

Article

Alienation and Lack of Trust

Barriers to Seeking Substance Use Disorder Treatment Among Men Who Struggle to Cease Anabolic-Androgenic Steroid Use

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Abstract

Anabolic-androgenic steroid (AAS) use became illegal when the Norwegian Drug Act was amended in 2013, and AAS and other image- and performance-enhancing drugs were included in the politics and treatment of substance use. Few individuals with AAS-related health problems seek substance use disorder (SUD) treatment. This article aims to explore understandings of AAS dependence, barriers to treatment-seeking, and experiences of entering SUD treatment among a sample of men with AAS-related health problems struggling to cease AAS use. Seeking treatment for AAS-related health problems within SUD treatment services was described as alienating. First, because the participants experienced their struggle to quit using AAS to be different from being dependent upon psychoactive substances. They linked their struggles to symptoms of hormonal disturbance, need for a certain body size, and/or the sense of wellbeing provided by AAS and which enable them to function socially. Second, they experienced alienation because of their healthy identities, bodies and lifestyles, as opposed to how they viewed individuals with severe SUDs and emaciated bodies. A major barrier to treatment-seeking was participants' lack of trust that SUD treatment providers had the knowledge and the means to provide treatment of their AAS-related health problems and struggle to quit AAS use. Experienced barriers towards seeking SUD treatment should be taken into account when planning, organizing and implementing health services for individuals with AAS-related health problems.

Keywords

Anabolic androgenic steroids, performance and image enhancing drugs, dependence, addiction, substance use disorder treatment, health service, 'broscience', qualitative study

Introduction

Non-prescribed anabolic-androgenic steroids (AAS) include testosterone and substances with similar structure and effect (Kicman 2008). Use of AAS to increase muscle mass, performance and image enhancement is not a new phenomenon. AAS were mostly used by elite athletes until the 1970s, when individuals in competitive bodybuilding subcultures used them to cultivate ‘previously unseen muscular male bodies’ (Andreasson and Johansson 2019). During the 1980s and 1990s, a moderately muscular body ideal motivated usage of AAS among some gym users and recreational athletes (Kanayama and Pope 2018; Pope, Khalsa, and Bhasin 2017). Lifetime AAS use is higher among men than among women and is reported to be widespread across the globe (Sagoe et al. 2014). In Norway, lifetime use is estimated to be 1-3% among men (Bilgrei and Sandøy 2015; Sagoe et al. 2015), but is found to be many times higher among inmates (Lundholm et al. 2010) and patients in substance use disorder (SUD) treatment (Dodge and Hoagland 2011, Kanayama et al. 2003, Nøkleby and Skårderud 2013, Havnes et al. 2019).

It is common to combine different types of AAS, either as cycles with breaks between, or continuously with varied or constant dosages (Pope et al. 2013, van de Ven et al. 2019). Long-term AAS use is associated with increased risk of developing a wide range of mental and physical health problems (Baggish et al. 2017; Bjørnebekk et al. 2017; Hauger et al. 2019; Piacento et al. 2015; Pope et al. 2013; Rasmussen et al. 2016; Rasmussen et al. 2018). An estimated 20-50% of users seem to develop some form of AAS dependence (Brower et al. 1991; Bjørnebekk et al., 2017; Copeland, Peters and Dillon, 2000; Kanayama et al. 2009), and use higher doses and shorter breaks than planned, or use continuously, despite adverse effects. Mechanisms behind this dependence are argued to include 1) a psychological need to have increased muscle volume and body size, 2) activation of the reward system during use, and 3) mental and physical health problems as symptoms of hypogonadism¹ that are difficult to endure after discontinuation (Kanayama et al. 2009).

Persons who struggle to stop using AAS may restart use to relieve symptoms of androgen deficiency, or they may try to avoid or treat the symptoms with non-prescribed ‘Post Cycle Therapy’ (PCT) to restore endogenous testosterone production (Griffiths et al. 2017). Making use of what Bilgrei (2017) terms ‘broscience’² is always an option – either by seeking personal advice from perceived knowledgeable and trustworthy person(s) in the gym environment (Christiansen, Vinther, and Li-

¹ When using many times higher amounts of AAS than the testosterone produced in the body, a negative feedback mechanism will reduce or stop endogenous testosterone production. Therefore, when AAS use is ceased, within a few weeks’ time the user may enter a state with low levels of or absent endogenous testosterone, and may experience symptoms of hypogonadism such as depression, anxiety, sleep disorder, fatigue and sexual dysfunction. This state may last from months up to years, or permanently (Rahnema et al. 2014; Rasmussen et al. 2016).

² ‘...personally grounded drug experiences form the basis of experiential learning, sometimes referred to as “broscience”, a portmanteau of “brother” and “science”, which concerns the user-generated knowledge that is maintained, contested and passed on through online communication’ (Bilgrei 2017)

okaftos 2017; Zahnnow et al. 2018), or by using querying online forums on how to avoid and handle side effects following AAS use and cessation. Such communities create online trust (Bilgrei 2017) and tend to base information about the harms associated with AAS use and how to avoid these harms on personal experiences and selected scientific literature supporting their opinions. However, when forum members lack information of harms related to AAS, they ‘recommend seeking information from medical professionals’ (Tighe et al. 2017). Few studies have explored experiences of AAS dependence, but Griffiths (2017) describes how AAS users used PCT to minimize health harms when coming off cycle. The participants explained that it was more difficult to access PCT than anabolic steroids, and they understood that cessation gave rise to mental health symptoms. Therefore, a lack of access to PCT could result in long-term or permanent AAS use.

There is a gap in the literature about barriers to seeking SUD treatment among AAS users. The main reason is likely that very few countries have implemented treatment of AAS-related health problems in the SUD treatment system. It is important to note that few users seek any health services (Pope, Khalsa, and Bhasin 2017; Zahnnow et al. 2017), despite being concerned for their health (Zahnnow et al. 2017). Barriers include fear of stigmatization (Dunn, Henshaw and Mc Kay 2016; Yu, Hildebrandt, and Lanzieri 2015), unknowledgeable staff (Jørstad, Skogheim, and Bergsund 2018; Pope et al. 2004), sanctions (Havnes, Jørstad and Wisløff 2019), belief that the treatment provider cannot/will not help, or belief that the health problem is not serious enough (Zahnnow et al. 2017). Yet, among a sample of Norwegian AAS users where mental health problems were the most common motivation for AAS cessation and treatment seeking, three out of four desired SUD treatment after receiving information tailored to AAS users about side effects, treatment options and potential outcomes (Havnes, Jørstad and Wisløff). Furthermore, a qualitative study from a Swedish addiction treatment facility stated that ‘AAS users often experience a range of highly desirable effects from the drugs and only seek treatment as an alternative when the negative effects outweigh the positive effects’ (Skårberg, Nyberg, and Engström 2008). The negative effects described as motivation to seeking SUD treatment were mental health problems related to AAS use: depression, excess jealousy, aggression, body dysmorphia, and concurrent use of psychoactive drugs. In the UK, experienced AAS users advised younger users to attend harm reduction services to reduce harms related to AAS use (Kimergård and McVeigh 2014).

Norway’s context is particular, as use and possession of AAS and other doping agents became illegal when the Norwegian Drug Act was amended in 2013, and AAS and other doping agents were included in the politics and treatment of substance use in 2012. Persons with previous or current AAS use and AAS-related health problems have the right to outpatient SUD treatment and National SUD treatment guidelines states that examination of mental health symptoms during withdrawal, access to psychotherapy and treatment of mental health and other symptoms should be provided. SUD treatment in Norway is publicly funded, widely available, and individuals with SUDs have treatment rights as patients

(Nesvaag and Lie, 2010). Nevertheless, relatively few AAS users with health problems seek SUD treatment. Therefore, this article aims to explore understandings of AAS dependence, barriers to seeking, and experiences of entering SUD treatment among a sample of men with AAS-related health problems struggling to cease their AAS use.

Methods

This article forms part of an exploratory qualitative study focusing on experiences with AAS use, health problems, and health services, and in particular SUD treatment. A subset of data from this study has been published in a mixed methods paper (Havnes, Jørstad and Wisløff 2019) describing how use of an information service may facilitate SUD treatment-seeking.

Sampling and Recruitment

Inclusion criteria in the current study were that participants were above legal age, had used AAS and had experienced health problems with or without seeking health services. The participants were recruited through social media adverts, posters, snowball sampling, e-mails to managers and treatment providers in various SUD treatment clinics in southeastern Norway, and through information to participants in ongoing research projects in our research groups. Seventeen men were included; one participant was interviewed twice, whereas the others were interviewed once, making the total of 18 individual interviews. Ages ranged from 22 to 51 years of age at the time of the interview, ages at AAS initiation varied from 15 to 32 years, and length of AAS use ranged from two to 27 years. Most of the participants were working and had ceased AAS use at time of the interview.

Interview Guide and Data Collection

The interview guide was developed together with a panel of five individuals who all had previous experiences with AAS use and AAS-related health problems. Several also had experience with SUD treatment for health problems related to AAS use, and for psychoactive substances. Among the topics in the interview guide were the positive and negative experiences of AAS use, health problems with or without treatment experiences, reasons for not seeking help, methods to avoid or handle side effects, views on health services, what a desired treatment system would be like, and understandings of legal matters related to AAS use. The semi-structured interviews that lasted approximately one hour were audio-recorded and transcribed verbatim. Thea Steen Skogheim conducted the majority of the interviews.

Analysis

A biopsychosocial model that elaborates on neuroscience, environmental and social factors of addiction of drugs and behaviors forms the theoretical framework for the study (Griffiths 2005). An inductive form of thematic analysis was an ongoing process that started during the data collection. This made it possible to include some findings from previous interviews in the interview guide. This flexible design opened up for inter-subjective comparison of experiences. During the analytical

process, both authors read and reread the transcripts to get an overview of the data. The transcripts were handled in NVIVO 10 and Thea Steen Skogheim conducted the initial coding. The initial codes were regularly discussed by both authors and a third researcher, regrouped in themes, and compared to ensure that there was little overlap of the themes. The authors regularly discussed emerging themes. The findings presented in this article underwent the final two steps of thematic analysis: reviewing themes and producing the report with representative quotes. The data set was reread again to ensure the validity of the themes in each interview as a whole by Ingrid Amalia Havnes (Braun and Clarke 2006, Pope, Ziebland, and Mays 2000). The concept of trust between the participants and potential and actual SUD treatment providers, as seen from the view of the participants, became a central emerging theme in this study. Therefore, we let the work by the philosopher Grimen (2009) inspire the last stage of the analysis of what trust may be in a potential patient/treatment provider relationship: if a person with a health problem trusts a health professional, the person expects that the treatment provider a) will not do something that harms the person's interests, b) is competent, and c) has the necessary means to take appropriate care of the health problem.

Terms and Words:

Addiction, Dependence and Substance Use Disorder

This article subscribes to the neurobiological model of addiction, which defines addiction as a chronic, relapsing brain disease with development of a physical and psychological dependence on substances or a behavior (Volkow et al, 2016). The fifth version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) released by the American Psychiatric Association (2013) replaced the term addiction with substance use disorder (SUD). In the fourth version of the manual, the word 'abuse' was used as a mild form of addiction, and 'dependence' was used for moderate or severe forms of addiction. Although the standard DSM-IV substance dependence criteria were projected for intoxicating substances, the term AAS dependence was adapted to the DSM-IV version (Pope et al 2010) and accepted in DSM-V (Piacento et al 2015). The term AAS-dependence is therefore used throughout the paper. Also, the 11th edition of the International Classification of Diseases (World Health Organization 2019) uses the term substance dependence as a 'disorder of regulation of use of a specified substance arising from repeated or continuous use of the specified substance.' Both the words 'dependence' and 'addiction' can be translated into the Norwegian word *avhengighet* that was used by the participants for explaining physical and/or psychological needs to use AAS and their struggles to quit using. The word *avhengighet* is translated into 'dependence' in the Findings section.

The participants used the word *rus* (getting high or intoxicated) about use of illicit psychoactive substances. The word *rus* is included in the name of most Norwegian treatment units: *rus og avhengighetsbehandling* that means a unit/department providing treatment for intoxicating substances and addictive disorders. However, the official translation treatment in Norway is: SUD treatment, and this is used

throughout the paper for the Norwegian context. It should however be noted that including *rus* in the name of treatment centers was found alienating in itself for most of the participants.

Ethics

The study was assessed by the Regional Committee for Medical and Health Research Ethics (2016/1480) as not requiring ethical approval from the Committee. As some of the participants were recruited from SUD treatment at Oslo University Hospital (OUH) and the project is organized at OUH, the data protection officer at OUH assessed and approved the study (2016/12244). All participants provided voluntary and written informed consent. In addition to the formal requirements, emphasis was placed on ensuring anonymity throughout the publication process. All participants were offered informal meeting with health professionals and referral to treatment if they desired to seek treatment.

Findings

This exploratory study generated rich empirical material on phenomena related to use of anabolic-androgenic steroids. In this article, we focus on the participants' experiences and understandings of AAS dependence or why it is difficult to stop using AAS, and the ways to cease AAS use, while placing treatment of AAS-related health problems within the addiction/SUD treatment field.

Understandings and experiences of AAS dependence

Almost all participants perceived dependence of AAS and psychoactive substances as two different forms of dependence, even though continuation of use, despite wanting to cease, was central for both. They explained the differences and how psychoactive substances give an immediate 'high' and fast withdrawal symptoms, whereas AAS give a longer lasting sense of wellbeing. The withdrawal symptoms were mostly reported to be linked to symptoms of androgen deficiency some weeks after cessation. Restarting AAS use was most often motivated by a desire to alleviate these withdrawal symptoms, but also to maintain this sense of wellbeing and muscle volume.

Some participants explained that they found it difficult to stop using AAS due to the desired effects of the substance: a strong sense of wellbeing and a desire to have big muscles and feel strong. Fredrik said clearly that he felt dependent on using AAS. When he was asked what effect the steroids had on him that made it difficult to cease use, he responded:

For my part, I think it had to do with me becoming myself. I felt I became myself. I felt I became how I wanted to be in a way: I was simply extroverted and much happier, so I think that was the reason to continue using it. For me, even if I have stopped using steroids, I will always be eager to be big and strong and have muscles. I will always want that, I think.

He managed to quit after nearly ten years of continuous AAS use. To him, it was mostly the strong sense of wellbeing that gave him a new identity and the social behavior that he missed when not using AAS. Another participant, Emil, explained that the desire to be strong was replaced with a positive, long-lasting and almost euphoric effect of AAS use, which he compared to using central stimulants:

In the beginning I wanted to become big and strong, like the older guys were. You know what I mean. Then it changed, I don't know what happened, but I started to feel great, mentally, ... and strong. It was just like taking cocaine, kind of. You are kind of Superman constantly, for months, but cocaine only last a night.

Another example showing various motivations behind AAS use is presented by Tobias, who had been a victim of violence in several contexts. His main motivation for starting to use AAS was to protect himself. To him, being dependent on being big and strong had another meaning than having a nice appearance; it meant that he was able to protect himself physically. When asked whether he felt dependent on AAS, he explained:

No, I didn't really feel...yes, I felt it in a way because to work out without [AAS] was not an option. And it wasn't nice to think about it [ceasing AAS], because then I would become small and a wimp again.

Harald initiated AAS use as a teenager. After some years, he started to use AAS continuously and also competed in bodybuilding. He explained how vital the muscle volume was to him and that the psychological desire to be so big was the form of dependence he experienced:

You get completely obsessed; you never get satisfied. You needed even more muscles, [to be] even more defined. If I didn't get serious health problems, I probably would have continued. Because you get so dependent on that stuff!

Ways to Cease AAS Use

Despite health problems, some participants did not want to quit using AAS, as they found the positive effects to outweigh the negative ones. Several were ambivalent and had not yet decided whether they wanted to cease use or not. Bill provides an example of the latter. He had been offered AAS at the gym for many years, but first started using it a few years prior to the interview when he had experienced stagnation in his training. He sought advice about how and what to use to get the desired effects, and how to avoid unwanted effects. He mainly used the advice he got from trusted and experienced friends at the gym, as they had used AAS for up to two decades. In addition, they were also in touch with medical professionals who could give advice when they themselves did not have all the answers to

his questions. Furthermore, as a harm reduction initiative, he paid for blood tests at a private laboratory and had the results sent to his home. He also participated in a somatic research project exploring cardiovascular status among long term users of AAS and an examination concluded that he had an enlarged heart as well as other pathological findings. He explained how this finding made him feel like a failure, as he believed he had done everything correctly, and followed all suggestions from the people at the gym, whom he trusted, and thought were knowledgeable:

Now I have experimented enough with [AAS] and gotten my heart harmed, so I kind of only want to cry over it all, as I've put so much effort into this by working out, healthy exercise and healthy eating and getting to bed at the right time every day. When I got the test results I thought: 'Shit, what have I been doing?' In addition – early brain aging is something I never thought about [...] there's speculation that steroids can give Alzheimer's diagnose, so I've gotten scared, it's as easy as that. [...] This was such a feeling of failure when you think you've done a good job... and you've taken moderate amounts and had the breaks you should have, and kind of thought it was OK, but it wasn't OK.

Nevertheless, he admitted that he has about 3000 euros' worth of AAS and other substances at home; enough for the next one to two years. He knows that he will not be able to sell the substances, so all the money will be lost if he ceases AAS. He explains that he would rather use AAS himself than throw it away, and refrain from buying more when his stockpile runs out, and perhaps cease use at that point in time. In addition, he fears getting caught by the police, which may lead to serious problems at his workplace. Altogether, he is considering obtaining a referral to SUD treatment to be able to quit AAS but has not yet decided what to do.

The participants offered several descriptions of how to quit AAS use: abruptly, tapering, and not starting again after a planned break between cycles. Erik had used AAS for a decade and felt good about it until he began having legal and employment problems. But it was an incident with family members when he felt depressed and vulnerable that made him want to quit, or not start using anything after a break between cycles:

...when I decided [to quit], I was already on an off-cycle. So, I struggled with [health] problems, and I always stopped the off-cycles quite fast. I did. Or I guess, I self-medicated myself in between cycles, everything from using small doses of steroids, what you call micro-doses, although way higher than the endogenous production, but still called micro-doses. To things like happy pills [antidepressants] that I could get from a friend, so I could take it [problems during the off-cycle], kind of. To potency

pills and everything that in a way could help you [testosterone production] get started again.

Harald had used steroids for nearly ten years when he noticed signs of serious cardiovascular problems. He saw this as a ‘first warning’ but blamed it on stress and continued to use AAS and other image and performance enhancing drugs in high doses. Some years later, he experienced several cardiovascular episodes and his first heart attack was severe and undoubtedly linked to AAS use. He then decided to quit AAS abruptly:

It had to be sudden! If not, then I wouldn’t be here today. There were so many clogged vessels so...I was in and out of the hospital, several heart attacks. They blocked my arteries and...cardiac arrest. [...]...But when I had been off [AAS] for one, two, three years, and my body kind of changed, so...so that was no fun! But luckily then I had started to focus on my health.

It took some time before his body became less muscular and gained more fat. Harald found it difficult to cope with this psychologically. To him, being able to focus on his health was an ongoing process that took several years after he ceased AAS.

Kristoffer had used AAS for almost two decades, and in the second decade, used continuously in very high doses. He had experienced mental health problems related to his use, before he entered outpatient SUD treatment and ceased use. When asked whether he tapered or quit abruptly, he responded:

I tapered. I had never managed to quit abruptly, even if I wanted to. I’m a person who, if I decide to do something – it’s like [*clapping*]: ‘bang – bang’! So, when I came and met the treatment provider, I said I wanted to stop using steroids and cannabis, right away. And then he said no. ‘Huh, what are you talking about?’ I said [*laughing*]. ‘You need to taper,’ he said. ‘Yes, that’s OK,’ I said.

He realized that his impulsive wish to quit everything, both cannabis and steroids at the same time, could be difficult. The treatment provider advised tapering as he had used very high doses of both AAS and cannabis. Kristoffer had to buy illicit steroids to follow the advice from his treatment provider. He managed to quit with strong support from family and the treatment provider, in addition to psychoactive medications during the withdrawal phase. Alexander had used AAS for a year, but he did not succeed in quitting as he experienced severe depression and fatigue and restarted use to alleviate these withdrawal symptoms. He repeatedly asked his general practitioner (GP) for help but was told to stop using AAS and simply wait until the endogenous testosterone normalized. He explained how he had tried to quit many times and never got the help he needed when struggling with mental health

problems, in particular depression, suicidal ideation and a suicide attempt. He contacted the GP despite knowing that the GP did not have the knowledge or the means to help him. He did this because he felt he had no other options, as he had experienced that ‘broscience’ was of no use in this situation. Therefore, his relationship with his GP can be seen as a form of ‘forced’ trust. However, a new GP was informed about treatment options in the SUD outpatient clinic, and Alexander was offered an anonymous information session about such treatment. After an information session, he decided to seek SUD treatment.

Experiences of Seeking SUD Treatment

Alexander was then referred to an outpatient clinic and reflects on his first meeting:

I ended up in a drug clinic. I never used drugs. So, I didn’t understand why I should sit and wait in the same room as all these addicts. I was three, four times their size; I lived a ‘healthy life’ [making air-quotes]. Then these guys who just destroy themselves come and get help through a ‘glass-box’ [methadone and buprenorphine dispensing], medication, injections and things like that. When I came, I didn’t get any injection or pills to help me. I got conversations. That’s the difference. Where is my medical treatment? Where is my tapering paid by the government? I had to buy it on the street, illegally, and hope that I didn’t get caught – while I was in treatment. I didn’t get caught, but it is kind of the only way to do it, if you were to get any injections, because the government doesn’t dispense it. So that’s what’s wrong.

To him, being referred to SUD treatment contradicted his healthy identity and made him feel alienated at the clinic. Initially, he did not experience that the SUD treatment field had the necessary means to help him. He felt that he needed legal tapering of testosterone and/or post-cycle therapy with endocrine treatment to restart the endogenous testosterone production in order to avoid the severe depressive symptoms that he experienced every time he attempted to cease use of AAS. However, he trusted the level of knowledge of his treatment provider and valued their frequent sessions during the withdrawal phase. He questioned the practice of giving clinical advice of tapering, without endocrine medication. He found it unethical to advice patients to buy illicit testosterone during treatment, a criminal act with legal consequences if caught. He called for treatment guidelines on how to examine and provide legal pharmacological treatment for persons who struggle to cease AAS use, as he has experienced this as the main weakness of the SUD treatment system and other parts of the specialist health service.

About half of the participants had experience with illicit psychoactive substances. Martin had been dependent on psychoactive substances and been in SUD treat-

ment. He was ambivalent about how the treatment of AAS-related health problems is organized within the SUD treatment system. He made a point out of the fact that there are different pathways into dependence of psychoactive substances and AAS, and treatment providers' knowledge and experiences of psychoactive substances cannot simply be transferred to AAS:

No, I don't think that's OK, but it is better than nothing. Because before there was nothing at all...but placing it [AAS-treatment] there [in outpatient SUD treatment] – I would never do it, because it has to do with two different things [...] And they [treatment providers] have been working way too long with people who've used completely different things that have nothing to do with steroids. And then suddenly this expertise is supposed be used for the others [persons who struggle to cease AAS], and it's not the same. Because it has nothing – unfortunately it's called dope and doping, but it sure as hell has nothing to do with each other.

Rune had also been in outpatient treatment for psychoactive substance use and tended to switch between various illicit substances and AAS use. To him, organizing AAS treatment within SUD treatment clinics was unproblematic, but he was unsure how this may be experienced for those who use only AAS:

It didn't have to be placed there, maybe, so maybe it's the slightly wrong department, but I don't know. It's hard; no, I don't know, for me it doesn't matter, more or less, but for others who are not using drugs maybe it matters that it sounds a bit more [like the wrong place], but I don't know.

Kristoffer, on the other hand, was clear that the SUD treatment clinic is the right place for those struggling to cease AAS use:

Because to me, it is both a physical and mental disturbance, being dependent on something, whatever it is. Yes, steroids give you a high; those denying it are idiots. If it didn't [give you a high], they would quit.

Erik was desperate after the incident with his family and decided to seek treatment. He had made use of 'broscience' ever since he started using AAS, but now asked for help within the health services for the first time and experienced that health professionals were not knowledgeable about AAS use or treatment:

I didn't know what to do, but I contacted my parents and asked for help and we went together to the emergency ward, and they helped me, but it was a blurry diagnose. I don't remember what they called it, mixed substance abuse or something like that was

what they called it. My primary problem was the anabolic steroids, and some drug use, but I wasn't dependent on it [drugs]. I used it more like self-medication... I was referred to *rusbehandling* [SUD treatment]. [...]...experienced their level of knowledge about steroids to be low [at the emergency ward], what it is, what it does. Definitely. There were no follow-up questions regarding anything really.

Erik participated in the present study several years after he had been in outpatient SUD treatment. He was clear that long-term AAS use is a form of dependence, but that his view changed during the course of treatment:

I who've been in SUD treatment see it [long-term AAS use] as a form of dependence. I see that it has to do with many of the mechanisms you find in all kinds of dependencies, including [psychoactive] substance use. So, to me, it [placing the treatment in the SUD clinics] is the most natural thing in the whole world, but it isn't as clear for a steroid user who is in the middle of it all to see it like that. They feel like – 'I'm not dependent.'

Discussion

In this study, men with AAS-related health problems and previous or current difficulties with ceasing AAS use found seeking treatment within the SUD treatment services alienating because of their healthy identity and perception of a healthy lifestyle. In addition, they understood their chronic use of and struggle to stop using AAS as a different form of dependence than that of psychoactive substances, for several reasons: AAS use does not give an immediate high, it has a prolonged effect on muscle volume, and there is a delayed withdrawal syndrome based on disturbance of the sex hormone system. On note, several participants had vulnerable and/or abusive background and linked their struggle to stop using AAS to secondary effects of AAS use; a psychological need to have a muscular body to enable physical self-protection, to get a new identity, and achieve a desired, more extroverted social behavior.

However, AAS users diagnosed with AAS dependence are found to have structural brain characteristics similar to other dependencies (Hauger et al 2019), and, relying on the neurobiological model, this may imply a shared vulnerability for dependencies. Chronic use of AAS increases the risk for 'adverse effects on physical, psychosocial, or occupational functioning' (Kanayama et al. 2009) as well as use of psychoactive substances (Kanayama et al. 2003; Molero, Bakshi and Gripenberg 2017; Schwingel, Zoppi, and Cotrim 2014). Co-occurring AAS and substance use is found to be a motivation for seeking SUD treatment (Skårberg, Nyberg and Engström 2008). Although potential SUD treatment users may fulfil the diagnostic criteria for AAS dependence (Pope et al. 2010) and be at risk for further health problems and illicit substance use, the participants' understandings and experi-

ences of AAS dependence and why it is so difficult to cease use, points to the importance of exploring motivations for initiation of AAS use, continued use, wanted and unwanted effects, as well as the motivation for cessation, if present. This approach may be experienced as more meaningful and less alienating for potential service users who do not necessarily consider themselves as dependent when entering treatment. However, it should be noted that participants who entered treatment found SUD treatment to be useful and necessary to be able to cease AAS use and improve social relations and function without use of AAS. In addition, in the course of treatment, several found their use of AAS to be a form of dependence similar to that of psychoactive substances. This may not be surprising given the explanation model within SUD treatment.

The participants in this study were reluctant to seek SUD treatment due to lack of trust in treatment providers and the treatment system. The concept of trust can be understood using the trust model described by Grimen (2009) for a relationship between a patient and a physician/treatment provider. Grimen stated that if a person A with a health problem trusts a physician/treatment provider B, then A will leave the health problem in B's custody *and* transfer discretionary powers to B for a period of time. In addition, the patient expects that the health professional will not do something that harms his/her interests, is competent and has the necessary means to take care of the health problem. The participants did not trust that health professionals could care for their AAS-related health problems, particularly because these professionals would not or could not³ use endocrine therapy to address hormonal disturbances following cessation of AAS. Some were also advised by their treatment providers to taper AAS or testosterone although this implied buying and using illegal substances that is a criminal act according to the Norwegian law and could lead to a criminal case with a criminal record. Participants who entered treatment and received clinical advice to continue AAS-related illegal behavior experienced this as a potential harmful and unethical clinical advice resulting in lack of trust in both the treatment provider and the treatment system. Therefore, legal endocrine therapy was desired by some participants to address their health problems during AAS cessation. Furthermore, it was viewed that treatment providers' knowledge and experiences of psychoactive substances cannot simply be transferred to treatment of individuals who struggled to cease AAS use.

AAS has many beneficial/desired effects, and many individuals will continue using AAS, balancing desired effects and health risks (Christiansen, Vinther and Liokaftos 2017; Zahnow et al. 2018). Most users of AAS with or without health problems who desire to cease use, are likely to do so without seeking health services (Jørstad, Skogheim, and Bergsund 2018; Zahnow et al. 2017). They may instead seek help in the gym environment (Christiansen, Vinther, and Liokaftos

³ Physicians are reluctant to prescribe hormone therapy during AAS cessation as there is a lack of research exploring whether testosterone tapering and/or use of endocrine therapy reduce withdrawal symptoms among individuals with long term AAS use.

2017) and online communities on how to avoid or treat unwanted effects during use and cessation (Griffiths et al. 2017; Rahnema et al. 2014; Sagoe et al. 2015). In the present study, several participants had made use of ‘broscience’, in particular PCT, but also non-prescribed antidepressants to avoid and/or self-medicate health problems without success and sought help in the SUD treatment system as a last resort.

It is expected that an increasing number will seek treatment for adverse health consequences, in particular cardiovascular diseases (Pope, Khalsa and Bhasin 2017). AAS use is associated with increased morbidity, mortality and suicide (Pope et al 2013, Petersson et al 2006, Lindquist et al, 2014) and is considered by many to be a public health concern (Dunn, McKay and Iversen 2014; Pope, Khalsa, and Bhasin 2017; Tighe et al. 2017) in need of available treatment options. Indeed, some of the participants in the present study had experienced severe somatic health problems as motivation to cease AAS use and/or seek SUD treatment.

Both in Europe and worldwide, there are few publicly available specialist health services designed to meet the health challenges of AAS users, and the existing ones have both strengths and weaknesses. The Swedish centralized model is placed in an addiction clinic at Örebro University Hospital, where an experienced and skilled multidisciplinary team examines AAS use along with psychoactive substance use, socioeconomic, mental and physical health status. Treatment needs are explored together with the person in question and documented in a final report (Örebro University Hospital 2016) to be followed by local treatment units, with a risk of meeting unexperienced treatment providers. The Dutch model started as a local initiative at Spaarne Gasthuis in Haarlem and became a centralized outpatient clinic of the Department of Endocrinology, providing physical examination and endocrine treatment when indicated for individuals with current or previous AAS use. Still, psychosocial therapy of AAS-dependence and mental health problems are not provided (Smit and de Ronde 2018).

The Norwegian decentralized SUD treatment model has some clinics with broad experience, whereas others have few or no patients in treatment for primarily AAS-related health problems, and every clinic needs to cooperate with their local medical departments who also have various degrees of experience with the patient group. To increase knowledge about health risks related to AAS use and treatment options, among health professions and users, a national project was established. Health professionals provide tailored individual information sessions covering AAS-related health problems, SUD treatment and potential treatment outcome for anonymous AAS users, either as personal or phone meetings. In a mixed methods study, it was found that anonymity and a flexible, easily accessible service with experienced clinicians, who provided information based on individual user needs facilitated SUD treatment seeking. Service users emphasized that being informed about what SUD treatment is or may be was useful. In addition, receiving help to initiate the treatment entry process through information about treatment rights, the referral process and establishing contact with SUD treatment providers

who have experience with treatment of the patient group, was important (Havnes, Jørstad, and Wisløff 2019).

Strengths and Limitations

A strength of this study is the novel information about barriers to seeking SUD treatment in Norway, where there was a recent legal change and a political decision to include AAS in the politics and treatment of substance use. In addition, the participants are a heterogeneous sample with different backgrounds, ages, AAS histories, and severity of health problems. Some study limitations should be recognized. The sample was selected on the basis of gender and having AAS-related health problems and the findings cannot be generalized to all users of AAS. The findings should instead be seen as a contribution to a more nuanced understanding of some male users of AAS, their experiences of AAS-related health problems, and their views on meeting their health issues within the SUD treatment system, and the potential clinical implications. The interviews were conducted by researchers with education and work experience within the health services (medicine, psychology, addiction and psychiatry), and addressed sensitive topics such as health problems and actions defined by the law as illegal – all of which may have influenced the participants' retrospective reflections and their decisions to share particular experiences.

Clinical Implications and Further Research

To increase trust in treatment providers and facilitate treatment seeking among potential health service users with AAS-related health problems, treatment providers need to increase their skills and level of knowledge about AAS, desired and unwanted effects, and treatment. Further research on ways to cease AAS use and whether endocrine treatment reduces AAS withdrawal symptoms may enable clinicians to give advice on and initiate endocrine treatment, if indicated. To design a treatment service that meets the needs of AAS users who struggle to cease their use, user experiences among service users in different treatment contexts and treatment models should be analyzed. This, and experienced barriers towards seeking SUD treatment should be taken into account when planning, organizing and implementing health services for individuals with AAS-related health problems.

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