

A qualitative study of the motivations for Anabolic-androgenic steroid use: the role of Muscle Dysmorphia and Self-esteem in Long-term users

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Abstract

Background: The use of Anabolic-androgenic steroids (AAS) among the non-competitive weightlifting community has increased considerably in the UK in recent years, presenting a public health issue. The motives behind use have received considerable attention, with motivations linked to body dissatisfaction, low self-esteem, and more recently, muscle dysmorphia (MD). However, the causal roles of MD and self-esteem in AAS use remain unclear. Therefore, this paper examines the origins and changes to motivations in long-term users.

Methods: A qualitative study recruited eight male weightlifters from a needle exchange programme in South Wales, UK. Participants were interviewed about their initial introduction to AAS and their motivations for initial and continued use.

Results: The interview data confirmed the importance of the training community in providing advice and guidance on AAS. Those interviewed cited some motivations for use which included self-esteem, body dissatisfaction, MD, social acceptance, and age-related concerns. Implicit in these motivations was a psychological addiction to the positive effects following AAS use, which for some men, had led to psychological dependency and body image pathology.

Conclusions: The changes in motivations described by the AAS users provide key insights into the complex nature of AAS use. For some men, low self-esteem, body dissatisfaction and MD precede AAS use, and for others, they are consequences of use. These findings have significant implications for future research and public health initiatives.

1. Introduction

Anabolic-androgenic steroids (AAS) are a group of drugs that include the male hormone testosterone and several synthetic derivatives (Pope and Brower, 2009) whose primary purpose is to build muscle and enhance exercise performance (Griffiths, Murray and Mond, 2016). The use of AAS among the non-competitive weightlifting community has increased considerably in recent years. Current estimates for AAS use in the UK come from the Crime Survey for England and Wales 2014/15 (Lader, 2015). It reports that 293,000 16-59-year-olds admitted to having used AAS at some point in their lives, 73,000 have used

them within the past year and 24,000 within the past month. These figures have increased considerably since the previous survey in 2010, with an increase of 73,000, 23,000 and 5,000, respectively (Hoare and Moon, 2010). Despite continued evidence for the detrimental effects of AAS use (Kanayama, Hudson, and Pope, 2008; and Pope et al., 2013), it appears that AAS use in men is on the rise. This increase combined with inconsistent perceptions of the harmfulness of AAS that users hold (Kimergård, 2015) presents a public health issue for the UK. The findings that users often ignore or 'play down' the risks associated with AAS may be influenced by reliance on information provided by fellow users on the adverse effects and harm reduction strategies associated with AAS use (Santos and Coomber, 2017). Of concern to health professionals is that the advice and experiences of fellow users may run contrary to the reality of the risks associated with AAS use and could create barriers to prevention and harm reduction interventions (Kimergård and McVeigh, 2014). With these issues in mind, exploring how men are introduced to AAS and the motivations behind initiation and continued use, despite the potential risks, could provide policymakers with new ways to develop appropriate treatments and intervention programmes within the training community.

Over the past few decades research has highlighted several motivations associated with AAS use. These have included using AAS to improve athletic performance and self-esteem (Tahtamouni et al., 2008; Petersson, Bengtsson, Voltaire-Carlsson, and Thiblin, 2010), to increase muscle mass and strength, (Cohen, Collins, Darkes, and Gwartney, 2007), and to decrease body dissatisfaction and MD symptoms (Grogan, Shepherd, Evans, Wright, and Hunter, 2006; Kimergård, 2015). Since the research on MD and self-esteem in AAS users is inconsistent, the current study aims to determine whether MD symptoms and low self-esteem feature in the descriptions of long-term AAS users' motivations for initiation and continued use.

The 'ideal' male body presented in the media today includes muscular arms and upper body with an inverted V-shape of broad shoulders and a narrow waist with low body fat (Watt and Ricciardelli, 2012). Unachievable for most (Labre, 2005), those who fail to attain the 'ideal' may become overly concerned with their body image which could lead to body dissatisfaction. Defined as a negative, evaluative appraisal of one's physical appearance (Thompson, 2004), body dissatisfaction has been linked to perceived masculinity (McCreary, Saucier, and Courtenay, 2005), a drive for muscularity (Edwards, Tod, and Molnar, 2016), MD (Choi, Pope, and Olivardia, 2002) and AAS use (Kanayama, Pope, Cohane, and Hudson, 2003). Frederick et al. (2007) reported that of the men they surveyed, between 51-71% expressed dissatisfaction with their body fat levels, with 90% of them stating a desire for greater muscularity. It appears that when body dissatisfaction and the need for increased muscularity is paired with the internalisation of an unachievable male body, the risk of AAS use and/or the development of body image pathology (MD) is high (Parent and Moradi, 2011; Kanayama, Barry, Hudson, and Pope, 2006).

Muscle dysmorphia (MD) appears in the Diagnostic and Statistical Manual version 5 (DSM-5, 2013) as a sub-type of Body Dysmorphic Disorder (BDD). In 2015, the BBC (British Broadcasting Corporation) reported that as many as 10% of male gym-goers in the UK had experienced muscle dysmorphia (Ahmad, Rotherham, and Talwar, 2015). Originally termed 'reverse anorexia' (Pope, Katz, and Hudson, 1993), MD causes individuals to become preoccupied with the belief they are small and weak, which leads to an obsession with weightlifting and dieting (Pope, Gruber, Choi, Olivardia, and Phillips, 1997). Men diagnosed with MD are more likely to use AAS since MD symptoms include some of the behaviours displayed by AAS users, such as excessive weightlifting, muscle dissatisfaction and body anxiety (Papp, Urbán, Czeglédi, Babusa, and Túry, 2013).

Despite the evidence for an association between MD and AAS use, how this relationship manifests and the causal direction of MD remains inconclusive (Rohman, 2009). Olivardia, Pope, and Hudson (2000) reported that in 73% of participants MD preceded AAS use, whereas in the remaining 27% MD followed AAS use. Moreover, Pope, Kanayama, and Hudson (2012) reported elevated levels of MD symptomology in those who used AAS, suggesting that AAS use may be a symptom of MD rather than a causal factor. To add to the uncertainty surrounding the nature of MD in AAS users, the length of time an individual has been using can affect the presentation and extent of MD symptomology. For example, Kanayama et al. (2006) found that short-term users (2-5 months) showed significantly lower levels of MD symptomology than long-term users (6-150 months), indicating that MD may develop following long-term use.

To further our understanding of the experiences of short-term- and long-term-users, Leone and Fetro (2007) explored motivations behind AAS use in younger and older users. They reported that older males were less concerned with body image and put more emphasis on health and quality of life. When asked why they believed others used AAS, the younger men reported body dissatisfaction and insecurities as primary contributors to use, compared to the older males' reports of performance enhancement. What is unclear about the findings of this study is whether the older males experienced body image issues when they were younger, or if they had experienced changes to their motivations over the years. Exploring such changes over time could help us to understand age-specific motivations and the impact of long-term use on an individual's motivations. Furthermore, despite the evidence that suggests men are continuing to use AAS into their 40s and 50s (Hakansson, Mickelsson, Wallin, and Berglund, 2012), much of the research concentrates on short-term users in their 20s and 30s. Therefore, to address this imbalance, and to explore changes to motivations over time the current authors examine the experiences of long-term users by interviewing men ranging from 35 to 48 years of age with an average use of 19 years.

The evidence to support a link between self-esteem and AAS use is inconsistent. Petersson et al. (2010) reported that among the main factors (to attain a good body, becoming stronger and to increase sports performance), users reported motivations related to attempts to alleviate insecurity and low self-esteem. Whereas, Kanayama et al. (2006)

reported no significant differences in self-esteem levels between users and non-users. However, differences were found between users and non-users in body image scores and MD symptoms. The authors stated a relationship between low self-esteem and MD in users, but self-esteem was not associated with AAS use per se. Kanayama et al. concluded that low self-esteem and MD would need to be present to motivate initiation of AAS use. Ebbeck, Watkins, Concepcion, Cardinal, and Hammermeister (2009) explains how self-esteem and MD may motivate AAS use. They maintain that men with low self-esteem often develop behaviours associated with MD (i.e., excessive weightlifting, muscle checking and body anxiety) to improve their body image, which in turn increases their self-esteem. When these behaviours no longer help to maintain self-esteem, the individual may engage in harmful behaviours such as AAS use.

Davies, Smith, and Collier (2011) carried out research on the experience of MD and self-esteem among current- and former AAS users. They reported that all nine men interviewed indicated an increase in self-esteem following AAS use; with current users revealing that, it had played a causal role in their decision to use AAS. For former users, the significance of an increase in confidence following use had led two of them to consider taking up AAS use again in the future. The positive effect of AAS on one's self-esteem described in this study could explain why men find cessation difficult and why they often return to use. Concerning MD scores, the authors reported a lack of difference between current- and former users. The relatively high scores in MD symptomology for both groups suggest that MD symptoms persist beyond cessation. They also reported that since current users revealed lower levels of body dissatisfaction than former users, AAS might help to reduce body dissatisfaction, concluding that former users may be at a higher risk of MD behaviours.

It appears that while the motivations for AAS use have been well-documented using quantitative measures, research using qualitative measures has been less forthcoming. Furthermore, the findings of previous research on self-esteem and MD in AAS users have been inconsistent. In the studies that do state a relationship between self-esteem and MD, there is a lack of clarity in determining the causal direction of these relationships and how they contribute to initial use and the maintenance of use. Therefore, the authors of the current study interviewed eight long-term AAS users in the hope to answer three research questions: how and where were the men first introduced to AAS; the initial motivations for using AAS; and the reasons behind their continued use of AAS. The interviews aimed to capture the complexities of AAS use over time and how self-esteem and MD feature in both the development and persistence of AAS use. A deeper understanding of the motivations for AAS use can help to improve treatment programmes and harm reduction approaches with an aim to decrease the potential negative impacts on an ever-growing population of AAS users.

2. Method

2.1 Participants and procedure

Eight long-term male users from a needle exchange programme (NEP) in South Wales, UK, were interviewed. Access to the AAS users came via the second author of this study who manages the NEP. The authors approached men using the NEP and asked whether they would agree to be interviewed about their AAS use. Those who agreed were taken to a quiet room at the back of the NEP.

The interviewees' ages ranged from 35 to 48 years, with an average of 19 years usage. Three of the men started using AAS in their teens, three in their late 20s and the remaining two in their mid-20s. Six of the 8 participants were in full-time employment. All eight men were current users of AAS and classed themselves as non-competitive bodybuilders. The average weight and height of the eight men were 89.4kg and 181.3cms. Five of the men admitted to using weight-gain supplements other than AAS in the past 12 months. All but one interviewed reported typical cycling patterns ranging from 6-12 weeks. Five of the men stated that they regularly stacked during their cycles.

The interviews were semi-structured, asking specific questions about how they first came to use AAS, why they started using, how they feel when taking AAS and when not taking them, their reasons for continued use and plans to stop using AAS. All interviews were conducted by the first author (42-year-old female) and tape-recorded without interruption. Permission for recording was gained, and interviewees reassured that their responses were anonymous and that they could have access to their transcript if they so wished. Interviews consisted of 15 questions and lasted between 25 and 50 minutes. Pseudonyms are used to protect the identity of those interviewed. Ethical approval was granted by the University of Wales Trinity Saint David. All participants provided written consent. All data were obtained anonymously and confidentially.

2.2 Analysis

The interviews were analysed using thematic analysis (Braun & Clarke, 2006). Thematic analysis is an inductive approach to pattern recognition and theme identification (Fereday and Muir-Cochrane, 2006). The analysis of data included several steps which began with the transcription of each interview by the principal investigator. Next, both authors read and re-read the transcripts for accuracy and to familiarise themselves with the data. On the final read through the authors made notes on their general thoughts and impressions about each interview transcript. The second step involved the production of codes. Coding was carried out independently at first using Creswell's (2014) idea of analysing and categorising specific statements that signify the area of interest. This step involved re-reading each interview to identify emergent codes within the data. This was done manually using highlighting pens

and writing labels in the left margin of each interview transcript. A second read through allowed the authors to merge and refine some of the codes. The authors then met to compare their codes and discuss how the codes were generated. The initial coding agreement was over 89%, and discrepancies discussed until agreement was reached or data were re-coded. A final total of sixty-seven codes were agreed. Step four involved the grouping of codes within each section of the interviews that represented the three research questions. For example, thirty-four codes were generated from the section of the transcript that explored the men's initial motivations behind AAS use (research question 2). These thirty-four codes were then grouped to create twenty sub-themes that featured within the eight interviews. The same process was used for research question 1 and 3. The final step involved the clustering of subthemes into superordinate themes. The subthemes and superordinate themes are presented in figure 1.

3. Findings

The data reported in this section present representative quotes from the superordinate themes that specifically address the three research questions; the men's initial introduction to AAS, motivations behind initial use and motivations behind their continued use of AAS. Figure 1 outlines the superordinate and sub-themes for each of the three research questions.

Insert Figure 1 here

3.1 Initial introduction to AAS

All eight men interviewed reported that they had started using alongside weight training, with seven reporting that AAS was the only drug they had used (the eighth admitted to using cocaine and heroin in the past). To help policymakers understand how individuals are first introduced to AAS and how this information may help intervention programmes the men were asked to describe their initial encounters with AAS.

3.1.1 Training community

All interviewees stated that their first encounter with AAS users had been at their local gym and that the training community played a large role in their initiation of AAS. Five of the men spoke about their desire to look like their fellow gym-goers and described how they first approached the more muscular men to inquire about their physique and training regime.

"I was so impressed by the boys in the gym; I wanted some of that. I knew it wasn't natural lifting that did it. I knew it was the steroids and if I wanted to look like them – I would have to get some" (Taylor, 43)

"The gym was full of beefy blokes, massive most of 'em. I knew I'd never get like that on my own. So, when I asked about the steroids, the boys set me up..." (Reuben, 37)

Of those interviewed, six of them expressed little knowledge of AAS use before discussions with users at the gym. The men described observing the training of those larger than them and how they sought to gain knowledge of AAS. The men relied heavily on the current users at their gym for information and advice. They described the feeling of a 'safe community' where current users 'have your back and know how you feel' when providing guidance and support on the best way to use and access AAS.

"They were decent lads, you know, none of them were crazy, off their heads and they had years of experience, I knew nothing, so they taught me about cycling and how to use safely." (Harry, 35)

"I was only a kid, so I didn't have a clue. I'd heard a few horror stories, but the lads at the gym told me how I could avoid the negative stuff, they were brilliant with me." (George, 38)

"I knew I was in safe hands. They told me how to use properly and where I could get decent, safe gear. It's better getting the info from those who already use." (Max, 37)

These comments highlight the importance of a 'safe' environment for new users and support the notion that non-users often initiate AAS use through associating with and observing the behaviours of those already using AAS.

3.2 Motivations behind initial AAS use

The men were asked to describe their initial reasons for using AAS. Motivations included low self-esteem, body dissatisfaction, social acceptance and frustration with training.

3.2.1 Low self-esteem

Five of the men mentioned low self-esteem as the primary factor in the initiation of their AAS use. The men spoke of a lack of confidence which they related to feelings of worthlessness and the need to 'feel better' about themselves.

"I started taking them to feel better about myself, to build my confidence. My self-worth was pretty bad back then, you know, I felt worthless." (George, 37)

"I suppose it was to boost my confidence. Make me like myself a bit more to help me from feeling worthless." (Harry, 35)

Two of the interviewees referred directly to their level of self-esteem at the time of initiation, and how they were influenced by witnessing a change in the confidence of those already using AAS.

"I know my self-esteem had been low from my early teens. That's why I started in the gym in the first place, and once I realised what steroids were doing for one of my mates, I wanted it to give me the same confidence." (Ralph, 41)

"I had pretty low self-esteem. My head was in the shed. I needed something to build my confidence. I could see how it improved in others, so I gave it a bash." (Max, 37)

The above interviewees were asked to consider the origins of their low self-esteem. For many of them, their low self-esteem had developed from dissatisfaction with their bodies.

3.2.2 Body dissatisfaction

Four men referred to their physical appearance at that time, three of them spoke about being smaller than their peers when growing up and how dissatisfied they were with how they looked and how this was affecting their confidence.

"When I was younger, I was always tiny, and it was always about being bigger and getting a bit of muscularity, so I looked like everybody else." (Fraser, 48)

"I was a small, scrawny thing. I was teased about it. I started at the gym to improve the look of my body, but seeing how everybody else was, I knew I needed the gear." (Ralph, 41)

"I know it was all to do with my self-esteem and how I looked. I wasn't happy with my body which got me down. I couldn't see any other way; so I turned to steroids." (Max, 37)

It appears that these men needed something to help them to improve their body satisfaction and self-esteem. Initially, excessive exercise in the gym was the answer, but this was not enough to decrease their dissatisfaction or to improve their self-esteem. For four of the men, an increase in weightlifting had exacerbated their low self-esteem and body dissatisfaction because they began comparing themselves to others at the gym. This social comparison led to feelings of inadequacy, and an obsession with their bodies, with some referring directly to MD symptoms.

"Everybody at the gym was bigger than me. I thought I looked pathetic compared to everyone around me. I'd increased my exercise and weights, but it wasn't enough. I wanted, needed to get bigger. I know I was obsessed with the way I looked" (George, 37)

"Other lads in the gym looked much better than me and got more attention too. I wanted to be like them and exercise wasn't cutting it! I was really pushing myself to the max" (Reuben, 37)

"Even weightlifting five times a week wasn't helping how I felt. It didn't help that the others around me looked ripped. As far as I could see – steroids were my only option." (Ralph, 41)

"I hated my body. I became obsessed with looking at my muscles. I lost friends because my life revolved around getting bigger." (Harry, 35)

These statements reveal a clear relationship between feelings of self-worth and physical appearance. The men spoke of a need to improve their physical appearance by increasing their size, with the primary aim of increasing their confidence. All men began with weightlifting in the hope to change their physical appearance, but it soon became apparent to them that weightlifting was not producing the desired goal of increased muscularity. Coupled with comparing themselves to others in the gym and not seeing an alternative to improve how they felt, these men had decided to start using AAS.

3.2.3 Social acceptance

Related to the social comparison expressed above, three of the interviewees spoke of a need to become more muscular to achieve social acceptance, recognition and respect from other men in their gym.

"I wanted to be accepted by others, you know, a bit of respect from the boys. I knew that taking steroids would do that." (Trevor, 45)

"I could see how the other boys were respected 'coz of the way they looked. I thought if I started taking 'em, I could be the same." (Taylor, 43)

These comments indicate that the drive for muscularity intensifies when men perceive other men to be more muscular than themselves. Two of the three interviewees expressed difficulty in meeting new people and maintaining friendships due to their lack of confidence. They spoke about the need, back then, to do something to improve their social life and since those taking AAS appeared to have 'fantastic social lives', AAS seemed the obvious choice.

"I had no social life. I wasn't going out to mix with people. I couldn't talk to people, they were judging me by the way I looked, I know that, and my confidence was crap." (Harry, 35)

"I wanted to get noticed, as I said, I was a nobody a social reject, and I know it was down to the way I looked..." (George, 37)

Of interest, the role of social acceptance in AAS initiation was apparent in those who started using AAS in their teens. Therefore, for the young men who cite low self-esteem and body dissatisfaction, comparing themselves negatively to those around them may encourage AAS use with an aim to improve self-esteem and body satisfaction, which in turn could improve their social standing and avoid social rejection.

3.2.4 Frustration with training

For three of the men, frustration with training motivated their initial use. They expressed their frustration with the speed at which they were gaining muscle and believed they had plateaued, and that this, alongside the need to 'get bigger' had motivated them to start taking AAS.

"Whatever I did in training, I was getting nowhere fast. I was busting my gut. I was killing myself on the weights and seeing hardly any change. I was really frustrated..." (Trevor, 45)

"I was at the peak of all I could do – I plateaued – yet I wanted to be bigger, and no amount of extra training was gonna get me there..." (Fraser, 48)

"I was as big as I was gonna get with the weights. I needed something more. Don't get me wrong I looked good. I just wanted to be bigger" (Taylor, 43)

Since the three men above expressed no concern of low self-esteem before using AAS, the motivation behind their initial use was not to improve self-esteem or body image issues. Instead, they spoke about feeling happy about themselves, and the reason behind their initial AAS use was to increase their size, and since training alone was not achieving this, the lack of results had led to their decision to use AAS. Interestingly, these men had started using AAS much later, in their late 20's.

Motivations behind why these men began using AAS are apparent for the reasons described above. For five of the men interviewed, low self-esteem and symptoms associated with MD, such as body dissatisfaction, and social acceptance preceded AAS use. The men were asked to describe their reasons for continued use to determine whether their motivations remained the same or changed over the course of using AAS.

3.3 Motivations behind continued use

The men described several motivators for their continued use of AAS that, in many cases, mirrored their motivations for initial use. These included a need to maintain improvement in self-esteem, body image, and social acceptance. Further themes that emerged centered on an addiction to the positive effects of use and age-related benefits.

3.3.1 Self-esteem

All five of the men who had cited low-self-esteem as an initial motivator spoke of how AAS had increased their self-worth and confidence, and because of this, saw no reason to stop using AAS.

"I can't see me stopping anytime soon. I mean, I'm more confident on them, I feel happier about myself. I did come off them for a while, and my self-esteem plummeted again. So, I'm better off on them." (Harry, 35)

"I'll end up small again, and people like the way I am now. If I stop using that will change, and I don't think my confidence can take that right now. I know that's why I will always use..." (Max, 37)

"As I said I hated myself before, I feel much better now. So, until that changes, I will stay on them." (Ralph, 41)

The statements above indicate that the motivations for initial- and continued-use for the five men remained relatively unchanged. AAS had helped to increase their self-esteem and coming off them would mean going back to having little confidence, something that they were reluctant to do; this was evident in the comments made by three of the men who had stopped using AAS for a short period. They described how cessation had affected their self-esteem, and how they had reverted to the 'old feelings' of low self-worth.

"I started using to build my confidence, and it did. But now – when I'm not on the gear – my confidence isn't the same. I came off for about a year – but it got me down. I wasn't the same person anymore – I've not come off them since." (George, 37)

"When I've been off 'em my confidence takes a dive and to be honest, it's not worth it, you know, coming off them and going back to feeling that way..." (Reuben, 37)

Here the men talk of an increase in self-esteem following AAS use and the need to maintain their improved confidence levels. In particular, they speak of a fear of losing confidence if they were to stop using AAS. Three of the men discussed the euphoria of an increase in confidence, and although they did not talk about a chemical addiction to AAS, they did express an addiction to the way AAS made them feel.

"I know it sounds weird, but the way I feel when on them is addictive. I love the way people look at me. I know I am accepted coz the way I look." (Trevor, 45)

"I get a buzz from the steroids that disappear when I'm not on them. I don't mean a drug buzz, no, a buzz from feeling and looking good, and from others saying I look good. It's addictive." (Taylor, 43)

An addiction to the positive effects of taking AAS can be linked to secondary reinforcement. Unlike many other drugs that provide an immediate reward, AAS produces secondary reinforcement in the form of increased self-confidence, increased muscle mass and social recognition. The dependence on such reinforcers was more evident in those who had cited self-esteem, body dissatisfaction, and social acceptance as initial motivators. Therefore, it is understandable why these men would find giving up AAS difficult since they see AAS as a stable source of their newfound confidence and social acceptance.

3.3.2 Body dissatisfaction

The body dissatisfaction expressed by those who cited this as the primary motivator for starting AAS continued to be a motivator in their continued use of AAS.

"Taking steroids changed the way I looked drastically. I now look half decent. So yeah – I started taking them to feel better about the way I looked, and that's why I'm still taking them." (Reuben, 37)

"I don't think I'll ever be happy with my body, to be honest. Yes, steroids have made me bigger, but I'm not ready to give up yet. I'm not where I want to be..." (Harry, 35)

The fact that these men continued to be dissatisfied with their bodies following AAS use, despite acknowledging a visible change in their physique, suggests a more profound body image issue. For example, if the body image is pathological (MD) then these men will continue to perceive themselves to be small. Therefore, an increase in size following AAS will not be enough to decrease the anxiety surrounding their negative self-image so that the MD symptoms will persist during and post-AAS use.

For three of the men, the motivations for continued use had changed from their initial reasons for use. They spoke about how they did not have issues with their body image before using AAS but had become dissatisfied with their body post-use. They had initially taken AAS because they were frustrated with the slow results in the gym and that training alone was not enough to increase in size. However, since using AAS, they describe how they have become 'obsessed' with the way that they look and how they have become critical of their bodies.

"It's weird – I was never really hung up over the way I looked. Don't get me wrong, I wasn't perfect – but I know I was ok - but since being on them, how I feel about

myself has changed. I over-train and stack to get bigger, but I'm just not happy with my body." (Trevor, 45)

"I know it's not healthy, but I've become obsessed with the way I look since using. I started using to speed up my training and thought I would stop – you know – when I was happy with my size. That was twenty years ago – and I'm still not happy. I don't think I will ever be really satisfied with how I look." (Ralph, 41)

These comments suggests a 'strive for perfection' that had developed post-use.

The direct link between body dissatisfaction and MD was evident in the comments made by one of the men interviewed. He spoke directly about MD, and how he had developed its symptoms while using AAS.

"You've probably heard of something called muscle dysmorphia– I think I have it. I mean, a lot of the men who go to my gym have it. It's just one of those things really when you're into your training and stuff. I never use to have it, you know, before using. Once the steroids were doing their job, I became obsessed with training and dieting and looking at myself all the time." (Reuben, 37)

It appears that the men here developed body dissatisfaction and MD symptoms following AAS use. The change in motivation from being frustrated with their progress during training to developing body image concerns go some way to explaining why so many long-term users find cessation and abstinence difficult.

3.3.3 Social acceptance and Age-related benefits

For two of the men, an improvement in their social standing both within and outside of the gym was enough of a reason to continue using AAS. The men spoke of being accepted into their training environment, meeting new people and gaining more attention from women following AAS use, and the thought of giving this up was 'madness.'

"Before steroids, no one bothered with me; after steroids, I got bigger, and the boys in the gym accepted me – I was one of them." (Trevor, 45)

"I couldn't talk to any girls. Girls didn't want to talk to me before. But on the steroids, I was more sociable and confident, and girls would come and talk to me. My social life is much better on the steroids." (Max, 37)

Another clear theme that emerged was age-related benefits. Two of the older men interviewed spoke about keeping up their training and AAS use to try to stave off the ageing process.

“At my age, I need all the help I can get. It’s a no-brainer - I have to stay on ‘em. If not, I will lose weight and just look old. It’s not about getting bigger anymore. Now I look great for my age. I look better than most of the youngsters half my age.”
(Fraser, 48)

“Look - it’s not about looking good as such, it’s more about staying healthy and fit...”
(Taylor, 43)

The men describe the importance of the positive attention they received ‘even at their age.’ They also cite no desire to increase in size, which was their initial motivator to use AAS. Instead they speak of maintaining their health and body image.

“I just want to maintain this look. I don’t want to get bigger. I just want to look like this forever. I’m getting on a bit, but still look young ‘coz of my body. I feel young when the boys at the gym look at me...” (Fraser, 48)

I like how I look. I look good for my age. It’s been so long, you know, on the gear; everyone knows me looking like this...” (Trevor, 45)

It appears that the original reasons for wanting to use AAS for these older men had changed over the years. It is no longer about increasing in size; it is about maintaining their ‘look’ as they get older.

4. Discussion

There is growing concern surrounding an increase in AAS users in the UK. Understanding the reasons behind why seemingly healthy men are turning to AAS is of great importance to health professionals in their quest to provide appropriate prevention and intervention programmes. In an attempt to understand the motivations of AAS users, eight men were asked to discuss their initial introduction to AAS, initial motivations for using and the reasons behind continued use.

In line with previous research (Hilderbrandt, Harty, and Langenbucher, 2012), for those interviewed the role played by the training community in providing advice and guidance on initial access and safe-using practices is an important one. Although previously considered as a barrier to promotional campaigns (Kimergård and McVeigh, 2014), the training community could be a potential gateway to providing users with accurate health-related information that highlights both the positive and negative consequences of AAS use. Therefore, if men feel safe and trust the training environment, then health professionals need to engage with the training community to develop initiatives for current and former users to act as mentors for those considering AAS use with an aim to prevent initiation.

The descriptions relating to initiation provide an insight into the complexities of AAS use. Although the men's reports included self-esteem, body dissatisfaction and MD

symptoms, the relationships between them were not straightforward. For some, body dissatisfaction had created low self-esteem which led to excessive weightlifting, while for others, low self-esteem had created body image issues. However, despite these differences in causal direction, they confirm the findings of Kanayama et al. (2006) who reported that both MD symptoms and low self-esteem would need to be present to encourage AAS use.

A further factor that complicates the relationship between self-esteem and body dissatisfaction is social comparison. A number of the men spoke of feeling 'physically inferior' to others which had impacted upon their self-esteem and had created body anxiety. Since one's self-esteem requires an individual to make self-evaluations based on external factors, such as social comparisons and valued norms (Harter, 2006), if an individual perceives themselves to be less muscular than other men, this may result in them feeling less 'worthy' than their male counterparts. This was evident in some men interviewed and had led many of them to develop MD symptoms.

Of particular interest, initial motivations relating to social acceptance and frustration with training appeared to differ across age of initiation. For those who began using AAS in their teens, social acceptance (with low self-esteem) was the primary motivator for use. In contrast, for those who started using in their late 20s, frustration with training (and a drive for muscularity) was the primary motivator. These findings have implications for future research, in that exploring the age at which men start using AAS could help us to understand more clearly age-specific motivations. This would allow health professionals to target specific age groups with appropriate interventions and treatments. For example, future initiatives may need to concentrate their efforts on educational programmes within schools, colleges and community projects that build self-esteem and strengthen social skills. Similarly, for those who start using AAS later because they compare themselves to others at the gym or because of frustration with their training, health professionals should work with the weightlifting community to promote positive body-image role models and to encourage alternative strategies to AAS use.

The importance of secondary reinforcers to the maintenance of AAS use was evident and confirms the findings of Skårberg, Nyberg, and Engström (2008) and Davies et al. (2011). Secondary reinforcers following AAS use included an increase in self-esteem, body confidence and social acceptance. The men spoke of not being able to give up using AAS for fear of losing these positive effects, and also described a psychological addiction to the way AAS made them feel, a finding also reported by Vassallo and Olrich (2010). This is a significant finding in that current intervention programmes do not treat AAS dependency in the same way as other substance addictions. This is partly due to the lack of specific criteria for AAS dependency in the DSM-5 (2013). Unlike alcohol or cocaine, for example, AAS do not produce an immediate 'high' of intoxication, but instead, the reward experienced by the user comes much later in the form of these secondary reinforcers. The lack of criteria presents problems for health professionals in providing appropriate psychological treatments for long-term users dealing with psychological dependency. Therefore, future

initiatives may wish to help those that rely on the positive effects of AAS to explore alternative sources of esteem and social reward. For example, working with long-term users to act as mentors within the training community may provide them with the opportunity to share their knowledge and reflect on their own experiences which could help to change the focus of their own motivations for use and help to reduce psychological dependency in others.

One of the aims of the interviews was to explore if the initial motivators for use remained the same or changed over time. If the motivators remain the same, then this makes the focus of interventions easier whereas, change over time makes future planning complicated and costly. For half of the men, the primary motivators of self-esteem and body dissatisfaction remained the reasons behind their continued use, for the other half, their motivations changed. For those whose motivations were unchanged, in line with previous findings (Olivardia et al., 2000; Rohman, 2009) the positive effects of an increase in confidence and body satisfaction following AAS use had justified continued use. However, the fact that they spoke about fear of returning to feelings of low self-worth and body dissatisfaction suggests that AAS had not eliminated such negative emotions. This has implications for users' perceptions of the positive effects of AAS. Therefore, future programmes would benefit from entering gyms and NEPs to provide training and information on the inaccuracies surrounding the psychological benefits of AAS.

The men whose initial motivation was frustration with training were now describing the negative consequences of using AAS, despite the initial euphoria of an increase in size. In particular, the men spoke of how AAS had led to an obsession with their bodies, excessive training, and body anxiety; and since these men had not mentioned body image issues before AAS use suggests that MD symptoms had developed post use. This finding supports Kanayama et al. (2006) suggestion that MD may be a symptom of AAS use. For these men, it appears that AAS had created body image pathology, and it is this pathology that perpetuates their AAS use (Harris, Dunn, and Alwyn, 2016), and not the secondary reinforcers expressed by those who spoke of the positive effects of AAS use. This finding has significant implications for understanding why some men find cessation difficult despite reaching their target performance and size and why others often relapse and return to AAS use after a period of abstinence (Kirkwood, 2017). Therefore, there is a need for further examination of the development of MD post AAS use in current and former users. The development of training programmes alongside former users to boost self-esteem and body confidence within the training community to help prevent the development of MD is paramount.

Alongside the psychological addiction to the positive reinforcement that comes with taking AAS, the four oldest men spoke of 'staving off' the ageing process. Santos and Comber (2017) reported similar age-related effects. For the men in the present study, it seems that AAS has become part of who they are, of how they and others see them. They have used AAS for so long that they cannot see themselves looking any other way, and

therefore continue to use AAS as a means of maintaining their image and slowing down the ageing process. Accordingly, promotional campaigns to support older long-term users are needed to help them through the physical and psychological changes that follow cessation. For example, providing current users with success stories of former long-term users may help to ensure successful abstinence.

The strength of the study was exploring the causal nature of self-esteem, body dissatisfaction and MD in long-term AAS users. The interviews provided an insight into the initial motivations for use and how these had changed over the years. For some, self-esteem, body dissatisfaction and MD led to AAS use while, for others, they were the consequences of AAS use. These differences have clear implications for future research and public health initiatives. Future public health campaigns may need to reflect on the changes in motivation for long-term users and provide interventions that help prevent the development of MD and to decrease the psychological dependency created by the secondary reinforcers experienced by long-term users. However, this can only happen if policymakers and health professionals engage fully with the training community, current- and former-users to improve access to accurate information and provide age-appropriate intervention programmes that focus on improving self-esteem and body image pathology in male weightlifters.

Consideration must also be given to several limitations. Issues with the participants included a sample bias towards white, weightlifting males. However, since research shows the majority of AAS users are male (Walker and Joubert, 2011), and because only five of the 2300+ attendees at the NEP are female, and only ten classified as non-white, the sample here is typical of this population. The small sample size of eight interviewees from one NEP may have produced selection bias, since those attending harm reduction facilities may be more likely to present for an interview than those who do not attend such services. The lack of comparison group in the form of non-users was noticeable. Therefore, care is needed when interpreting the perceptions of such a small and self-selected sample of participants. Future researchers would be wise to interview a larger sample that includes a comparable group of non-user weightlifters to explore their reasons for not using AAS. A further issue with the interviews was the reliance on retrospective accounts. Some of the older men had to recall initial motivations from over 15 years ago. Future research could help to alleviate such issues by carrying out longitudinal studies that help to track the causal relationships and changes in motivations over time. Furthermore, since the men expressed a fear of losing the positive effects of AAS, interviewing former users may provide us with useful insights to help us to understand why men often return to AAS use.

5. Conclusion

This study aimed to examine the causal role of self-esteem, body dissatisfaction and MD in AAS users. For half of the men interviewed, MD symptoms were present before AAS

and were explicitly related to self-esteem, body dissatisfaction and social acceptance whereas, for three of the men, MD symptoms developed post-use and were linked to body dissatisfaction following AAS use and ageing concerns. Therefore, if policymakers are to make a difference in decreasing levels of AAS use and dependency, they need to create stronger campaigns that do not fall into the 'one size fits all' category. Therefore, stronger links within the training community are needed to develop initiatives that deal with the underlying causes of AAS use, with the aim to encourage policymakers to look beyond a reliance on harm reduction techniques for long-term users.

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Figure 1

Superordinate and sub-themes for Initial introduction to AAS, motivations behind initial use and motivations behind continued use of AAS.

