perhaps being a cultural insider is not as essential for all research populations. In the context of the doctor/AAS study, perhaps it was not as imperative to be a cultural insider – for example, doctors are not stigmatised for being a doctor, whereas PED-using individuals are stigmatised due to their use. Certain points I picked up on during interviews were points they had never considered before – we were able to explore them on account of my outsider perspective.

The second method is the use of bracketing interviews. Bracketing, as defined by Ashworth (1999), is the ongoing process of revealing the lived experiences of people by setting aside the researcher's presuppositions and "ready-made" answers. This is particularly relevant in the context of researchers who have lived experience or a pre-existing exposure or knowledge to the area of study (McNarry, Allen-Collinson, & Evans, 2019) – while being a cultural insider can offer numerous benefits as outlined earlier, there are also particular challenges which arise from being familiar with the phenomenon in question. The aim of bracketing in the research context being studied is to help reflect on, and be critical of, my exposure and knowledge of the topics which were being studied currently as a result of my connections within the powerlifting and bodybuilding communities. Throughout the thesis, I had two bracketing interviews – one undertook exploring my perspectives on being an insider and a female powerlifter alongside research. The second one was taken prior to the IPA study. The aim for both of these was to reflect on and expand on my exposure and experiences with the topics of AAS use in these contexts, as well as my role as a researcher. Similar to McNarry, Allen-Collinson, and Evans (2019), these interviews gave me the opportunity to be reflexive and critical of my underlying experiences and perspectives. For example, an excerpt from the first bracketing interview I had explores my feelings quite succinctly:

> So it's kind of like trying to maintain, it's kind of the weird kind of balance between objectivity and also being introspective [mm-hmm], like, and what, which bits do you pick to be objective about, which bits do you pick about kind of being maybe a little bit more personal about, you know. And how do you make sure the two kind of mix in a nice, fluid way as opposed to kind of being too objective so yeah, talk enough about the personal stuff or being too personal and not being

> objective enough because the last thing I want to do as a research is kind of try to sell something. I’m not trying to sell anything. I’m just here to tell a story, to tell a narrative from my perspective which may or may not be applicable to most people though I think some elements are quite common, are quite universal amongst other competitors and I kind of approach it from that angle. So it’s something I have to always bear in mind when I have a thought and I’m like, ‘Am I, is this being unnecessarily opinionated or is this actually a valid kind of observation? Am I casting judgement on this observation or am I keeping completely neutral as it were?’

Reading this again, the challenges I faced revolved around the battle of “objectivity” versus “subjectivity”. This psychological tug of war is not a new concept – qualitative research welcomes the insider perspective and acknowledges how underlying life experiences and exposure to research phenomena can shape researcher analyses and perspectives (McNarry et al., 2019). Whether a qualitative researcher can ever be truly neutral is heavily debatable. Yet, as outlined by this interview, perhaps it is not about being more “objective” or “less” objective. It is about recognising our underlying experiences and perspectives which might impact our analyses and our reflections on the phenomenon at hand. These bracketing interviews help clarify the clashes in our mind between being a researcher and being a cultural insider. Without a doubt, the bracketing interviews helped clarify my position and my goals with the research, as well as consider how specific understandings or experiences might shape the end result. As a novice qualitative researcher, it was important I engage in the self-reflexive and critical processes associated with being the tool of data collection as the interviewer. Bracketing interviews helped me in this regard immeasurably.

Ultimately, being a cultural insider has been a benefit throughout this thesis. I was able to access individuals and communities who may not have been so forthcoming for an “outsider researcher”. And yet, I was still able to benefit from outsider researcher perspectives and the fresh perspectives they can provide. Being a cultural insider can have many benefits in the context of researching stigmatised groups (Liamputtong, 2007a). However, it is important to conduct “cross-cultural” work to bring fresh perspectives that someone who has been within the community for so long may have missed. Engaging in bracketing interviews has been a positive experience, helping clarify my positions and my understandings. Both identities have their benefits and their pitfalls – integrating both perspectives has helped create more holistic narratives which can potentially benefit a wider readership.

6.4. Practical implications and future directions

One question remains; what meaningful and practical messages can be obtained from this thesis? The answers to this are provided by the participants. In line with co-productive principles outlined in chapter 1, these practical implications are derived through giving participants the opportunity to share their experiences and perspectives.

For PED-using participants, medical interventions need to take advantage of a group who consider themselves proactive regarding their health and their PED use. Thereby, effective interventions should ideally include service design and provision separate to those distributed to other drug users. This would account for the identity separation from those who use recreational drugs. Furthermore, efforts should be made to include more community leaders to drive harm reduction initiatives. These individuals can help bridge the gap between non-community healthcare workers (such as doctors) and those within the community. After all, they have outlined the importance of relatability and lived experience when it comes to getting their information. Other interventions which can help improve the health outcomes of these individuals could be to conduct monitoring blood tests and other similar measures. This will help highlight any potential health risks much earlier than would otherwise be detected and give a chance for PED users to mitigate these potential issues.

From a clinician's perspective, educational resources and knowledge should be provided. This should consist not only of information about PEDs, but also concerning the typologies and perceptions of those who use PEDs to help facilitate an improved clinical interaction. Information on what patients who use PEDs want and guidance concerning appropriate management techniques would be beneficial for doctors encountering this clinical cohort. This could help give clinicians the tools and knowledge to work with a PED-using patient and thereby reduce clinical uncertainty.

Aside from the specific directions outlined in each empirical chapter, some general recommendations could be made. For example, future research could include investigating the element of stigma and PED use in much greater depth. Throughout each study, the impact of stigma on disclosure was clearly outlined; yet, much of the information was focused on the use of PEDs in elite sports, rather than on a "grassroots" level. One potential research idea could include evaluating the presentation of PEDs throughout the media and exploring discourses associated with PEDs, either nationally or globally. This would provide a deeper insight into the societal perceptions of PED use and the effects this can have on PED-users. Whilst this was beyond the scope of the thesis, this would be a valuable addition to the literature.

Chapter 7: Final reflections

The questions asked within this thesis were simple: how is risk perceived, experienced and navigated in a PED-use context? Before undertaking this research, I felt there were two sides of me; one was the competitor who was embedded within the community as a peer and friend long before undertaking this research. The other side was of the academic; I felt I had to uphold a stance of objectivity and distance. This created an inner clash between these facets of my identity; how could I consolidate them whilst conducting this research? While undertaking literature reviews, the amount of information available on PEDs was vast, almost insurmountable in amount. Yet, very little of it comprised of actual, lived experience of individuals who use these compounds. Amongst the case studies of death or severe injury, the animal studies, *in vitro* studies concerning PED use, there was very little literature available concerning the lived experience of PED use. I could not understand how polarised the literature was. Considering the potential side effects, would we not want to help individuals who use these substances? If so, how do we help them? How can we make recommendations without understanding their perspectives and experiences? How the outgroups might perceive risk and hazards does not appear to be the same as those within the community who use PEDs. Thereby, this was the key “problem” I was intent on rectifying. Qualitative inquiry has given me the opportunity for those within this hard-to-reach population to share their thoughts, perspectives and lived experiences. My position within the community gave me a unique ability to access participants who would otherwise be inaccessible. This is a privileged position which I am aware of.

The primary finding from all three chapters boils down to this; risks are not so black and white; instead, they exist in a “grey area” which is shaped by the individual’s experiences, knowledge, understanding, and other facets of their persona and sociocultural environment. Navigating the risks associated with PED use is not as simple as merely mitigating the physical side effects. How can the hazard of experiencing stigma be mitigated? How does a PED user combat the overwhelmingly negative perspectives placed on these actions? What about the risk of being mislabelled as a recreational drug user, or worse, a “junkie”? These insights would not have been obtained if qualitative work had not been conducted to explore their very perceptions and experiences. Lived experience is a powerful tool in understanding phenomena as complex as this in great detail. Understanding how they navigate the risks provides a solution to a very tricky problem; for example, to mitigate the side effects encountered from their PED use, it is very easy for an “outsider” to state that they should simply “stop using PEDs”. Objectively speaking, this is one way of dealing with it. However, what this work outlines is how ineffective this approach is; often, PED use is an informed decision made after doing copious amounts of research. To tell an individual who has made this choice to “just stop” is, at best, ignorant. At worst, it is invalidating. Navigating the risks associated with these substances goes beyond “stopping”. Rather, an agreement needs to be made on an individual level and working with the individual, rather than generalising them as one homogenous group of “drug users”. It is my intention that the findings in this thesis perhaps give the reader some insight into the complex interplay of decisions that have to be made by the PED user, the tight controls and boundaries put in place and the importance placed upon being a responsible “user” rather than a “drug user”. Even outside of the community, I want the reader to understand how upbringing and sociocultural context can play a role in perceptions and attitudes towards PED use in the absence of direct contact. I want the reader to understand how powerful experience is in shaping perceptions and attitudes; for example, consider the doctors who had experience with PED users compared to those who did not. Experience has a large impact on breaking down barriers and enabling cohesive, collaborative dialogue to begin which is truly inclusive of the “other side”. Future directions should include more qualitative work uncovering experiences and perspectives within this community. In particular, more work on female PED users is required – notably, understanding the context of their use, motivations and other aspects of the female experience.

In a world that is, paradoxically, both risk-averse and risk-abundant, discussions concerning what “should” be allowed and what “shouldn’t” be permitted are still rampant. Caught up in this discussion are those who wish to exercise their right to bodily modification on their terms. The voices and perspectives of those who use PEDs have, for a large part, been largely ignored in favour of a polarised negative account of PED use. For a long time, the medicalised and negative perception of PEDs has been disseminated widely, trickling through various pathways to the general public. It is hoped the stories and perspectives presented within this thesis will give some food for thought for those who are not in the community and help expand the understanding of PED use and risk from being a polarised “one size fits all” approach to a complex interplay of many different factors and experiences.

References

Abrahin, O., Félix Souza, N. S., de Sousa, E. C., Santos, A. M., & Bahrke, M. S. (2017). Anabolic–androgenic steroid use among Brazilian women: an exploratory investigation. *Journal of Substance Use*, *22*(3), 246–252. https://doi.org/10.1080/14659891.2016.1179806

Abrahin, O. S. C., de Sousa, E. C., & Santos, A. M. (2014). Prevalence of the Use of Anabolic-Androgenic Steroids in Brazil: A Systematic Review. *Substance Use & Misuse*, *49*(9), 1156–1162. https://doi.org/10.3109/10826084.2014.903750

Adams, J. (2002). *Risk UCL Press*. *London, UK*. London: Taylor & Francis.

Ainsworth, N. P., Shelley, J., & Petróczi, A. (2018). Current Trends in Performance- and Image-Enhancing Substance Use Among Gym Goers, Exercisers, and Athletes. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Handbook of Novel Psychoactive Substances: What Clinicians Should Know about NPS*. New York: Routledge. https://doi.org/https://doi.org/10.4324/9781315158082

Ainsworth, N. P., Vargo, E. J., & Petróczi, A. (2018). Being in control? A thematic content analysis of 14 in-depth interviews with 2, 4-dinitrophenol users. *International Journal of Drug Policy*, *52*, 106–114.

Allen, T. D., & Benson, V. M. (1935). Late development of cataract following use of dinitrophenol about a year before. *Journal of the American Medical Association*, *105*(10), 795.

Amundsen, E. J. (2006). Measuring effectiveness of needle and syringe exchange programmes for prevention of HIV among injecting drug users. *Addiction*, *101*(7), 911–912.

Anderson, K. T., & Holloway-Libell, J. (2014). A Review of “Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social

Sciences.” *The Journal of Educational Research, 107*(5), 428–428. https://doi.org/10.1080/00220671.2014.938514

Andreasson, J., & Johansson, T. (2020). Doping—Historical and Contemporary Perspectives. In *Fitness Doping* (pp. 21–46). Springer International Publishing. https://doi.org/10.1007/978-3-030-22105-8_2

Ashworth, P. (1999). “ Bracketing” in phenomenology: Renouncing assumptions in hearing about student cheating. *International Journal of Qualitative Studies in Education, 12*(6), 707–721.

Backhouse, S. H., & McKenna, J. (2011). Doping in sport: A review of medical practitioners’ knowledge, attitudes and beliefs. *International Journal of Drug Policy*. https://doi.org/10.1016/j.drugpo.2011.03.002

Backhouse, S. H., Whitaker, L., & Petróczi, A. (2013). Gateway to doping? Supplement use in the context of preferred competitive situations, doping attitude, beliefs, and norms. *Scandinavian Journal of Medicine and Science in Sports*, *23*(2), 244–252. https://doi.org/10.1111/j.1600-0838.2011.01374.x

Barker, K., Seger, D., & Kumar, S. (2006). Letter to the editor:“comment on ‘pediatric fatality following ingestion of dinitrophenol: postmortem identification of a “dietary supplement.””’ *Clinical Toxicology, 44*(3), 351.

Barratt, M. J. (2011). Discussing illicit drugs in public internet forums: Visibility, stigma, and pseudonymity. In *Proceedings of the 5th International Conference on Communities and Technologies* (pp. 159–168).

Bateman, O. (2014). Drugs and the Evolution of Bodybuilding - The Atlantic. *The Atlantic*. Retrieved from https://www.theatlantic.com/health/archive/2014/08/drugs-and-the-evolution-of-bodybuilding/375100/

Bateman, O., & Žeželj, D. (2017). Project MUSE - Steroid Solidarity: The Culture of Juicing at the Mr. Olympia Competition. *Virginia Quarterly Review*, *93*(3), 60–72. Retrieved from https://muse.jhu.edu/article/714610/summary

Bates, G. (2019). *Supporting men who use anabolic steroids: A sequential multi-methods study*. Liverpool John Moores University.

Baum, F., MacDougall, C., & Smith, D. (2006). Participatory action research. *Journal of Epidemiology and Community Health*, *60*(10), 854.

Beck, U. (1992). *Risk society: Towards a new modernity*. London: SAGE Publications Ltd.

Bell, K., & Salmon, A. (2012). Good intentions and dangerous assumptions: Research ethics committees and illicit drug use research. *Research Ethics*, *8*(4), 191–199.

Bengry, A. (2018). Accessing the Research Field. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data Collection* (pp. 99–117). SAGE Publications, Ltd. https://doi.org/10.4135/9781526416070.n7

Bevan, M. T. (2014). A method of phenomenological interviewing. *Qualitative Health Research*, *24*(1), 136–144. https://doi.org/10.1177/1049732313519710

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research*, *10*(2), 141–163.

Bloor, M., Monaghan, L., Dobash, R. P., & Dobash, R. E. (1998). The body as a chemistry experiment. In *Body in Everyday Life*.

Boardman, W. W. (1935). Rapidly developing cataract after dinitrophenol. *Journal of the American Medical Association*, *105*(2), 108.

Bolding, G., Sherr, L., & Elford, J. (2002). Use of anabolic steroids and associated health risks among gay men attending London gyms. *Addiction*, *97*(2), 195–

203.

Bowers, L. D. (1998). Athletic drug testing. *Clinics in Sports Medicine, 17*(2), 299–318.

Boyle, L. (2005). Flexing the tensions of female muscularity: How female bodybuilders negotiate normative femininity in competitive bodybuilding. *Women's Studies Quarterly*, *33*(1/2), 134–149.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*. https://doi.org/10.1191/1478088706qp063oa

Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic Analysis. In *Handbook of Research Methods in Health Social Sciences* (pp. 843–860). Singapore: Springer Singapore. https://doi.org/10.1007/978-981-10-5251-4_103

Brennan, R., Wells, J. G., & Van Hout, M. C. (2014). An unhealthy glow? A review of melanotan use and associated clinical outcomes. *Performance Enhancement & Health*, *3*(2), 78–92.

Broadfield, D. (2017). Drug Misuse: Findings from the 2016/17 Crime Survey for England and Wales Further information.

Bunsell, T. (2013). *Strong and hard women: An ethnography of female bodybuilding*. *Strong and Hard Women: An Ethnography of Female Bodybuilding*. https://doi.org/10.4324/9780203104750

Bury, M. (1982). Chronic illness as biographical disruption. *Sociology of Health & Illness*, *4*(2), 167–182.

Carpenter, D. (2018). Ethics, reflexivity and virtue. *Iphofen, R., & Tolich, M. The Sage Handbook of Qualitative Research Ethics*, 35–50.

Chamberlain, K., & Hodgetts, D. (2018). Collecting Qualitative Data with Hard-to-Reach Groups. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data*

Collection (pp. 668–685). SAGE Publications, Ltd. https://doi.org/10.4135/9781526416070.n42

Chaudoir, S. R., & Fisher, J. D. (2010). The disclosure processes model: understanding disclosure decision making and postdisclosure outcomes among people living with a concealable stigmatized identity. *Psychological Bulletin*, *136*(2), 236–256. https://doi.org/10.1037/a0018193

Coomber, R. (1999). Controlling drugs in sport: contradictions and complexity. *Drugs Cultures, Controls and Everyday Life*, 103–114.

Coomber, R. (2014). How social fear of drugs in the non-sporting world creates a framework for doping policy in the sporting world. *International Journal of Sport Policy and Politics*, *6*(2), 171–193.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Creswell, J. W., & Poth, C. N. (2018). Philosophical Assumptions and Interpretive Frameworks. In *Qualitative Inquiry and Reseach Design*.

DeCorte, T. (2001). Quality control by cocaine users: Underdeveloped harm reduction strategies. *European Addiction Research*, *7*(4), 161–175.

Dhillon, J. K., & Thomas, N. (2019). Ethics of engagement and insider-outsider perspectives: issues and dilemmas in cross-cultural interpretation. *International Journal of Research and Method in Education*. https://doi.org/10.1080/1743727X.2018.1533939

Dimeo, P., & Hunt, T. M. (2012). The doping of athletes in the former East Germany: A critical assessment of comparisons with Nazi medical experiments. *International Review for the Sociology of Sport*, *47*(5), 581–593. https://doi.org/10.1177/1012690211403198

Dobash, R. P., Monaghan, L., Dobash, R. E., & Bloor, M. (1999). Bodybuilding, Steroids and Violence: Is there a Connection? In *Crime Unlimited? Questions for the 21st Century* (pp. 166–190). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-14708-3_9

Duff, C. (2003). The importance of culture and context: rethinking risk and risk management in young drug using populations. *Health, Risk & Society*, *5*(3), 285–299.

Eddy, D. M. (1984). Variations in Physician Practice: The Role of Uncertainty. *Health Affairs*, *3*(2), 74–89. https://doi.org/10.1377/hlthaff.3.2.74

EMCDDA. (2010). *Harm reduction: evidence, impacts and challenges*. (T. Rhodes & D. Hedrich, Eds.). Office for Official Publ. of the European Communities.

Evans, M. J., Ndetan, H., Perko, M., Williams, R., & Walker, C. (2012). Dietary supplement use by children and adolescents in the United States to enhance sport performance: results of the National Health Interview Survey. *The Journal of Primary Prevention*, *33*(1), 3–12. https://doi.org/10.1007/s10935-012-0261-4

Evans, N. A. (1997). Gym and tonic: a profile of 100 male steroid users. *British Journal of Sports Medicine*, *31*(1), 54–58.

Evans, N. A. (2004). Current concepts in anabolic-androgenic steroids. *The American Journal of Sports Medicine*, *32*(2), 534–542.

Faircloth, C. A., Boylstein, C., Rittman, M., Young, M. E., & Gubrium, J. (2004). Sudden illness and biographical flow in narratives of stroke recovery. *Sociology of Health & Illness*, *26*(2), 242–261.

Food Standards Agency. (2013). FSA action over DNP “fat burner substances.” Retrieved from https://webarchive.nationalarchives.gov.uk/20131210195128/http://www.food.g ov.uk/news-updates/news/2013/oct/dnp

Fox, N. (1999). Postmodern reflections on ‘risk’,‘hazards’ and life choices. *Risk and Sociocultural Theory: New Directions and Perspectives*, 12–33.

Freeman, E. R., Bloom, D. A., & McGuire, E. J. (2001). A brief history of testosterone. *Journal of Urology*, *165*(2), 371–373. https://doi.org/10.1097/00005392-200102000-00004

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408.

Gaines, C., & Butler, G. (1981). *Pumping iron: The art and sport of bodybuilding*. Simon & Schuster.

Gergen, M. M., & Gergen, K. J. (2000). Qualitative inquiry: Tensions and transformations. *Handbook of Qualitative Research*, *2*, 1025–1046.

Gibson, K. (2016). Mixed methods research in sport and exercise: integrating qualitative research. In A. C. S. Brett Smith (Ed.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (1st ed., pp. 404–418). Routledge. https://doi.org/10.4324/9781315762012-42

Goldberg, L., Bents, R., Bosworth, E., Trevisan, L., & Elliot, D. L. (1991). Anabolic steroid education and adolescents: do scare tactics work? *Pediatrics*, *87*(3), 283–286.

Goldgof, M., Xiao, C., Chanturiya, T., Jou, W., Gavrilova, O., & Reitman, M. L. (2014). The chemical uncoupler 2, 4-dinitrophenol (DNP) protects against diet-induced obesity and improves energy homeostasis in mice at thermoneutrality. *Journal of Biological Chemistry*, *289*(28), 19341–19350.

Gonzalez Francis Keaney, Alejandro, S. M. (2001). Anabolic steroid misuse: How much should we know? *International Journal of Psychiatry in Clinical*

Practice, 5(3), 159–167.

Gottardi, M., & Fimognari, L. (2010). *Risk, hazard and reward perception concerning anabolic androgenic steroids (AAS) intake.* Roskilde University.

Griffiths, S., Henshaw, R., McKay, F. H., & Dunn, M. (2017). Post-cycle therapy for performance and image enhancing drug users: A qualitative investigation. *Performance Enhancement & Health*, *5*(3), 103–107.

Griffiths, S., Murray, S. B., & Mond, J. M. (2016). The Stigma of Anabolic Steroid Use. *Journal of Drug Issues*, *46*(4), 446–456. https://doi.org/10.1177/0022042616661837

Grundlingh, J., Dargan, P. I., El-Zanfaly, M., & Wood, D. M. (2011). 2, 4-dinitrophenol (DNP): a weight loss agent with significant acute toxicity and risk of death. *Journal of Medical Toxicology*, *7*(3), 205.

Hardgrove, M., & Stem, N. (1938). Dinitrophenol: A review of the literature. *Industrial Medicine*, *7*, 9–17.

Harris, M. O., & Corcoran, J. (1995). Toxicological profile for dinitrophenols.

Hawk, M., Coulter, R. W. S., Egan, J. E., Fisk, S., Reuel Friedman, M., Tula, M., & Kinsky, S. (2017). Harm reduction principles for healthcare settings. *Harm Reduction Journal*, *14*(1), 70. https://doi.org/10.1186/s12954-017-0196-4

Hecksher, D., & Hesse, M. (2009). Women and substance use disorders. *Mens Sana Monographs*, *7*(1), 50.

Hitti, E. A., Melki, J. P., & Mufarrij, A. J. (2014). The prevalence and determinants of anabolic steroid use among fitness centre attendees in Lebanon. *International SportMed Journal*, *15*(4), 391–401.

Hoffman, J. R., & Ratamess, N. A. (2006). Medical issues associated with anabolic steroid use: Are they exaggerated? *Journal of Sports Science & Medicine*, *5*, 182–193.

Hogle, L. F. (2005). Enhancement technologies and the body. *Annual Review of Anthropology*, *34*, 695–716.

Horner, W. D. (1942). Dinitrophenol and its relation to formation of cataract. *Archives of Ophthalmology*, *27*(6), 1097–1121.

Hoxha, B., & Petroczi, A. (2015). Playing with fire? Factors influencing risk willingness with the unlicensed fat burner drug 2, 4-Dinitrophenol (DNP) in young adults. *Public Health*, *129*(11), 1519–1522.

Hunt, N., Ashton, M., Lenton, S., Mitcheson, L., Nelles, B., & Stimson, G. (2003). Review of the Evidence-Base for Harm Reduction Approaches to Drug Use. Forward Thinking on Drugs London.

Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy*. Northwestern University Press.

Hussey, D., Trinder-Widdess, Z., Dee, C., Bagnall, D., Bojangles, T., & Kesten, J. M. (2019). Co-design of harm reduction materials for people who inject drugs to implement research findings. *Harm Reduction Journal*, *16*(1), 36.

Jalilian, F., Allahverdipour, H., Moeini, B., & Moghimbeigi, A. (2011). Effectiveness of anabolic steroid preventative intervention among gym users: Applying theory of planned behavior. *Health Promotion Perspectives*, *1*(1), 32.

Jefferson, T. (1998). Muscle, “Hard Men” and “Iron” Mike Tyson: Reflections on desire, anxiety and the embodiment of masculinity. *Body and Society*. https://doi.org/10.1177/1357034X98004001005

Jeukendrup, A. E., & Randell, R. (2011). Fat burners: nutrition supplements that increase fat metabolism. *Obesity Reviews*, *12*(10), 841–851.

Joseph-Williams, N., Elwyn, G., & Edwards, A. (2014, March). Knowledge is not power for patients: A systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient Education and Counseling*. Elsevier. https://doi.org/10.1016/j.pec.2013.10.031

Kamour, A., George, N., Gwynnette, D., Cooper, G., Lupton, D., Eddleston, M., … Hill, S. (2015). Increasing frequency of severe clinical toxicity after use of 2, 4-dinitrophenol in the UK: a report from the National Poisons Information Service. *Emergency Medicine Journal, 32*(5), 383–386.

Kanayama, G., Boynes, M., Hudson, J. I., Field, A. E., & Pope Jr, H. G. (2007). Anabolic steroid abuse among teenage girls: an illusory problem? *Drug and Alcohol Dependence*, *88*(2–3), 156–162.

Kanayama, G., Hudson, J. I., & Pope Jr, H. G. (2008). Long-term psychiatric and medical consequences of anabolic–androgenic steroid abuse: a looming public health concern? *Drug and Alcohol Dependence*, *98*(1–2), 1–12.

Kanayama, G., & Pope Jr, H. G. (2018). History and epidemiology of anabolic androgens in athletes and non-athletes. *Molecular and Cellular Endocrinology, 464*, 4–13.

Khullar, N., Scull, N., Deeny, M., & Hamdan, E. (2016). Prevalence and predictors of anabolic-androgenic steroid use among gym users in Kuwait: a preliminary study. *International Journal of Men's Health*, *15*(2), 144–156. https://doi.org/10.3149/jmh.1502.144

Kicman, A. T. (2008). Pharmacology of anabolic steroids. *British Journal of Pharmacology, 154*(3), 502–521. https://doi.org/10.1038/bjp.2008.165

Kimergård, A., & McVeigh, J. (2014). Variability and dilemmas in harm reduction for anabolic steroid users in the UK: a multi-area interview study. *Harm*

Reduction Journal, *11*(1), 19.

Knights, K. M., & Mangoni, A. A. (2015). Drug and Nutrient Interactions in Masters Athletes. In P. R. J. Reaburn (Ed.), *Nutrition and Performance in Masters Athletes* (pp. 243–262). CRC Press.

Kniskern, P. W. (1935). Cataracts following dinitrophenol. *Journal of the American Medical Association*, *105*(10), 794–795.

Komatsu, H., Yagasaki, K., Shoda, R., Chung, Y., Iwata, T., Sugiyama, J., & Fujii, T. (2014). Repair of the threatened feminine identity: experience of women with cervical cancer undergoing fertility preservation surgery. *Cancer Nursing*, *37*(1), 75–82.

Korkia, P., Stimson, G. V, & Behaviour., C. for R. on D. and H. (1993). *Anabolic steroid use in Great Britain : an exploratory investigation : final report to the Departments of Health for England, Scotland and Wales*. London: Centre for Research on Drugs and Health Behaviour.

Kotzé, J., & Antonopoulos, G. A. (2019). Boosting bodily capital: Maintaining masculinity, aesthetic pleasure and instrumental utility through the consumption of steroids. *Journal of Consumer Culture*, 146954051984619. https://doi.org/10.1177/1469540519846196

Lazar, N. K. (1935). Cataract following the use of dinitrophenol. *Journal of the American Medical Association*, *105*(10), 794.

Lazuras, L., Barkoukis, V., Loukovitis, A., Brand, R., Hudson, A., Mallia, L., … Zelli, A. (2017). “I want it all, and i want it now”: Lifetime prevalence and reasons for using and abstaining from controlled performance and appearance enhancing substances (PAES) among young exercisers and amateur athletes in five European countries. *Frontiers in Psychology*, *8*(MAY).

https://doi.org/10.3389/fpsyg.2017.00717

Lempert, L. B. (2012). Asking Questions of the Data: Memo Writing in the Grounded Theory Tradition. In A. Bryant & K. Charmaz (Eds.), *The SAGE Handbook of Grounded Theory*. Sage Publications Ltd. https://doi.org/10.4135/9781848607941.n12

Leslie, K. M., Society, C. P., & Committee, A. H. (2008). Harm reduction: An approach to reducing risky health behaviours in adolescents. *Paediatrics & Child Health*, *13*(1), 53–56. https://doi.org/10.1093/pch/13.1.53

Liamputtong, P. (2007a). Researching the Vulnerable. London: SAGE Publications, Ltd. https://doi.org/10.4135/9781849209861

Liamputtong, P. (2007b). The Vulnerable Research Participants: Procedural Sensibilities. In *Researching the Vulnerable*. London: SAGE Publications, Ltd. https://doi.org/10.4135/9781849209861.n3

Lipovetsky, G., & Charles, S. (2005). *Hypermodern times* (trans A. B). Cambridge: Polity Press.

Loland, S., Skirstad, B., & Waddington, I. (2006). *Pain and injury in sport: Social and ethical analysis*. *Pain and Injury in Sport: Social and ethical analysis*. https://doi.org/10.4324/9780203002995

Lupton, D. (1999). *Risk and sociocultural theory: New directions and perspectives*. Cambridge University Press.

Mansfield, A., & McGinn, B. (1993). Pumping irony: the muscular and the feminine. *Body Matters: Essays on the Sociology of the Body*, 49–68.

Marshall, P. L., Singer, M., & Clatts, M. C. (1999). *Integrating cultural, observational, and epidemiological approaches in the prevention of drug abuse and HIV/AIDS*. US Department of Health and Human Services, National

Institutes of Health ….

Mckeown, M., Dix, J., Jones, F., Carter, B., Malihi-Shoja, L., Mallen, E., & Harrison, N. (2014). Service user involvement in practitioner education: Movement politics and transformative change. *Nurse Education Today*, *34*(8), 1175–1178.

McNarry, G., Allen-Collinson, J., & Evans, A. B. (2019). Reflexivity and bracketing in sociological phenomenological research: Researching the competitive swimming lifeworld. *Qualitative Research in Sport, Exercise and Health*, *11*(1), 138–151.

McVeigh, J., Evans-Brown, M., & Bellis, M. A. (2012). Human enhancement drugs and the pursuit of perfection. *Adicciones*, *24*(3), 185–190.

McVeigh, J., Germain, J., & Van Hout, M. C. (2016). 2, 4-Dinitrophenol, the inferno drug: a netnographic study of user experiences in the quest for leanness. *Journal of Substance Use*, *22*(2), 131–138.

Meinhardt, U., Nelson, A. E., Hansen, J. L., Birzniece, V., Clifford, D., Leung, K.-C., … Ho, K. K. Y. (2010). The effects of growth hormone on body composition and physical performance in recreational athletes: a randomized trial. *Annals of Internal Medicine*, *152*(9), 568–577.

Menuz, V., Hurlimann, T., & Godard, B. (2013). Is human enhancement also a personal matter? *Science and Engineering Ethics*, *19*(1), 161–177.

Michela Marzano-Parisoli, M. (2001). The contemporary construction of a perfect body image: Bodybuilding, exercise addiction, and eating disorders. *Quest*, *53*(2), 216–230.

Millenson, M. L. (2017). When “patient centred” is no longer enough: The challenge of collaborative health: An essay by Michael L Millenson. *BMJ (Online)*, *358*, j3048. https://doi.org/10.1136/bmj.j3048

Molero, Y., Bakshi, A.-S., & Gripenberg, J. (2017). Illicit Drug Use Among Gym-Goers: a Cross-sectional Study of Gym-Goers in Sweden. *Sports Medicine - Open*, *3*(1), 31. https://doi.org/10.1186/s40798-017-0098-8

Monaghan, L. (2002). *Bodybuilding, drugs and risk*. Routledge.

Monaghan, L. F. (2009). Commentary on Kanayama et al.(2009): The normalization of steroid use. *Addiction*, *104*(12), 1979–1980.

Monaghan, L. F. (2013). 3 Accounting for Illicit Steroid Use. *Critical Readings in Bodybuilding*, *9*, 73.

Moore, C. (2017). Young woman died after taking diet pills with DNP. *Daily Mail Online*. Retrieved from https://www.dailymail.co.uk/news/article-4735942/Young-woman-died-taking-diet-pills.html

Morris, S. (2015). Woman died after accidental overdose of highly toxic diet pills. *2015). Http://Www. Theguardian. Com/Society/2015/Jul/23/Woman-Died-Accidental-Overdose-Highlytoxic-Diet-Pills-Eloise-Parry*.

Morris, S. (2018, January). Up to a million Britons use steroids for looks not sport. *The Guardian*. Retrieved from https://www.theguardian.com/society/2018/jan/21/up-to-a-million-britons-use-steroids-for-looks-not-sport

Müller, C. P., & Schumann, G. (2011). Drugs as instruments: A new framework for non-addictive psychoactive drug use. *Behavioral and Brain Sciences, 34*(6), 293.

Nakhaee, M. R., Pakravan, F., & Nakhaee, N. (2013). Prevalence of use of anabolic steroids by bodybuilders using three methods in a city of Iran. *Addiction & Health, 5*(3–4), 77.

Nettleton, S. (2009). The Sociology of the Body. In W. C. Cockerham (Ed.), *The New Blackwell Companion to Medical Sociology* (pp. 47–68). Oxford, UK: Wiley-Blackwell. https://doi.org/10.1002/9781444314786.ch3

NHS. (2013). Warnings issued over deadly DNP “diet drug” - NHS. Retrieved March 4, 2020, from https://www.nhs.uk/news/medication/warnings-issued-over-deadly-dnp-diet-drug/

NHS. (2014). New warnings issued over deadly DNP “diet drug” - NHS. Retrieved March 4, 2020, from https://www.nhs.uk/news/medication/new-warnings-issued-over-deadly-dnp-diet-drug/

Nicholls, A. R., Cope, E., Bailey, R., Koenen, K., Dumon, D., Theodorou, N. C., … Andrés, M. P. (2017). Children’s first experience of taking anabolic-androgenic steroids can occur before their 10th birthday: A systematic review identifying 9 factors that predicted doping among young people. *Frontiers in Psychology, 8*, 1015.

Nieschlag, E., & Vorona, E. (2015). Mechanisms in Endocrinology: Medical consequences of doping with anabolic androgenic steroids: Effects on reproductive functions. *European Journal of Endocrinology*. https://doi.org/10.1530/EJE-15-0080

O’Gorman, K., & MacIntosh, R. (2015). Mapping research methods. *Research Methods for Business and Management: A Guide to Writing Your Dissertation*, 50–74.

O’Reilly, M., & Parker, N. (2013). ‘Unsatisfactory Saturation’: a critical exploration of the notion of saturated sample sizes in qualitative research. *Qualitative Research, 13*(2), 190–197. https://doi.org/10.1177/1468794112446106

Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research.

Journal of Nursing Scholarship, *33*(1), 93–96.

Parascandola, J. (1974). Dinitrophenol and bioenergetics: an historical perspective. *Molecular and Cellular Biochemistry*, *5*(1–2), 69–77.

Parascandola, M., Hawkins, J., & Danis, M. (2002). Patient Autonomy and the Challenge of Clinical Uncertainty. *Kennedy Institute of Ethics Journal*, *12*(3), 245–264. https://doi.org/10.1353/ken.2002.0018

Parkinson, A. B., & Evans, N. A. (2006). Anabolic androgenic steroids: a survey of 500 users. *Medicine & Science in Sports & Exercise*, *38*(4), 644–651.

Patton, M. Q. (2015). *Qualitative research & evaluation methods : integrating theory and practice* (4th ed.). Sage Publications, Inc.

Peat, G., Rodriguez, A., & Smith, J. (2019). Interpretive phenomenological analysis applied to healthcare research. *Evidence-Based Nursing*, *22*(1), 7–9. https://doi.org/10.1136/ebnurs-2018-103017

Penny, J., Slay, J., & Stephens, L. (2012). People powered health: Co-production catalogue. *London: Nesta*.

Perkins, Roge. G. (1919). A study of the munitions intoxications in France. *Public Health Rep*, *34*, 2335–2374.

Perry, P. J., Lund, B. C., Deninger, M. J., Kutscher, E. C., & Schneider, J. (2005, September). Anabolic steroid use in weightlifters and bodybuilders: An internet survey of drug utilization. *Clinical Journal of Sport Medicine*. https://doi.org/10.1097/01.jsm.0000180872.22426.bb

Pescosolido, B. A., & Manago, B. (2018). Getting underneath the power of “contact”: Revisiting the fundamental lever of stigma as a social network phenomenon. In *The Oxford handbook of stigma, discrimination, and health.* (pp. 397–411). New York, NY, US: Oxford University Press.

Petersen, A., & Lupton, D. (2000). *The new public health: Health and self in the age of risk.* Sage Publications, Inc.

Petróczi, A., Dodge, T., Backhouse, S. H., & Adesanwo, C. (2014). Review of the literature on negative health risks based interventions to guide anabolic steroid misuse prevention. *Performance Enhancement & Health*, *3*(1), 31–44.

Petróczi, A., Ocampo, J. A. V., Shah, I., Jenkinson, C., New, R., James, R. A., … Naughton, D. P. (2015). Russian roulette with unlicensed fat-burner drug 2, 4-dinitrophenol (DNP): evidence from a multidisciplinary study of the internet, bodybuilding supplements and DNP users. *Substance Abuse Treatment, Prevention, and Policy*, *10*(1), 39.

Philby, C. (2013). Death of medical student Sarah Houston after taking banned slimming drug Dinitrophenol highlights dangers of buying pills online, warns Government. *Independent*.

Phillips, L., & Singer, M. A. (2013). Peripheral neuropathy due to dinitrophenol used for weight loss: something old, something new. *Neurology, 80*(8), 773–774.

Pickering, L. (2018). Paternalism and the ethics of researching with people who use drugs. *The Sage Handbook of Qualitative Research Ethics*, 411–425.

Pope, H. G., Kanayama, G., Ionescu-Pioggia, M., & Hudson, J. I. (2004). Anabolic steroid users’ attitudes towards physicians. *Addiction*. https://doi.org/10.1111/j.1360-0443.2004.00781.x

Poteat, T., German, D., & Kerrigan, D. (2013). Managing uncertainty: A grounded theory of stigma in transgender health care encounters. *Social Science & Medicine, 84*, 22–29. https://doi.org/10.1016/j.socscimed.2013.02.019

Quinn, D. M. (2017). When stigma is concealable: The costs and benefits for health. In B. Major, J. F. Dovidio, & B. G. Link (Eds.), *The Oxford Handbook of*

Stigma, Discrimination, and Health (Vol. 1, pp. 287–299). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190243470.001.0001

Reardon, C. L., & Creado, S. (2014). Drug abuse in athletes. *Substance Abuse and Rehabilitation*, *5*, 95.

Roulston, K., & Choi, M. (2018). Qualitative Interviews. In *The SAGE Handbook of Qualitative Data Collection* (pp. 233–249). 1 Oliver’s Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd. https://doi.org/10.4135/9781526416070.n15

Rubin, H. J., & Rubin, I. S. (2011). *Qualitative interviewing: The art of hearing data*. sage.

Sagoe, D., Andreassen, C. S., & Pallesen, S. (2014). The aetiology and trajectory of anabolic-androgenic steroid use initiation: a systematic review and synthesis of qualitative research. *Substance Abuse Treatment, Prevention, and Policy*, *9*(1), 27.

Sagoe, D., McVeigh, J., Bjørnebekk, A., Essilfie, M.-S., Andreassen, C. S., & Pallesen, S. (2015). Polypharmacy among anabolic-androgenic steroid users: a descriptive metasynthesis. *Substance Abuse Treatment, Prevention, and Policy*, *10*(1), 12.

Sagoe, D., Molde, H., Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). The global epidemiology of anabolic-androgenic steroid use: A meta-analysis and meta-regression analysis. *Annals of Epidemiology*. https://doi.org/10.1016/j.annepidem.2014.01.009

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3E [Third).

Sandman, L., Granger, B. B., Ekman, I., & Munthe, C. (2012). Adherence, shared decision-making and patient autonomy. *Medicine, Health Care and Philosophy*, *15*(2), 115–127. https://doi.org/10.1007/s11019-011-9336-x

Sepehri, G., Fard, M. M., & Sepehri, E. (2009). Frequency of anabolic steroids abuse in bodybuilder athletes in Kerman city. *Addiction & Health*, *1*(1), 25.

Seymour, C. (2017). *Progress through Partnership*. Retrieved from https://www.rethink.org/media/2591/progress-through-partnership.pdf

Shilling, C., & Bunsell, T. (2009). The female bodybuilder as a gender outlaw. *Qualitative Research in Sport and Exercise*, *1*(2), 141–159.

Shinebourne, P. (2011). The Theoretical Underpinnings of Interpretative Phenomenological Analysis (IPA). *Existential Analysis: Journal of the Society for Existential Analysis*, *22*(1).

Simon, P., Striegel, H., Aust, F., Dietz, K., & Ulrich, R. (2006). Doping in fitness sports: Estimated number of unreported cases and individual probability of doping. *Addiction*, *101*(11), 1640–1644. https://doi.org/10.1111/j.1360-0443.2006.01568.x

Smith, J. A., Flowers, P., & Larkin, M. (2009). *interpretative phenomenological anlaysis. Theory , Method and Research*. *SAGE Publications Ltd*.

Smith, J. A., & Shinebourne, P. (2012). *Interpretative phenomenological analysis.* American Psychological Association.

Striegel, H., Simon, P., Frisch, S., Roecker, K., Dietz, K., Dickhuth, H. H., & Ulrich, R. (2006). Anabolic ergogenic substance users in fitness-sports: A distinct group supported by the health care system. *Drug and Alcohol Dependence*, *81*(1), 11–19. https://doi.org/10.1016/j.drugalcdep.2005.05.013

Stubbe, J. H., Chorus, A. M. J., Frank, L. E., de Hon, O., & van der Heijden, P. G. M. (2014). Prevalence of use of performance enhancing drugs by fitness centre members. *Drug Testing and Analysis*, *6*(5), 434–438.

https://doi.org/10.1002/dta.1525

Suwankhong, D., & Liamputtong, P. (2015). Cultural Insiders and Research Fieldwork. *International Journal of Qualitative Methods*, 1–7. https://doi.org/10.1177/1609406915621404

Tainter, M. L., Stockton, A. B., & Cutting, W. C. (1935). Dinitrophenol in the treatment of obesity. *Journal of the American Medical Association*, *105*(5), 332–337.

Tajrobehkar, B. (2016). Flirting with the judges: Bikini fitness competitors' negotiations of femininity in bodybuilding competitions. *Sociology of Sport Journal*, *33*(4), 294–304.

Van Olphen, J., Eliason, M. J., Freudenberg, N., & Barnes, M. (2009). Nowhere to go: How stigma limits the options of female drug users after release from jail. *Substance Abuse Treatment, Prevention, and Policy*, *4*(1), 10.

Waddington, I., & Smith, A. (2000). *Sport, health and drugs: A critical sociological perspective*. Taylor & Francis.

Walker, D. M., & Eli Joubert, H. (2011). Attitudes of injecting male anabolic androgenic steroid users to media influence, health messages and gender constructs. *Drugs and Alcohol Today*. https://doi.org/10.1108/17459261111174019

Wallace, K. B., & Starkov, A. A. (2000). Mitochondrial targets of drug toxicity. *Annual Review of Pharmacology and Toxicology*, *40*(1), 353–388.

Weber, M. (1924). Gesammelte Aufsätze zur Soziologie und Sozialpolitik.

Weber, R. P. (1990). *Basic content analysis*. Sage.

Wellings, K., Branigan, P., & Mitchell, K. (2000). Discomfort, discord and discontinuity as data: Using focus groups to research sensitive topics. *Culture,* *Health & Sexuality*, *2*(3), 255–267.

Wesely, J. K. (2001). Negotiating gender: Bodybuilding and the natural/unnatural continuum. *Sociology of Sport Journal*, *18*(2), 162–180.

Yagil, D., & Medler-Liraz, H. (2015). Clinical Expert or Service Provider? Physicians Identity Work in the Context of Counterprofessional Patient Requests. *Qualitative Health Research*. https://doi.org/10.1177/1049732314557088

Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology and Health*, *15*(2), 215–228.

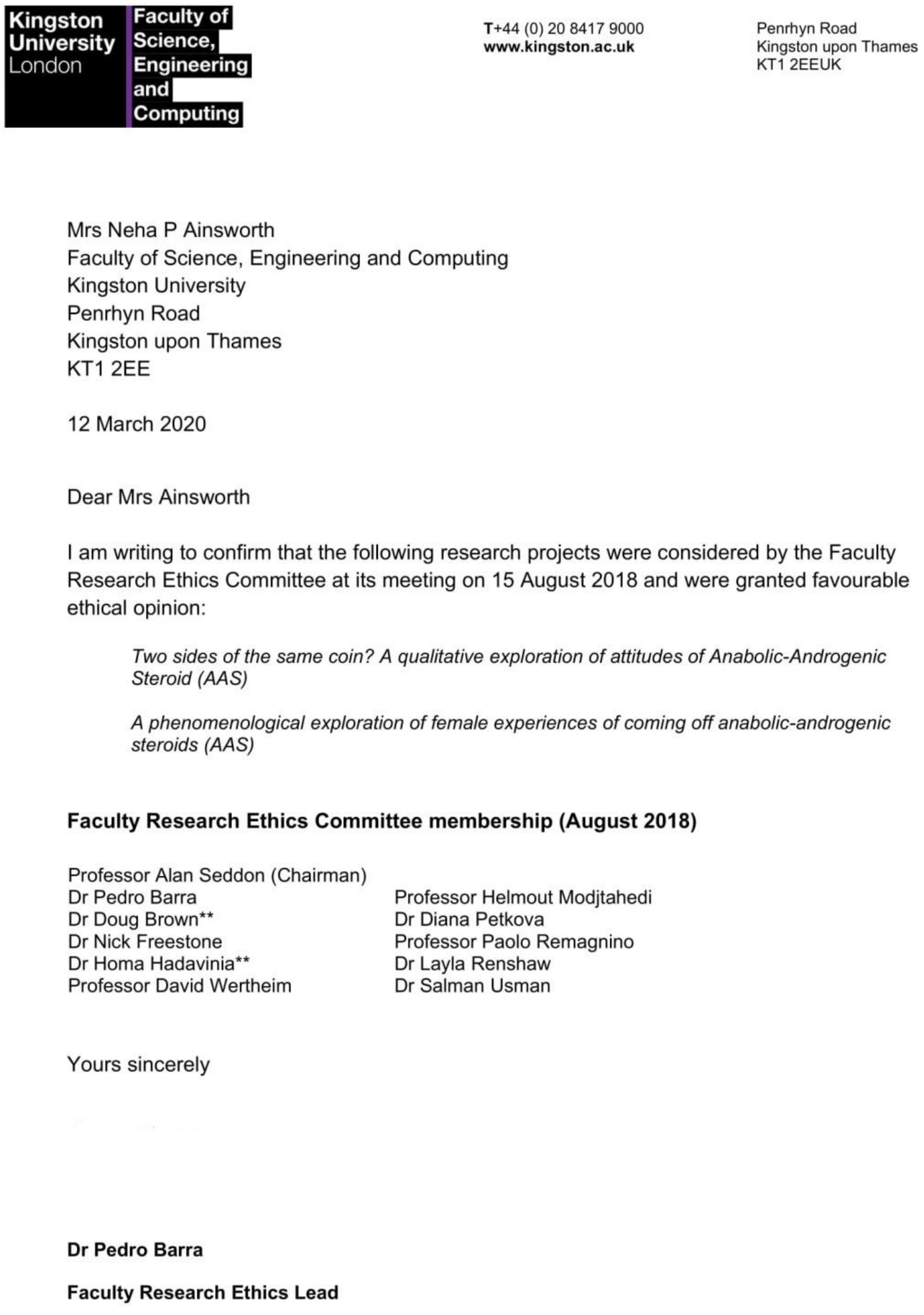
Yesalis, C. E. (2001). Use of steroids for self-enhancement: an epidemiologic/societal perspective. *The AIDS Reader*, *11*(3), 157–160.

Yu, J., Hildebrandt, T., & Lanzieri, N. (2015). Healthcare professionals' stigmatization of men with anabolic androgenic steroid use and eating disorders. *Body Image*, *15*, 49–53. https://doi.org/10.1016/j.bodyim.2015.06.001

Appendices

Empirical chapter 3 (Study 1)

Appendix A: Ethical approval for empirical chapter 3 (study 1)



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Mrs Neha P Ainsworth
Faculty of Science, Engineering and Computing
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12 March 2020

Dear Mrs Ainsworth

I am writing to confirm that the following research projects were considered by the Faculty Research Ethics Committee at its meeting on 15 August 2018 and were granted favourable ethical opinion:

> *Two sides of the same coin? A qualitative exploration of attitudes of Anabolic-Androgenic Steroid (AAS)*
>
> *A phenomenological exploration of female experiences of coming off anabolic-androgenic steroids (AAS)*

Faculty Research Ethics Committee membership (August 2018)

Professor Alan Seddon (Chairman)
Dr Pedro Barra
Dr Doug Brown**
Dr Nick Freestone
Dr Homa Hadavinia**
Professor David Wertheim
Professor Helmout Modjtahedi
Dr Diana Petkova
Professor Paolo Remagnino
Dr Layla Renshaw
Dr Salman Usman

Yours sincerely

Dr Pedro Barra

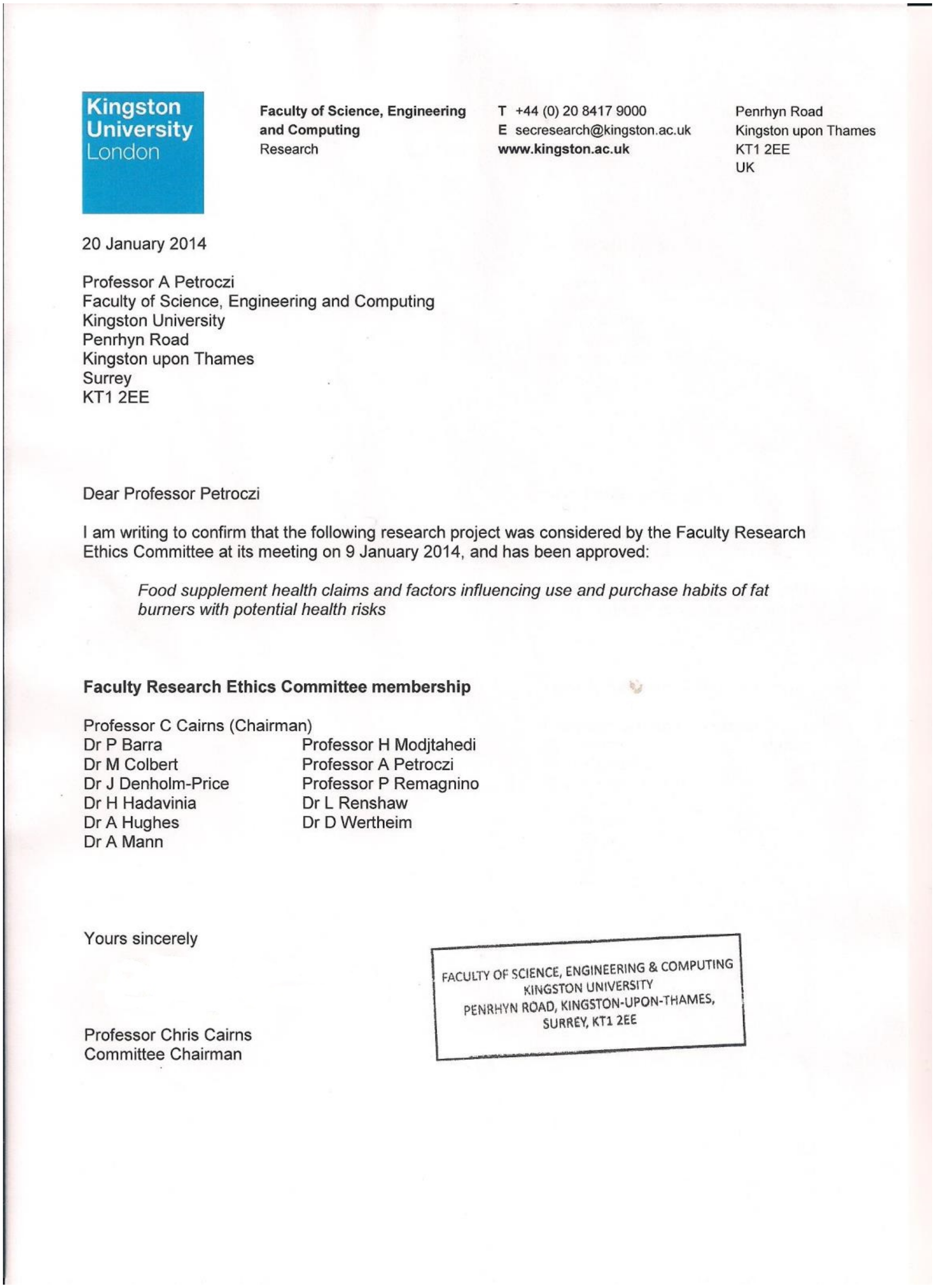
Faculty Research Ethics Lead

Appendix B: Interview schedule for empirical chapter 3 (study 1)

	Researcher Approach	**Interview Structure**	**Method**	**Questions**
PHENOMENOLOGICAL REDUCTION (EPOCHE)	Acceptance of natural attitude of participants	Contextualisation (Eliciting the lifeworld in Natural Attitude)	Descriptive/narrative context questions "can you describe…"	Tell me about your experience with using AAS Tell me what led you to come off AAS the first time? Tell me what led you to come off AAS the most recent time? How does that first experience compare with other experiences of coming off AAS?
	Reflexive critical dialogue with self	Apprehending the phenomenon (Modes of appearing in natural attitude)	Descriptive and structural questions of modes of appearing	Tell me how you prepare for coming off AAS Tell me about what coming off AAS is like. What is it like after you have come off AAS? What is easy or difficult about coming off AAS? How does it compare to when you are on AAS?
	Active listening	Clarifying the phenomenon (meaning through imaginative variation)	Imaginative variation: Varying of structure questions "what would you do…" "how would your experience be different if…"	Examples: How would your experience differ if you were under the care of a doctor? How would it feel if you were younger/older/wanting a baby/did it against your will etc

Empirical chapter 4 (study 2)

Appendix *C: Ethical approval letter of confirmation for empirical chapter 4 (study 2)*



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20 January 2014

Professor A Petroczi
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Dear Professor Petroczi

I am writing to confirm that the following research project was considered by the Faculty Research Ethics Committee at its meeting on 9 January 2014, and has been approved:

> *Food supplement health claims and factors influencing use and purchase habits of fat burners with potential health risks*

Faculty Research Ethics Committee membership

Professor C Cairns (Chairman)
Dr P Barra
Dr M Colbert
Dr J Denholm-Price
Dr H Hadavinia
Dr A Hughes
Dr A Mann
Professor H Modjtahedi
Professor A Petroczi
Professor P Remagnino
Dr L Renshaw
Dr D Wertheim

Yours sincerely

FACULTY OF SCIENCE, ENGINEERING & COMPUTING
KINGSTON UNIVERSITY
PENRHYN ROAD, KINGSTON-UPON-THAMES,
SURREY, KT1 2EE

Professor Chris Cairns
Committee Chairman

Appendix D: Interview schedule for empirical chapter 4 (study 2)

Interview

Thank you for taking part in this study. I am going to ask you some questions regarding your experience with DNP. I will audio record your answers. My research group is interested in understanding why people use DNP and finding out how we can protect your health and wellbeing and minimise harm. I value your experience and will not judge you in any way. I also guarantee complete confidentiality. Any private information you provide (names, places, etc.) will be deleted from the transcription. The information we gather may be used to produce a scientific paper. Parts of your answers may be used as examples within the manuscript. I want to clarify though that the information we gather will be interpreted as a whole and we are not interested in analysing you individually. We guarantee that your identity will be kept completely anonymous and will be safeguarded. Please confirm that you consent.

1. When did you start training and what were your reason[s] for starting?' 'Do those reasons still motivate you to train or have your goals changed?

2. What PED do you currently use?

3. When did you start using PEDs? What were your reasons for doing so?

4. How did you get to know about DNP?

5. Where did you learn how to use it?

6. What was the main reason you started using DNP?

7. Can you describe the first time you used DNP?

8. Have you had any previous experience with any other appearance enhancing drugs?

9. Were you concerned about any repercussions that could have risen?

10. How did you assure that the pills were actually DNP?

11. Were you aware of the other uses of DNP?

12. What did you want to gain from DNP?

13. What was the purpose of adding DNP as a supplement to your regime?

14. How did DNP change your physique?

15. How did you plan your DNP cycles?

16. Can you describe the side effects arising from the beginning, during and after of the DNP cycle?

17. When did side effects first appear?

18. Have you researched about any of DNP side effects?

19. Were there any changes in your mode of consumption since you started using DNP?

20. Were you using any other recreational drugs, steroids or supplements while on DNP?

21. How did you get a hold of DNP?

22. How much would an average DNP cycle cost?

23. Can you describe what the intake limit of your body is?

24. How does your bodybuilding community react towards you using DNP?

25. What do untrained people think about you using DNP?

26. Were friends and family aware of your use of DNP?

27. What is your opinion towards DNP? (Have/would you recommend it to anybody?)

28. What misconception have you found that people have about DNP?

*Remember to keep the discussion as open as possible. Don’t be afraid to ask many “whys”.

Our Variables:

Motivation

Reasons

Expectation

Side effects

Effects

Use of other drugs

Knowledge of DNP

Peers

Purchase

Appendix E: Participant demographic questionnaire for empirical chapter 4 (study 2)

Collector:

Alphanumerical identifier:

Gender:

Age:

Ethnicity:

Country:

Appendix F: Codebook for empirical chapter 4 (study 2)

<u>Codes</u>

<u>Each quote is approximately 10 words</u>

Motivation

- for working out (Any quote or reference to participant's reasons for training using their current style)

- Motivation for athletic background sport IF they did one (why did they get into that sport?)

- Motivation for using DNP – why did they start using DNP?

- If they would do DNP again – motivation for using DNP in the future

- for using PEDs – why did they start using PEDs?

General information

- duration of current style of training (any quote or reference to how long they have been training in their current style for)

- training background (i.e. bodybuilder, powerlifter, recreational etc).

- Athletic background – Did they do any sports before their current style of training? If yes, how long did they do sports for prior to weightlifting etc?

- How did they get into their style of lifting from that background? For example, if wrestler, would use weights to get better at wrestling, then started doing more lifting.

--duration for PED use – when did they start using PEDs?

Reasons

-For working out

-Using DNP

-using other PEDs inc. AAS

Expectation

-Physical side effects

- Aesthetic changes?

- fulfilment of expectations

Side effects

-Physiological (i.e. body temperature, hyperhidrosis, allergies etc)

-Mental (lethargy, depression, etc)

Effects

-aesthetic effects

- Duration of effects

  -beginning

  - during

  - after cycle

Use of other drugs

-AAS/other PEDs/fat burners

-Recreational drugs i.e. alcohol, marijuana etc whilst on DNP

-recreational drug use whilst on other PEDs (if any)

- recreational drug use whilst off-cycle

- not really drugs but use of supplements during cycle

- use of supplements off cycle (any multivitamins etc)

- medicinal drugs? i.e. antihistamines etc for allergic reaction to DNP

- are they on a cycle now?

-what cycle are they on? – which drugs do they currently use

    - what was the first PED they used

Knowledge of DNP

- other uses of DNP (i.e. as an industrial compound)

- where did information originate from? Sources can include the internet

- if they have knowledge about other uses of DNP – did this change their mind to use it? If not, why not?

Peers

- views of their bb community towards DNP use

- informing friends/family

- thoughts on society's views towards DNP use

- thoughts on misconceptions towards DNP

Purchase

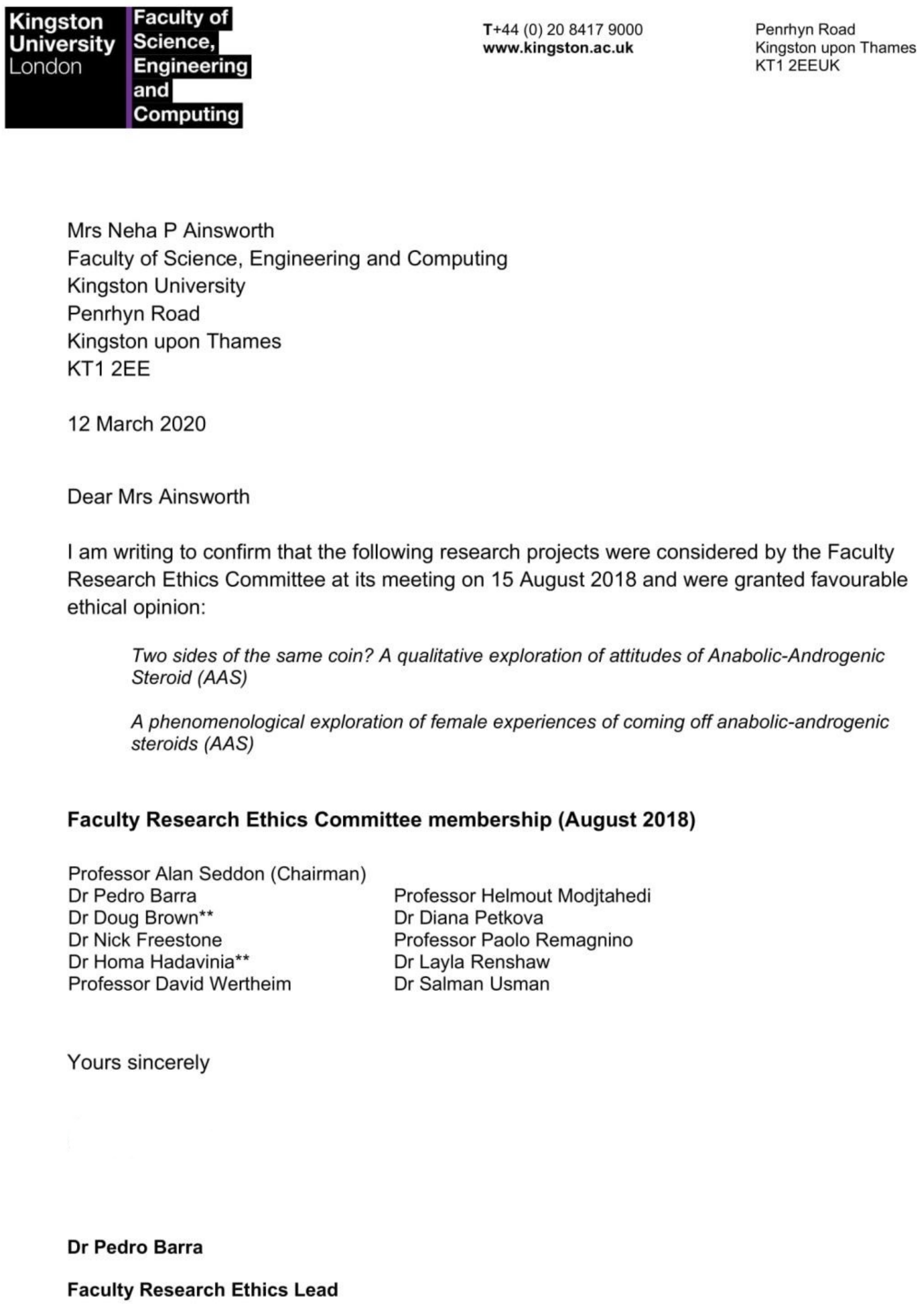
- cost of DNP and total cycle

- where they purchased it from

- purchase from peers
    - purchase from internet
- ease of purchase?
- issue of scamming by dealers

Empirical chapter 5 (Study 3)

Appendix G: Ethical approval for empirical chapter 5 (study 3)



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12 March 2020

Dear Mrs Ainsworth

I am writing to confirm that the following research projects were considered by the Faculty Research Ethics Committee at its meeting on 15 August 2018 and were granted favourable ethical opinion:

> *Two sides of the same coin? A qualitative exploration of attitudes of Anabolic-Androgenic Steroid (AAS)*
>
> *A phenomenological exploration of female experiences of coming off anabolic-androgenic steroids (AAS)*

Faculty Research Ethics Committee membership (August 2018)

Professor Alan Seddon (Chairman)
Dr Pedro Barra
Dr Doug Brown**
Dr Nick Freestone
Dr Homa Hadavinia**
Professor David Wertheim

Professor Helmout Modjtahedi
Dr Diana Petkova
Professor Paolo Remagnino
Dr Layla Renshaw
Dr Salman Usman

Yours sincerely

Dr Pedro Barra

Faculty Research Ethics Lead

Appendix H: Interview schedule for empirical chapter 5 (study 3)

Question Category	**AAS users**	**Doctors**
Context	Tell me about your AAS use history.	Tell me about your experiences with drug users
	Tell me what you know about AAS	Tell me what you know about AAS.
	What problems/benefits do you feel your AAS use brings you?	Tell me about your experiences with AAS users.
	Tell me about your experiences with doctors in general (feelings – good/bad/neutral, etc).	How often do you encounter AAS users in your daily practice?
Perceptions of PEDs – problems and management	Why do you think people start using AAS?	Why do you think people start using AASs?
	How did you obtain your AAS? How do you feel about obtaining it through that way?	How do you think AAS users obtain their AAS? How do you feel about it?
	How do you feel about AAS use?	How do you feel about AAS use?
	Do you feel your AAS use is similar to that of other drug users? Why/why not?	Do you feel their use is similar to that of other drug users? Why/why not?
	If you have any problems with AAS use, would you see your doctor about them? Why/why not?	What medical problems can arise from AAS use? Do you feel you can manage these sufficiently? Why/why not?
Perception of experiences	Do you think there are any difficulties in obtaining medical care as an AAS user? Why/why not?	Are there any specific difficulties when treating AAS users compared to other patients? If yes, why?
Perceptions of the community	How do you feel the AAS using community feel about doctors in general?	How do your colleagues feel about AAS use? Are you aware of their views?
	Do you feel there is a certain perception of AAS users from doctors? If so, what is it and why?	How are doctors perceived by the AAS using community, in your opinion?
		In general, do you feel there is a certain perception of AAS users within the medical community? Why?

Attitudes on disclosing use	How do you feel about disclosing your use to your doctor?	Some patients might struggle to disclose their use. Why might this be, do you think?
	In hindsight, would you disclose/not disclose? Why/Why not?	As a medical practitioner, what do you think can be done to help patients disclose their use?
	Would you tell others to disclose their use to their doctor? Why/why not?	
Expectations/Knowledge	How do you feel about your current knowledge of AAS? What about the community's knowledge in general?	What do you feel about your current medical knowledge level regarding AAS and associated harm reduction techniques? What do you think about the medical community's knowledge about these?
	What do you expect your doctor to know about AAS? How do you feel about the medical community's knowledge about AAS?	What do you think AAS users know about AAS? How do you feel about the community's knowledge levels?
	How do you feel about the current medical resources available to AAS users?	If they had any questions about AAS use, which resources would you direct them to? What do you think about these resources?

Appendix I: Demographics questionnaire for empirical chapter 5 (study 3)

Alphanumerical identifier:

AAS USER/ DOCTOR (Circle appropriate answer)

Your Gender: Male/Female/Other/prefer not to answer

Age: 18-24   25-34   35-44   45-54   55-64   65 and over

Ethnicity:

- White

- Mixed

- Asian or Asian British

- Black or Black British
- Chinese
- Other ethnic group

Educational level attained:

- Primary school
- GCSEs or equivalent
- A-Levels or equivalent
- University undergraduate programme
- University post-graduate programme
- Doctoral degree