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Research Paper

# "*Big-blast, little-blast*": Risk neutralization strategies for sustaining masculinity by older men who use anabolic androgenic steroids (OMAAS)

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ABSTRACT

UK research in the past decade has indicated the emergence of a cohort older men who use anabolic androgenic steroids (OMAAS), with studies suggesting OMAAS are motivated to use for aesthetics, performance enhancement, to combat the effects of ageing, and for perceived testosterone replacement therapy associated with wellbeing. Currently, there is a lack of information on the experiences and perspectives of harm reduction workers who support OMAAS at needle and syringe programmes in the UK. Semi-structured in-depth interviews ($N = 13$) with harm reduction workers were conducted to explore their experiences of engagement with OMAAS and how they view their healthcare and support needs.

The analysis generated four key themes with subthemes: 1) AAS Use Patterns of Older Men Accessing Healthcare Services; 2) Motivations for AAS Use; 3) Adverse Health Effects; 4) and Healthcare Responses to OMAAS. Two higher levels of abstraction centred on '*risk neutralization*' and '*masculinity*' were identified above the theme level and were described by all harm reduction workers in distinct ways throughout the findings. They focused on scapegoating, self-confidence, and risk comparison as strategies to uphold masculine values and identity through AAS use.

The findings are useful in informing AAS specific training for harm reduction workers, medical and healthcare professionals, and age-appropriate healthcare and treatment pathways specific to the needs of OMAAS who engage in risk neutralization techniques to conform to traditional masculine norms. There is a need for accessible, adequate, non-judgemental AAS-specific treatment and care pathways for OMAAS. Needle and syringe programmes should be developed to implement and evaluate interventions such as blood testing, cardiac monitoring, substance testing, and rapid access and referral pathways for medical support. Medical professionals and harm reduction workers at needle and syringe programmes are urged to address issues with OMAAS' perceptions of masculinity to help prevent and encourage safer use.

## 1. Introduction

Denial of risk by rationalizing the use of illicit substances and comparing this to what are considered deviant behaviours by others who use drugs, is known as risk neutralization (Peretti-Watel, 2003). Risk neutralization theory includes three strategies that people employ to deny risk: scapegoating ('*us*' [safe and responsible individuals] Vs '*them*' [risky and irresponsible individuals]); self-confidence (when a person believes their ability to control, reduce, or avoid risky situations distinguishes them from others who cannot); and risk comparison (when an individual will compare their drug use to that of other substances that are normalized in society, such as a person consuming cocaine comparing their use to alcohol) (Peretti-Watel, 2003). A large body of literature exists indicating that some people endeavour to maintain a positive viewpoint of their own substance use whilst expressing a negative attitude towards others including: tobacco smoking

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(Peretti-Watel et al., 2007); cannabis use (Mostaghim & Hathaway, 2013; Peretti-Watel, 2003, 2006; Sandberg, 2012); medicinal cannabis use (Morris, 2019); heroin use (Miller, 2005); other recreational drug use (Askew, 2014; Radcliffe & Stevens, 2008; Rødner, 2005); and anabolic androgenic steroids (AAS) (Hanley Santos & Coomber, 2017; Monaghan, 2001). People who use AAS and other IPEDs often believe that their use of these substances is part of a healthy lifestyle and thus consider others who use illicit drugs such as heroin as irresponsible risk takers (Monaghan et al., 2000). This increases the risks to the health of the individual who is using AAS in what they feel is a safe and healthy practice, when in fact there are a number of harmful effects, particularly damage to the liver and cardiovascular health, hypogonadism, and cognitive decline (Baggish et al., 2017a; Bjørnebekk et al., 2019; Creagh et al., 1988; Hauger et al., 2019; Kanayama et al., 2015, 2008; Pope et al., 2014b; Schumacher et al., 1999).

AAS are synthetic derivatives of testosterone (Henne & Livingstone, 2019; Kanayama & Pope, 2018; Yesalis, 1992, 2000; Yesalis & Bahrke, 2002), the primary male hormone accountable for masculinising (androgenic) and tissue building (anabolic) effects in males (Yesalis & Bahrke, 1995). They are used within the general male population by non-elite recreational exercisers who want to improve physical strength and muscularity, as well as achieving what is perceived to be a healthy and attractive body (Begley et al., 2017; Brennan et al., 2017; Christiansen et al., 2016; Zahnow et al., 2018). Brennan et al. (2013) found that risky behaviours associated with AAS use, such as injecting untested products with minimal medical support in place, were justified by the goal of image or body enhancement. It is likely that men who use AAS engage in risk neutralization techniques to conform to traditional masculine norms and relate to ideal notions of masculinity in Western society. The reason for this is twofold.

First, in some cultures, muscularity is often considered a marker of masculinity and what is considered a 'real man' (Cranswick et al., 2020) and increased muscle mass or muscularity is often considered the main factor for positive body image in men (Edwards et al., 2017; McCreary & Sasse, 2000). This ideal image is influenced by the Western stereotypical lean, muscular, mesomorphic physique which denotes masculinity in the form of strength, power, and dominance (Calogero & Thompson, 2010; Grogan, 1999; Leit et al., 2001). Media (advertising, social media, etc.) saturation of this ideal has become normalised over time (Boothroyd, 2016; Thornborrow et al., 2020) and viewing images depicting this, is associated with men feeling inadequate and driving their desire for muscularity (Griffiths et al., 2018; Guest, 2016; Mills & D'Alfonso, 2007; Richardson et al., 2019). Whilst some non-Western countries have considerably less media exposure, less influences, and drives for the ideal image and body (Thornborrow et al., 2020), there is now evidence that some non-Western cultures are being influenced by Western body ideals as a result of globalisation and Western media (Sepúlveda and Calado, 2012; Boothroyd, 2016) and much research now exists that documents their use in non-Western countries such as Trinidad (Maharaj et al., 2000), Ghana (Sagoe et al, 2015c), the Eastern Mediterranean (Hearne et al., 2020; Aziz, 2021; Selk-Ghaffari et al., 2021), Brazil (Santos et al., 2010; Abrahin et al., 2014; de Siqueira Nogueira et al., 2014; Abrahin et al., 2017; Barratt et al., 2017) India (Pany, 2019), and Japan (Takahashi et al., 2007).

Second, literature documents that most men feel an internal need and intense pressure to have sex to perform the stereotypical male sex-role (Kimmel et al., 2005). Traditional hegemonic masculine values are associated with desirability, libido and sexual function (Connell, 1995; Connell & Messerschmidt, 2005) and men and boys prescribe to hegemonic masculine ideals in a number of ways in their quest for manhood (Kimmel, 2005). Distinct features of hegemonic masculinity include: aggressiveness, assertiveness, competitiveness, courage, physical strength; emotional strength and being stoic, heterosexuality, independence, invulnerable to threats, leadership, and the dominance and the subordination of women and other men who may be homosexual and/or exhibit effeminate traits, (Connell, 1995; Connell & Messerschmidt, 2005; De Visser et al., 2009; McVittie et al., 2017). Age-related loss of physical function can result in older men feeling a loss of masculinity and of having an inner self-discrepancy due to age-related decline in physical strength, appearance, and functionality. Some men are motivated to use AAS to increase libido and sexual function (Harvey et al., 2021; Kanayama et al., 2009) and consume them for what is perceived to be self-directed testosterone replacement therapy (TRT) (Underwood et al., 2020).

A scoping review found that OMAAS were motivated to use for aesthetics and performance enhancement; to combat the effects of the ageing process; and to negate the symptoms of low testosterone (Hearne et al., 2022). Enhancement practices are commonplace amongst men who wish to negate ageing effects such as loss of, or impaired sexual function (Evans-Brown et al., 2012; van de Ven et al., 2019). The ageing process results in lower levels of testosterone (Bain, 2010), which leads to lower sex drive and sometimes - erectile dysfunction (Potts et al., 2006). This has psychological and social effects on a man such as lowered self-esteem or relationship difficulties, compounded by social stigma around their inability to function sexually thus preventing men from seeking professional or medical help (Tomlinson & Wright, 2004). Some may resort to consuming illicit enhancement substances such as Sildenafil (van de Ven et al., 2019) or illicitly obtained testosterone to alleviate such symptoms (Hearne et al., 2022). This can result in OMAAS engaging in sustained and harmful patterns of use resulting in withdrawal symptoms indicative of AAS dependence syndrome (Kanayama et al., 2009, 2008; Pope et al., 2014a).

Physical and psychological harms resulting from AAS use, in particular, harms to major systems and organs, are well recognised within the literature (Hartgens & Kuipers, 2004; Pope et al., 2014b). Effects on long-term morbidity and mortality from cardiovascular ill-health (Baggish et al., 2017b; Darke et al., 2014; Frati et al., 2015; McCullough et al., 2020) damage to the liver (Creagh et al., 1988; Schumacher et al., 1999), and cognitive decline (Bjørnebekk et al., 2019; Kanayama et al., 2013) are reported. These are often the result of using AAS in prolonged and high-doses, or due to changes in cycles from on and off cycling to blast and cruise - whereby they intersperse high dose cycles (blast) and low dose cycles (cruise) - cycles of use (Chandler & McVeigh, 2013; McVeigh & Begley, 2017). Of concern for OMAAS is that they may be a high risk for age-related cardiovascular health issues due to an aging myocardium, which may be exacerbated by the use of AAS (Kanayama et al., 2008; Thiblin et al., 2015). Other common harms reported include injecting harms (Brennan et al., 2018; Coomber et al., 2015; Hope et al., 2015; Kimergard et al., 2014; van de Ven, 2016) such as blood borne virus (BBV) transmission (Hope et al., 2020, 2013) and injection site infections (Hope et al., 2015).

Recent research has estimated that only one-third-of people who use AAS seek healthcare support for information or treatment of health issues possibly associated with the use of AAS, from their general practitioner (GP)/physician (Amaral et al., 2022). Hearne et al. (2022) reported that OMAAS who use AAS as self-directed hormone replacement therapy to negate the symptoms of low testosterone, did so largely due to a reluctance to engage with healthcare such as GPs, and the perceived notion that the use of AAS is part of a healthy lifestyle and wellbeing. Needle and syringe programmes in the UK report more people who inject AAS attending than those who inject psychoactive substances and this is often the only point of engagement for people who use AAS (Bates et al., 2014; McVeigh & Begley, 2017), Considering this, and the evidence of increasing numbers of people in the UK who use AAS and other image and performance enhancement drugs (IPEDs) attending harm reduction services such as needle exchanges; and the increased mean age of the clients who use AAS (Bates & McVeigh, 2016; Begley et al., 2017; Chandler & McVeigh, 2013; McVeigh & Begley, 2017) - a qualitative exploratory study with harm reduction workers at harm reduction services in the UK was conducted to gain insight into harm reduction workers views on the healthcare and support needs of OMAAS. This study aimed to explore harm reduction workers'

experiences of engagement with OMAAS and how they view the healthcare and support needs of this group. This study is the second that forms part of the authors PhD research, which was exploratory, thus, the findings of this study informed the subsequent study which was interviews with OMAAS.

## 2. Materials and methods

Interviews with harm reduction workers ($n$ = 13 [12 Male, 1 Female])[1] who work with OMAAS in harm reduction services in England, Scotland, and Wales explored their experiences of engagement with OMAAS; how they view the healthcare and support needs of OMAAS; and how the harm reduction workers can effectively support OMAAS.

A semi-structured interview guide was developed which was informed by the extant literature on AAS use and a scoping review of OMAAS (Hearne et al., 2022). Questions included sections on: the harm reduction worker (Can you tell me about yourself and your role? How long working with people who use AAS? Do you feel you are adequately trained?); clients older than 40 who use AAS (What influences/motivates/drives their use? Tell me about their patterns of use as observed by you, compared with younger? What harms to OMAAS have you observed?); and the future (What concerns, needs and plans do you feel are in place or needed for this age group? Now and in the future?). Purposive sampling allowed specific harm reduction workers to be selected for interview through targeting specific harm reduction services in which harm reduction workers engage with OMAAS. harm reduction workers who work with OMAAS were recruited through an existing network of AAS and needle and syringe programme practitioners known to the principal investigator and the research team. harm reduction workers were invited to participate via email and interviews were conducted with harm reduction workers who were based across Scotland (4), England (8), and Wales (1). One-to-one interviews were conducted via Microsoft Teams between June and August 2020. Interviews were recorded on a Dictaphone, transcribed verbatim, and imported into Nvivo12 software. The dataset was subsequently analysed using the six steps of thematic analysis (Braun & Clarke, 2006, 2019) using Nvivo12 software. These six steps were: 1) familiarizing with the data; 2) assigning codes to data; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes found; 6) and writing up results. Inductive thematic analysis generated data driven codes and themes through an iterative data review process which included identifying and illustrating implicit and explicit themes within the data (Guest et al., 2014). Ethical approval for the study was granted by Liverpool John Moores University ethics committee (ref 20/PHI/004).

## 3. Results

Thematic analysis identified four key themes with subthemes. The themes and subthemes outlined below are interpreted with illustrative quotations through the lens of the theoretical concepts, masculinity (Connell, 1995; Connell & Messerschmidt, 2005) and risk neutralization (Peretti-Watel, 2003), the overarching thematic findings.

### 3.1. Theme 1: Patterns of AAS use by older men accessing healthcare services

harm reduction workers interviewed reported on patterns of use by OMAAS. harm reduction workers considered OMAAS as likely to have more knowledge and a sub-cultured understanding of the pharmacology of AAS and other IPEDs, than younger men who use AAS or medical professionals such as GPs. They also suggested that OMAAS believe their use to be less risky than others, for example, they were believed to distinguish and distance themselves from so-called 'riskier' younger men and who consider their knowledge and experiences of use as a vehicle for acceptable risk-taking. This can be considered a risk neutralization tactic which allows OMAAS to justify their risky patterns of use through comparison with others' patterns of use (Peretti-Watel, 2003). This was discussed firstly in terms of the type of AAS OMAAS reportedly use, with some harm reduction workers stating that older male clients limit their use to *"just testosterone"* and are unlikely to use a combination of substances. This group comparison can be considered 'scapegoating' of other groups by the OMAAS, in an attempt to neutralize their own risks from AAS use. HRW10 appeared to suggest this – i.e. use of testosterone only - was considered by OMAAS as safer and less risky use than that by younger males, and part of a healthy lifestyle and in what is perceived as being overall wellbeing-focused:

> "In that older cohort, it is just usually testosterone in most instances that they're using" (HRW10).

Conversely, other harm reduction workers felt that OMAAS do not limit their use to testosterone only, but rather, engage in poly-IPED use to achieve their desired goals, highlighting the heterogeneity of OMAAS:

> "If anything, if you look at specific substances, I'd say you'd probably see more growth hormone being used within that age group but in addition to steroids" (HRW12).

HRW2 stated that whilst he did feel there may be *"less risk-potential"* for OMAAS in terms of their willingness to engage with harm reduction services and what AAS are used; he noted the significant risks of using possibly contaminated, unregulated substances and the risk of harms from injecting, which he suggested may be overlooked by OMAAS in a false act of self-confidence in their ethnopharmacological knowledge:

> "For a lot of them there's an idea that what they are doing is less harmful and as I say, I think in general it probably is, but they're still using a drug of unknown quality and quantity and all those other risks that come with it" (HRW2).

Dosages of AAS were reported by some harm reduction workers, who suggested that older men are more sensible in their dosing compared with younger males. It was noted that due to ageing effects and cessation of competitive sport, such as bodybuilding, OMAAS had now graduated to what is perceived as safer, therapeutic use. Here they can be seen to compare their current selves with their younger selves to justify their current dosages/use in what can be considered a form of scapegoating. For example, HRW7 stated that:

> "In the grander scheme of things, where they're using up to a gram of testosterone a week previously for competitions, and they're using a therapeutic dose now between 200 and 250 [mg] every seven to ten days" (HRW7).

Some harm reduction workers reported OMAAS consuming AAS for shorter cycles. However, most stated that they are using for prolonged cycles without taking a break or 'blasting and cruising', a risk neutralization technique, meaning they are continually consuming AAS to avoid symptoms of 'the crash'[2] such as low mood or sexual dysfunction on cessation of use. This risk neutralization tactic - self-confidence - was of considerable concern to the harm reduction workers as accuracy of the low dose, i.e. 'cruise' was questionable and still likely to be quite a high dose. As criticised by HRW1 here:

> "I think it probably started about five or six years ago where I started to see more and more people who just never came off. They were

[1] Due to the small network of AAS experts in harm reduction service across the UK who may be known to each other, we cannot provide any further information on harm reduction workers. This allows us to ensure anonymity of participants.

[2] Withdrawal symptoms experienced on cessation of AAS attributed to anabolic steroid induced hypogonadism.

either blast and cruise, so they'd have high dose/low dose. But the low dose if you kind of nibbled into that wasn't that low anyway. I used to call it 'big-blast, little-blast'" (HRW1).

Overall, harm reduction workers views on OMAAS patterns of use were generally similar, reporting older male clients' engaging in considerably risky patterns of AAS use. Most did feel that even though OMAAS mostly use for lifestyle and wellbeing reasons, their observed patterns of use indicate that their risk was no less than their younger counterparts but was being overlooked through scapegoating (of younger people who use AAS and their young selves), self-confidence in their knowledge through lay epidemiology, and comparing risk of substances they use relative to others. Furthermore, in their quest for a masculine physique, the OMAAS engage in risk neutralization to justify their use in ways that reflect hegemonic masculinity such as, self-confidence in their AAS use controlled, safe, and necessary; independence from others caution such as harm reduction workers and GPs; and the perception that they are invulnerable to the well documented risks to health from AAS use.

### 3.2. Theme 2: Motivations for AAS use

Harm reduction workers reported a number of motivations and drivers for AAS use by OMAAS which included use: for perceived testosterone replacement therapy, and to enhance image and aesthetics and performance enhancement. These motivations were inextricably linked to perceptions of the natural ageing process, driven by a desire to attain and/or maintain masculine status. These are described in the subthemes below.

#### 3.2.1. Perceived testosterone replacement therapy: "the 'TRT' guys"

Almost all harm reduction workers reported primary motivations for use by OMAAS was for perceived testosterone replacement therapy to improve sex drive and libido; address low mood, low energy, and depressive symptoms; fear of the crash on cessation of use; and to enhance overall feelings of wellbeing. These motives are driven by typical hegemonic masculinity traits which allow the OMAAS to perform gendered displays of masculinity through emotional strength (negating low mood and depressive symptoms), power (having authority and physical capabilities of one's own body), and virility (improved sex drive and libido). The use of risk neutralization tactics to justify or rationalise the use of AAS is demonstrated in how the OMAAS engage in lay information online which informs their perceptions of age-related testosterone decline and justification for their use of AAS use:

"We got these 'TRT' guys, well I call them 'TRT' guys, which are basically guys that have read somewhere, probably on the internet, that by a certain age you're supposed to have a certain level of testosterone, and they haven't got it. So, they feel as though they've got low testosterone and so they go out and do self-prescribing basically" (HRW1).

Many harm reduction workers noted that decreased libido and sexual dysfunction were reported as the main motives for prolonged testosterone use centred on the ability to be able to perform sexually. One harm reduction worker highlighted this, noting that whilst one of his clients was using AAS to improve physique, this was secondary to his drive to stay on-cycle primarily to improve sexual functioning:

"But definitely libido and sexual function is a big driver behind his desire to be on-cycle. Obviously, the physical changes as well are there too, but sexual function does play a key role in the discussions we have" (HRW9).

Low mood, energy and depressive symptoms relating to ageing, as well as experiencing 'mid-life crisis', were the most reported motivating factors for initiating use, continued use, *and* re-uptake of use after periods of cessation. This can be interpreted as masculinity-in-crisis where HRW1 indicates OMAAS are endeavouring to achieve not only a youthful physique and improved sexual functioning, but also to take on a traditional masculine role within the family unit by continuing to be the sole providers later in life, suggesting that ageing threatens men's ability to meet traditional hegemonic masculine ideals:

"You get a lot of low mood stuff. I can only speak for men, but I think it happens to a lot of men that they have a bit of a low period somewhere in their forties, fifties, they feel a bit crap. Especially if they've had long relationships, families, they're getting sort of tired, they're still working fulltime and all the rest of it, trying to manage the household, they got bills and all that. So, they get into a little bit of low mood and obviously testosterone sort of boosts them a little bit, really what they've probably got is a little bit of a mid-life crisis" (HRW1).

As stated by most harm reduction workers, many OMAAS consider themselves as being on *"TRT",* however, concerns were raised by harm reduction workers regarding the extremely high doses (e.g. 2 g per week) they are reportedly consuming which were deemed as not being in line with a medical therapeutic dose, therefore cannot be considered *'TRT'*:

"A lot of the older men that come, some of them have been long-term body builders and they're saying they are on 'TRT' but actually they're still taking very large amounts of testosterone and some of these other steroids, and there's no way that can be deemed as 'TRT'ers. It's far too high a dose" (HRW10).

Nonetheless, fear of lowered testosterone levels, and in turn loss of masculinity, was felt to be a reinforcing factor and a justification for use, highlighting the OMAAS engaging in scapegoating and risk comparison to achieve their goals associated with overall wellbeing. The value attached to AAS use by OMAAS, i.e. the ability to function sexually, have more energy, and look/feel more youthful through using AAS, suggest a desire to feel and demonstrate and regain a youthful masculinity as an integral part of their lives. Furthermore, the desire to regain a youthful masculinity is discussed whereby the harm reduction worker indicates the OMAAS' ability to portray and perform gender ideals of youth resulting from the use of testosterone:

"Most of them that have started at an older age, they like the way it makes them feel and they then start to swear by the testosterone, and they don't want to stop using because they like how it has made them feel. I have had it described to me by one of them as they just feel good, they feel energetic, they feel like they're in their 20 s again. It's very difficult for somebody who's maybe been suffering from low self-esteem, from low libido and all of a sudden, they've taken some drug that has given that back to them and they don't want to stop using. In all honesty … why would you want to stop?" (HRW10).

#### 3.2.2. Image and aesthetics: "creating a persona"

The second most frequently reported motivation to use AAS was to enhance image and aesthetics; influenced by images of peer physiques particularly those on social media and celebrities; and to present a more youthful masculine image. Almost all harm reduction workers stated that OMAAS were motivated to use AAS in an endeavour to regain their youthful image and negate the effects of ageing on the body:

"They're like mid-forties, you know, 50-year-old guys out on the dating scene again. I think it gives them a bit of confidence and obviously it gives you a boost, it gives you energy, you know you're in the gym feeling strong and you've got that whole thing going on. They're kind of fancy free, they've broken up with their wives or whatever, and they wanna get in shape to go back out on the dating scene, so that's a big thing" (HRW1).

Aesthetics and the perfect selfie for social media apps (Facebook, Snapchat, Instagram) and geosocial networking apps (Tinder, Grindr)

were also discussed by three harm reduction workers as motivations for aesthetic enhancement. This type of activity may allow the OMAAS to look like the 'ideal male' whereby media saturation of a stereotypical male physique can result in a man feeling inadequate in today's image conscious society:

> "It's just purely aesthetic because it's all about Facebook and whatever those snapchats are. But yeah it's all about what you look like on those photographs and creating this you know persona I suppose" (HRW1).

It was suggested that this trend was once mainly an issue that effected women, but that more recently it has become more common among men in ways that drives the use of AAS particularly among older men who feel emasculated by the effects of ageing on the body:

> "There is a pressure on men as well in the media and social media, advertising, to look a certain way, it doesn't matter how old you are. I always said years ago, back in the '80 s, the pressure was all on women to look a certain way" (HRW3).

#### 3.2.3. Performance enhancement: *"if I'm on gear I can still workout"*

Performance enhancement motivations by OMAAS were reported by some harm reduction workers and mostly centred on the physical body ageing and "slowing down". OMAAS were reportedly making negative comparisons to their own past levels of physical fitness and strength within the gym environment and their current older selves. Employing the risk neutralization strategy scapegoating, allowed them to conform to current societal expectations of image, strength, and physical and athletic performance through AAS use:

> "A lot of guys are convinced that it's not normal to slow down a bit. Particularly I got this guy from [city] who's a powerlifter, his knees are absolutely shot, but he says 'if I'm on gear I can still workout and me knees are alright, but as soon as I come off gear me knees give me a right load of pain and I can't work out to the same level I was doing'" (HRW1).

This again highlights that OMAAS may be driven to use AAS to conform to masculine norms, such as, winning, strength and power in competitive and non-competitive sport, which they had previously achieved in their youth, and a willingness to engage in risk behaviours to retain these masculine expectations:

> "Your strength goes down a bit and your capacity for recovery goes down a bit as you get older, less gym sessions or less intense workouts or whatever. You kind of think "oh a little boost that will help" so there's all those kinds of things going on. I suppose it's all tied up with middle-age I suppose" (HRW1).

AAS use among the harm reduction workers' older clients to aid physical strength and performance when ageing revealed clear examples of OMAAS engaging in scapegoating, specifically, their self-identification as needing a 'magic bullet' to attain youthfulness:

> "It's no different from being a young lad is it, because like, I think they're trying to capture some of that youth, that youthful look and stuff. So, it's an easy fix straight way isn't it?" (HRW6).

Interestingly, one of the harm reduction workers reported increased energy levels and endurance as a motivating factor for OMAAS to emulate characteristics of a younger person within their social and recreational spaces, not just in fitness/training spaces. This attests to the concept of competitiveness between men in displays of machoism centred around AAS use, image, and aesthetics:

> "People over 40 and 50 didn't used to go to festivals or anything and now they can sorta get away with it, you know, so why would you not have the same kind of mindset as somebody younger, you know" (HRW12).

### 3.3. Theme 3: Adverse health effects: *"a real risk for older steroid users"*

Here, the harm reduction workers underscored the interplay between risk neutralization strategies (self-confidence and risk comparison) and masculine identity (sexual performance and virility). The OMAAS engage in health-risk behaviours by self-medicating with AAS to negate symptoms on cessation of use such as sexual dysfunction and depression, rather than seeking medical care.

> "You've still got a huge testosterone level in your system and then the steroid crash happens, and a steroid crash is severe. The first thing that you'll start to notice is probably erectile dysfunction or total loss of libido, I mean no interest in sex whatsoever. They've got all these horrible side effects; they start taking testosterone again and within a week or two they disappear" (HRW12).

Discussions with harm reduction workers regarding the adverse health effects from AAS use by OMAAS centred primarily on low testosterone particularly on cessation of AAS use (i.e. the 'crash'), whereby the symptoms associated with this may be considered as opposing traditional masculine values of sexual performance and fertility, for example, inability to produce an erection, low libido, depressive symptoms, low self-esteem, and fertility issues. Furthermore, sexual dysfunction was said to result in aggression and low mood highlighting the 'revolving door' effect of the crash on cessation of use:

> "They suffer with bouts of depression, mood changes up and down, and I think that's where the aggression comes from, like your mood and stuff is changing that much, even though you might be training on it. So then if it's affecting your sex life as well, you've got things going on down there, how embarrassed you're gonna be if you're in a long-term relationship, you're married, or you've just started seeing someone new and you're hiding your steroid use" (HRW6).

Other physical health harms observed by harm reduction workers in OMAAS included injection site harms, cholesterol problems, kidney problems, liver problems, elevated haematocrit, and gynaecomastia. Cardiovascular harms were discussed, however, HRW12 pointed out that cardiovascular harms are not recorded at harm reduction services and they are unaware of them unless a client informs them of such an event or diagnosis:

> "We don't see that [cardiovascular health concerns] and maybe I don't see that because somebody who's been using for 20 years on a relatively high dose, it develops cardiovascular problems or takes a heart attack and dies, I'm not gonna see them at the clinic. We don't take any kind of scans or anything and look at the heart or the size and shape of the valves or the left ventricle or anything like that, but it doesn't mean to say it's not happening and that's a real risk for older steroid users. Its possible people do experience it, and they fall away from it [AAS use] because of that, and we just don't see them" (HRW12).

This interesting viewpoint in terms of the lack of cardiac monitoring facilities at harm reduction services is further compounded by the fact that if an OMAAS has a cardiac event or diagnosis, he may cease using AAS and not return to the service. Harm reduction workers cannot therefore provide accurate data on how many people who use AAS suffer cardiac issues as a result of their use which is a significant consideration for the future of AAS research particularly when the findings indicate that OMAAS are engaging in risk neutralization to sustain their masculinity through AAS use.

### 3.4. Theme 4: Healthcare responses to older men who use AAS

Healthcare responses to OMAAS were reported by all but one harm reduction worker as being a significant issue. Specifically, harm reduction workers discussed OMAAS reporting negative experiences with GPs such as being stigmatised for using AAS, not receiving appropriate

medical treatment, GPs not having appropriate knowledge and understanding AAS use, over-prescribing of anti-depressants for withdrawal symptoms, slow and difficult access to specialist treatment such as endocrinology, and an overall lack of mistrust and reluctance to visit GPs because of their AAS use. The interplay between scapegoating, self-confidence, and masculine values was evident here. The reluctance of OMAAS to seek medical advice from GPs is indicative of a man with strong masculine values and identity as seeking healthcare is considered showing weakness which is deemed an effeminate practice (Courtenay, 2000). This results in the OMAAS' reluctance to seek medical advice therefore continuing to consume AAS in the belief that they can control and avoid ill-effects from use.

#### 3.4.1. Primary healthcare access: "well it's self-inflicted"

The majority of harm reduction workers expressed concerns regarding OMAAS' reluctance to visit a GP for AAS related healthcare such as blood testing, because of fear of being stigmatised or dismissed. This was considered a barrier for appropriate and effective healthcare responses to AAS health harms particularly for this ageing cohort:

> "Think about the older end of steroid users who are slowing down, your heart's had a bit of wear and tear, your kidney's and your liver … nine times out of ten doctors are just gonna tell you to do a running jump if you go and try and get any bloodwork done there; or if you do get any bloodwork done - they're like 'well it's self-inflicted'" (HRW6).

Some harm reduction workers reported that OMAAS simply did not want to seek medical help, aligning with risk neutralization self-confidence, whereby OMAAS deny any risks from their use by believing in their own past experiences and ability to control risky outcomes of use, therefore they continue to self-diagnose and self-medicate with AAS:

> "Very few people will actually have access to or bother going and getting testing, you know, so they sort of self-medicate" (HRW3).

The absence of access to blood testing at harm reduction services was viewed by most as being a significant issue. This service was considered not only a diagnostic tool for harms caused by AAS use but also as a strategy to engage with and build relationships with OMAAS, thus, leaving room for discussion on patterns of use and other health issues for example high cholesterol that he may have not been aware of otherwise:

> "I met somebody who was almost sixty and he was going into his gym, he didn't know what he was taking, his friend was just injecting it for him. He didn't know the doses … [name] took his bloods and it was one of the worst kidney and liver function results I've ever seen, and his cholesterol was through the roof" (HRW10).

#### 3.4.2. Secondary healthcare access: "the roundabout way"

Secondary healthcare services discussed included endocrinology, mental health services, sexual health services, and addiction treatment services. harm reduction workers discussed engagement with OMAAS who have experienced an inability to recover hormone function on cessation of use. Some reported seeking healthcare from a GP which is the first line of treatment in this instance and would likely be followed by a referral to endocrinology if necessary. It was indicated by harm reduction workers that the period between referral to endocrinology and getting an appointment was high-risk for OMAAS who may restart use due to withdrawal symptomatology. The harm reduction workers strongly believed that AAS-specific healthcare or access to other services such as endocrinology in the services in which they work and engage with OMAAS, could result in positive changes for the health of the OMAAS. Furthermore, rapid access to AAS specialist endocrinology was also proposed:

> "Rapid access to endocrinology. I think the roundabout way people have got to go to get tested is awful; on at their GP for a year before … if you're feeling that low for months and months and months you just jump back on, it's these side effects I was talking about, withdrawals, if you like. So, one would be rapid access to endocrinology, with a specialist endocrinologist that understands the use of IPEDs. I think that could be incredibly valuable" (HRW12).

#### 3.4.3. Recommendations for healthcare of OMAAS: "respect"

A number of recommendations were made by all harm reduction workers regarding OMAAS healthcare needs. These centred on bridging the gap between GPs and OMAAS by improving access to and uptake of healthcare and reducing stigma of those who use AAS; understanding how OMAAS self-manage adverse effects from AAS use; and implementing services such as blood testing, specialised AAS workers, substance testing, and cardiac monitoring at harm reduction services. Overall, harm reduction workers felt that by having knowledge and understanding of OMAAS' motivations for initiating use, both at a younger and older age was pertinent for developing appropriate prevention responses for others who might be considering using. It was recommended that medical professionals be open, non-judgemental, and adequately trained in AAS use, treatment, and in relation to perceived masculinity and ageing:

> "They should be dealing with that consultation in a very non-judgemental way. I think post-cycle therapy works very well, and I know for whatever reason in this field we're all a bit touchy about discussing it or whatever, but it works, it's why clients use it" (HRW12).

OMAAS were considered by the majority of harm reduction workers as being approachable and willing to discuss their patterns of use, harm reduction, and health concerns. They were also said to be aware of natural ageing effects on the body and organs and how AAS use may affect them. harm reduction workers also believed that OMAAS were more willing to heed advice pertaining to blood testing for AAS related health effects and would attend their GP for this service if it was unavailable at the harm reduction service. One harm reduction worker felt that implementing this service allowed for better engagement with OMAAS who normally get their advice regarding health concerns from peers and others within their AAS network:

> "They respect the advice they get from the big guy, so that's always a battle for me, coz I'm not a big guy so the only way I used to get round that was by doing the bloods" (HRW1).

Consideration for anabolic steroid induced hypogonadism by GPs and other medical professionals was advocated by many, with appropriate responses such as testosterone replacement therapy and not prescribing anti-depressants to treat low mood (reported by harm reduction workers as being the current response to ASIH) were recommended illustrated here:

> "So, I think for men over a certain age that testosterone replacement therapy should be easier to access" (HRW10).

The discussions with harm reduction workers regarding physical health harms to OMAAS underscored the pertinent need for harm reduction services who see large numbers of people who use AAS attending, to be improved and enhanced to address this need for extra service provision for OMAAS. This was corroborated by other harm reduction workers who believed that OMAAS (and younger people who use AAS) would benefit significantly from improved testing facilities, thus reducing harms for the OMAAS who are reluctant to attend GPs for health concerns, and even more so for AAS related concerns. This behaviour is indicative of a man with strong masculine values and identity who may then engage in risk neutralization strategies to sustain his masculinity:

"I guess some harms come from people's reluctance to check their stats [health check]. Or potentially I don't know, ask their GP to do that which the GP possibly wouldn't, but you know, check their bloods, check their cholesterol, check various markers of health, yeah?" (HRW13).

## 4. Discussion

The aim of this study was to explore harm reduction workers' experiences of engagement with OMAAS and how they view the healthcare and support needs of this group. The study addresses a gap in current knowledge as studies on AAS in the UK to date have focused primarily on the younger male person who uses AAS (Bates & McVeigh, 2016; Chandler & McVeigh, 2013; Lenehan et al., 1996) however, since 2016, increasing evidence of a number of diverse sub-groups of people who use AAS has emerged (McVeigh et al., 2021) including women who use AAS and other IPEDS (Germain et al., 2020; Henning & Andreasson, 2019; Kotzé et al., 2020), those who use for occupational reasons (Boardley et al., 2016; Whyte et al., 2020), and older men (Begley et al., 2017; Hearne et al., 2022). To the best of our knowledge, this is first qualitative UK study to explore the use of AAS by older men from the perspectives of harm reduction workers who engage with them in needle and syringe programmes. It thus provides a unique insight into the behaviours, motivations, and healthcare needs of this cohort.

The findings indicate that some OMAAS report low-risk patterns of use to harm reduction workers which may reflect long-term experienced use with this becoming less-risky over time. However, the harm reduction workers recognise that whilst they believe their clients are knowledgeable and well-researched, they *are* engaging in risky behaviours. This is in terms of the type and number of substances they reportedly use, prolonged cycles and high-dose use of AAS. These patterns of use can be considered a risk neutralization technique; self- confidence (Peretti-Watel, 2003; Peretti-Watel & Moatti, 2006) by the OMAAS to achieve a specific goal, such as muscular enhancement or testosterone replacement therapy. The OMAAS are confident in their ability to reach this goal using high doses for prolonged cycles, yet, disclosing to harm reduction workers that they are 'safer' compared to younger counterparts. Here the harm reduction workers place the older clients, 'us', in an opposing parameter to younger clients, 'them', in terms of the risks associated with their AAS use. Similarly, in other research, Monaghan (2001) described experienced, long-term AAS users claiming to know the 'correct' way to take AAS and not in an uncontrolled manner such as with 'others' who engage in deliberate, risky, uncontrolled AAS practices, and are considered 'abusers' (Monaghan, 2002; Peretti-Watel & Moatti, 2006). Here, the harm reduction workers detail their older male clients engaging in voluntary risk-taking in what is likely a bid to reject the natural ageing process by using AAS in a continuous 'low-dose' cycle. However, the low-dose is questionable at 200–250 mg testosterone weekly (HRW7) when in fact a medical therapeutic dose is recommended at 75–100 mg weekly (Bhasin et al., 2006). Risky behaviours and discussions of AAS and patterns of use are normalised within subcultural AAS user groups (Monaghan, 2002), and it could be hypothesize that the language and terminology used within these subcultural groups has become somewhat normalised among the harm reduction workers.

The use of testosterone for self-directed TRT by some in much higher doses than the recommended therapeutic amount is a concern. It must be highlighted that often the active ingredients in AAS compounds are not always what is stated on the label (Evans-Brown et al., 2009), with different quantities of the active substance, different substance to that stated, and in some cases, no active substance. Therefore, we can assume that these dosages reported may be inaccurate. Some OMAAS may be using the term *'TRT'* to compensate for the use of AAS in an assertive display of masculinity, independent from the caution of harm reduction workers, but in reality an enhancement dose is being used. Underwood et al. (2020) similarly underscored concern here relating to doses whereby the use of so called TRT doses leads to enhancement doses increasing the health risks for the user. In the current study this is significant particularly in terms of the ageing male who will be faced with age-related health issues such as decreased hypothalamic-pituitary testicular (HPT) function (Bhasin et al., 2006) and cardiovascular health issues (Kanayama et al., 2008; Thiblin et al., 2015). These OMAAS may not wish to reduce the dose of testosterone in line with harm reduction workers recommendations as they are achieving their goals on their current regime. Staying on this regime allows the OMAAS to validate his masculine identity through assertiveness, independence and emotional strength (Connell, 1995; McVittie et al., 2017) or a valiant display of self-mastery of AAS use (Peretti-Watel & Moatti, 2006).

The harm reduction workers describe how some OMAAS are motivated to use testosterone (AAS) as a form of testosterone replacement therapy, not as a result of seeking advice from a medical professional, but rather their own independent choice to do so. Furthermore, some OMAAS were reportedly motivated to continue and re-start use after periods of cessation to negate withdrawal-like symptoms associated with the 'crash'. Underwood et al. (2020) reported similar findings whereby the participants felt that they had more freedom and choices with regards to their self-prescribed TRT than if a medical professional was making the decisions. Independence is a primary feature of hegemonic masculinity where men place considerably more authority on self-made choices than those that are made by the influence of others (Connell, 1995). Self-medicating the symptoms of low testosterone, endorses the hegemonic view that men deny weakness and do not ask for help when ailed (Courtenay, 2000; O'Brien et al., 2005). The OMAAS, as described by the harm reduction workers in this study, who have experienced the benefits of testosterone on their sexual function, are taking control of their (hetero)sexuality in a display of masculinity. The ability to perform sexually conforms to hegemonic traits centred on heterosexuality and being 'macho' by not succumbing to the weakness that is impotence. This results in the man being able to perform what is viewed as a cultural ideal of manhood (Connell, 1995; McVittie et al., 2017; Potts, 2000). It is evident here that men must find any means to perform their ideal masculinities as gender is not simply denoted through biological sex, but dependent on society and culture at any given time (De Visser et al., 2009).

OMAAS who are reportedly aesthetically driven to use AAS are pushing the boundaries of traditional masculine values and identities to include what was once a female-only phenomenon (Atkinson, 2008) by engaging in different forms of bodywork to attract the opposite sex. Vanity in men was once considered non-masculine and equated with femininity with traditional hegemony suggesting that men should not be excessively concerned with their appearance (De Visser et al., 2009) but more focused on physical prowess, power and assertiveness (Connell & Messerschmidt, 2005). For men, aesthetic body ideals are based on the ideal physique as purported in the media (Leit et al., 2002, 2001; Mataix, 2012; Pope et al., 2000a, 2000b). Here the harm reduction workers discuss their older AAS user clients engaging in a type of display work through AAS, for non-monetary gains from the opposite sex such as recognition, social media 'likes', and other external validation (Richardson et al., 2019). This is not in line with traditional forms of masculinity whereby the man usually enacts his power over women through a lack of vanity and anti-femininity (De Visser et al., 2009).

Harm reduction workers reported some OMAAS being motivated to use for strength and performance enhancement and to negate ageing so as to be able to perform in exercise and occupational settings to the same level as when in their youth. Here the older male client emanates confidence in his self-mastery (Peretti-Watel & Moatti, 2006) of AAS use as a therapeutic intervention for his (perceived) physical weakness. One can consider Peretti-Watel and Moatti's (2006) risk neutralization theory here. The OMAAS are making comparisons to conform to social norms around image, strength, and performance. Furthermore, the OMAAS exude self-confidence in their knowledge and ability to attain levels of

strength and youth that are likely unobtainable by natural means. This is evidenced in other studies (Monaghan, 2002; Wichstrøm & Pedersen, 2001) where those who conform to the 'cult of performance' endeavour to go higher and further than before no matter what the risks. This is highlighted in the current study with the male client comparing his past levels of fitness and strength to his current weakness, and the need to attain that past level once more. This can also be correlated with men's conformity to masculine norms for example, winning, strength and power, and risk-taking (Holmqvist Gattario et al., 2015) underscoring masculinity as a significant higher level of abstraction throughout these findings.

While harm reduction workers discussed physical health harms experienced by some OMAAS, their knowledge of some, such as cardiovascular harms among OMAAS was limited. This was due to the possibility that following a cardiac event, an OMAAS would likely be receiving cardiac care and may not return to harm reduction services such as needle and syringe programmes. Furthermore, some expressed concerns that they are not providing a service for testing for markers such as cholesterol imbalances or liver function tests (LFTs) for people who use AAS. OMAAS may continue to use in spite of experienced effects on physical health, such as sexual dysfunction and depression associated with low testosterone, rather than seeking medical care. The interplay between risk neutralization techniques and hegemonic masculine values is evident. The reluctance of people who use AAS to seek medical advice from GPs, a behaviour well-documented in the AAS literature (Bates & McVeigh, 2016; Hope et al., 2015; Pope et al., 2004; Zahnow et al., 2017). These studies report reasons for AAS users' reluctance to seek help primarily due to lack of trust or for fear of being stigmatised by medical professionals which, in the current study, results in the OMAAS' reluctance to seek medical advice therefore continuing to consume AAS in the belief that they can control and avoid ill-effects from use. The OMAAS experience both the positive and negative effects of AAS and so continue to self-medicate, confident in their ability to control the situation which in turn results in them performing their ideal masculinities (Connell, 1995). This is exacerbated by the use of possibly contaminated and adulterated products which may also cause harms to the OMAAS. The harm reduction workers strongly believe that AAS-specific healthcare in the services at which they work, and engage with OMAAS, can result in positive changes for the health of OMAAS who may not have received adequate treatment and care from primary healthcare.

## 5. Limitations

There are a number of limitations to the study which must be acknowledged.

First, the self-selection of harm reduction workers who work in needle and syringe programmes through the AAS-network may have introduced recruitment bias to the study and therefore mean the findings may not be generalisable to all OMAAS. This is likely reduced, however, as AAS users are the main client group in UK needle and syringe programmes. There is a possibility for social desirability bias which could influence the responses provided by the harm reduction workers who may not be entirely honest or open answering some questions due to their position at their needle and syringe programme. As the findings are based on second hand experiences of OMAAS provided by the harm reduction workers, it must be acknowledged that this is a limitation and could affect how these experiences are reported and interpreted. As the qualitative interviews were with a small sample of harm reduction workers from UK needle and syringe programmes, the findings may not be generalizable to the wider population of these harm reduction workers, who may have widely varied experiences and viewpoints on OMAAS related healthcare. Memory recall and accuracy of information must also be considered as a possible limitation.

## 6. Conclusion & recommendations

The findings highlight a number of concerns raised from the viewpoint of harm reduction workers who support OMAAS at needle and syringe programmes. Their primary concern pertains to service user engagement with medical professionals and healthcare responses to AAS use in clinical settings, as a result of the reluctance to seek primary healthcare due to poor knowledge or (expected) negative response from GPs. This is further compounded by a man's need to perform traditional masculine roles. Additionally, the harm reduction workers have raised concerns for service development specifically the need for blood testing at needle and syringe programmes to reduce harms by providing information to OMAAS engaging in risk and denial behaviours. Further exploration of OMAAS' patterns and motivations for use and an in-depth exploration of their experiences of healthcare and their healthcare needs is required. Future research is also needed with medical professionals such as GPs, to explore their understanding and knowledge of AAS and willingness to provide services pertaining to AAS and their adverse health effects. Furthermore, improved harm reduction services to include blood testing, cardiac monitoring, substance testing, and rapid access and referral pathways for medical services for clients is required to address the needs of this group. These can later be followed by evaluations of the effectiveness of the implemented interventions. One must consider the strong likelihood that some OMAAS will engage in risk neutralization techniques so as to conform to traditional masculine norms, therefore their need to access AAS-specific healthcare is a concern which needs to be addressed. Medical professionals and harm reduction services are advised to consider addressing issues with perceptions of masculinity to help prevent them engaging in risk neutralization and encourage safer use.

## CRediT authorship contribution statement

**Evelyn Hearne:** Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Amanda Atkinson:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Jim McVeigh:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Ian Boardley:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Vivian D. Hope:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Marie Claire Van Hout:** Writing – review & editing, Supervision, Methodology, Conceptualization.

## Declaration of competing interest

The authors declare no conflict of interest.

### *Ethics*

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