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Exploring the Impacts of Rurality on Service Access and Harm Among Image and Performance Enhancing Drug (IPED) Users in a Remote English Region

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Abstract

Image and performance enhancing drugs (IPEDs) have been highlighted in recent years as posing a potential risk to public health, with much research dedicated to exploring the use of these drugs and associated harms. While recent work has considered harm reduction for IPED users, the geographic and cultural impacts of rurality on IPED use and harms, particularly in relation to harm reduction service access, remains comparatively under-explored. Features of rurality relating to levels of economic distress, the inheritance and decline of manual labor, and rural conceptions of masculinity are important in shaping drug harms. Consequently, the "rural risk environment" for IPED users is in need of exploration. This research examines the experiences of IPED users in a remote two-county region of rural England, drawn from a multi-year ethnography and 18 qualitative interviews with IPED users, to explore the impacts of rurality and the "rural risk environment" on service access and harm (reduction) within this population. Findings highlight a number of ways in which rurality impacted on IPED users' access to harm reduction services such as needle and syringe programs (NSP), as well as engagement with healthcare practitioners (HCP). Issues included the distances required to access services and lack of public transport between towns; the impacts of stigma in a small town context where there is little anonymity; Distrust of HCP relating to cultural mindsets and regionally derived fears regarding impacts on employment prospects, particularly military; and the impacts of rural masculinities and perceptions of the self-sufficient "real man" on help-seeking when experiencing harm. The research highlights the need to incorporate cultural geographic understandings into harm reduction policy for IPED users, and the significance of rurality on experiences of harm.

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Introduction

Recent years have seen a growth in interest in image and performance enhancing drugs (IPEDs), and the potential risk to public health posed by their use, both in the UK and internationally (Bates & McVeigh, 2016; Bates et al., 2021; Hope et al., 2022; Sagoe & Pallesen, 2018). IPEDs broadly are drugs taken for the purposes of enhancing one's appearance, sporting performance, sexual function or mood (van de Ven et al., 2019), and are often referred to as "lifestyle medicines," reflecting the lifestyle-enhancement motivations underpinning much contemporary use (Hall & Antonopoulos, 2016; Kotzé & Antonopoulos, 2021). While the use of IPEDs among sporting competitors and "hardcore" gym cultures (e.g., bodybuilders) has long been explored (Klein, 1995; Monaghan, 2001), recent research has drawn attention to their use among recreational fitness trainers, highlighting a seeming normalization of use among gym-going populations, and other wellness-conscious groups (Brennan et al., 2017; Evans-Brown et al., 2012; Kimergård, 2015; Sagoe et al., 2014).

These trends in contemporary IPED use are important to understand, since these drugs come with a range of potential health risks, from cardiovascular strain and hepatotoxicity, to psychological harms such as depression (Kanayama et al., 2018; McVeigh, Hearne, et al., 2021; McVeigh, Salinas, & Ralphs, 2021). Additionally, with many of the most popular IPEDs being injected, these further carry associated risks of infection, and potential exposure to blood borne viruses (BBV; Bates & McVeigh, 2016; Hope et al., 2013), even if BBV risk is lower for those injecting steroids (via intramuscular (IM) injections) than for intravenous (IV) drug users (see Underwood, 2019). Consequently, a number of researchers have highlighted the need to situate IPED use within a public health perspective, focusing on how harms may be reduced through policies such as needle and syringe programs (NSP), education, engagement with health practitioners, and peer outreach schemes (Bates et al., 2021; Kimergård & McVeigh, 2014; McVeigh & Begley, 2017; Piatkowski et al., 2022).

While academic discourse around IPEDs increasingly acknowledges the importance of harm reduction for users (Bates et al., 2022), it is clear there remain gaps in our understanding regarding how best to serve specific populations (Hope et al., 2022; McVeigh, Hearne, et al., 2021). With IPED use being highly heterogenous (van de Ven et al., 2019), much work has acknowledged the extent to which interventions must be tailored to the different practices, motivations and harm profiles of users (Christiansen et al., 2017; Harvey et al., 2021; Vinther & Christiansen, 2019). Consequently, a range of user typologies have been developed which attempt to bridge this knowledge gap, with several works looking to match user risk behaviors to factors such as subcultural affiliation or motivations for training, as heuristics for guiding harm reduction (Christiansen et al., 2017; Turnock, 2018; Zahnow et al., 2018). While such typologies can be useful, much of this research has lacked in-depth exploration of how use and harms may be shaped by social geographic and structural factors (Salinas et al., 2019), including around the impacts of rurality/urbanity.

While much research has noted the links between masculinities, embodiment and IPED use, for example (e.g., Andreasson & Johansson, 2016; Klein, 1995; Kotzé & Antonopoulos, 2021; Piatkowski et al., 2020), masculinities are not only diverse and changing (Anderson, 2010; Maycock, 2018), but are shaped by social geographic, economic and cultural factors (Ellis, 2016; McDowell, 2011; Nayak, 2003) which may in turn influence approaches to IPED use (Gibbs, Salinas, & Turnock, 2022). Beyond this, with IPEDs taken not only for image or sporting enhancement, but also for therapeutic purposes such as injury repair and rehabilitation (Turnock, 2022), in addition to their associations with specific forms of physical work (Hanley Santos & Coomber, 2017; Monaghan, 2002; Whyte et al., 2021a), it is clear how motivations for their use may correlate with factors such as levels of economic distress or prevalence of hard physical labor in a given population. Effective harm reduction policy for IPEDs

must therefore account not only for user "types," but must also acknowledge the geographic, cultural and structural conditions surrounding use and harms (Hanley Santos & Coomber, 2017; van de Ven et al., 2018), integrating "place" into IPED research in line with developments in the broader drugs literature (e.g., Cooper & Tempalski, 2014).

Research in rural sociology and rural criminology has long pointed out that distinct features of rural environments, including locational context but also cultural geography, may shape and impact upon issues such as public health and criminal justice (Barclay et al., 2004; Leider et al., 2020). With attention to IPEDs, while Dunn et al. (2016) note the need for specific research into IPED users in regional and rural areas, comparatively little analysis in the years since has focused on the impacts of rurality on IPED use, harms and service access. Similarly, Hope et al. (2022), in exploring the existing evidence base surrounding IPED use in the UK context, note the need for further work exploring geographic variations in use and service access as a key next step for researchers, particularly in relation to NSP engagement. Building on these suggestions, the present research seeks to contribute to this gap in the literature through exploring how rural IPED users in the UK may differ in their risk profiles and approach to urban and semi- or sub-urban populations. With the literature on drug harms more broadly increasingly highlighting the significance of rurality as a risk factor, and rural users of other drugs noted as having distinct risk profiles to urban and suburban users (Thomas et al., 2020), it is clear the specific challenges that rurality presents in relation to IPED harms must be explored, in order to provide effective harm reduction for this population. This shall be done through examining issues identified by a sample of 18 IPED users in remote South-West England in relation to service access and IPED harms, as well as exploration of how broader aspects of rurality and rural masculinities may also impact upon IPED use and harms.

Rurality and the Rural "Risk Environment"

In order to fully contextualize findings, it is important to first situate our understanding of rurality and rural geographies as risk factors for drug harms. The risk environment approach is a framework developed by Rhodes (2002), which positions harm as contingent upon social context, comprising interactions between individuals and environments (Rhodes, 2009). It moves beyond potentially reductive perspectives that analyze only risk *practices*, to understand how intersecting domains of physical, social, economic and policy environments shape sources of risk, at varying environmental levels (i.e., micro, meso, and macro environments; Hanley Santos & Coomber, 2017; Thomas et al., 2020). The risk environment approach has been used to facilitate in-depth understanding of drug-related harms in a range of contexts, and facilitates greater understanding of the policy environment at the intersections of place, class and culture (Cooper et al., 2009; Cooper & Tempalski, 2014).

The risk environment framework has previously been applied to IPED use and harms by Hanley Santos and Coomber (2017), who looked to examine the macro-structural, cultural and personal conditions that contribute to harms and hinder effective harm reduction behaviors among IPED users in an English city. They observed a number of areas where harms were shaped by these factors, including in relation to NSP access and the management of risk by users, in addition to factors such as employment-related IPED use in the regional economy. With recent literature using the risk environment framework to examine illicit drug harms more broadly in the context of rural communities (Fadanelli et al., 2020; Ibragimov et al., 2020; Jenkins & Hagan, 2020; Kolak et al., 2020), a synthesis of Hanley Santos and Coomber's (2017) risk environment approach to IPEDs with key developments from the rural drug harms literature may therefore help facilitate greater understanding of the factors influencing harm among rural IPED users.

Rurality itself is a disputed concept (Cloke, 2006), and is therefore worth unpacking to contextualize understanding of the "rural risk environment" (Ibragimov et al., 2020). In addition to quantitative

representations of rurality, such as population density or distances to core services and infrastructure, central to many definitions are qualitative elements in which rurality is inherently framed by understandings of class, power and (geographic, economic, political) remoteness, with distance—both physical and cultural—important to understanding the behaviors and values of rural residents (Cloke, 2006; Shucksmith, 2012). Many explorations of rural geographies highlight how this remoteness is expressed through perceptions of regional neglect (Willet, 2009), cultural and political opposition to "elites" and perceived "urban" cultural norms (Bye, 2009; Lunz Trujillo, 2022; Willet et al., 2019), and the formation of close community networks oriented around the reproduction of values (Shucksmith, 2012). While rurality may have features beyond remoteness and self-reliance as cultural values, such as the importance of countryside, wilderness, an agricultural economy or trappings of the "rural idyl" (Cloke, 2006; Hillyard, 2008), from the perspective of understanding drug harms and service access, these defining characteristics are the most important to consider.

Research into rural health access has consequently explored issues linked to both geographic and economic distance, as well as the cultural aspects to rurality that may impact upon help-seeking behaviors (Noone & Stephens, 2008; Russell et al., 2013). These issues impact upon the rural risk environment for drug harms, with much of the literature noting issues relating to not only a lack of service provision and transportation infrastructure in rural geographies, but also broader socio-economic factors, relating to lack of opportunity and decline, and socio-cultural changes which may shape drug using behaviors, and service access (Kolak et al., 2020; Thomas et al., 2020). Such factors intersect with broader cultural features of rurality such as heightened feelings of stigma in close-knit communities where persons are known and reputations important, leaving service access a significant issue for many rural drug users (Jenkins & Hagan, 2019; Showalter, 2020; Thomas et al., 2020).

Geographic, economic and structural risk factors further combine with cultural and social features of rurality in relation to gender, and rural conceptions of masculinity. As noted, masculinities have been considered in several explorations of IPED use (e.g., Gibbs, Salinas, & Turnock, 2022), and with the majority of steroid users being men (Bates & McVeigh, 2016; Sagoe & Pallesen, 2018), understanding how masculinities may shape IPED use and engagement with harm reduction services is an important topic for harm reduction researchers to address. Much research into rural masculinities has noted the harms which correlate with the "orthodox" masculine ideals prevalent in many rural locales (e.g., Carrington et al., 2013), with some of these harms being relevant to rural men's healthcare and service access. Principally, how the internalization of notions of the rural "real man" and "self-stigma" may act as barriers to help-seeking in rural masculinities (Bryant & Garnham, 2015; Coen et al., 2013;), with such issues likely compounding on top of concerns regarding stigma and opposition to accessing medical services seen for IPED users more broadly (Harvey et al., 2020; Piatkowski et al., 2022; Simmonds & Coomber, 2009). Understanding such influences as part of the rural "risk environment" will therefore help better contextualize harms within rural IPED-using populations, allowing for more effective policy formation that acknowledges the different circumstances which frame harm in rural geographies.

Method

Findings are drawn from a multi-year ethnography undertaken by the first author in nine gyms in the remote Devon & Cornwall peninsula of the UK, which sought to explore gym cultures, gender and IPED use in the region. The peninsula has been described as both a remote rural geography, and a place of significant relative deprivation (Bosworth & Willet, 2011; Willet, 2009), with Cornwall among the poorest in the UK by GDP per capita (Eurostat, 2019). While Devon fares somewhat better (though remains significantly below the UK average GDP per capita (Eurostat, 2019)), its remote coastal towns nonetheless fall in the "most deprived" category in the English government's Indices of Deprivation (IoD, 2019), and have been identified as "distant/isolated" geographies in prior research into illicit

drug markets and harm (Coomber & Moyle, 2018). Consequently, while not as remote or deprived as rural geographies in other countries, the small towns studied nonetheless serve as some of the best examples of remote rural locales in the UK, especially England.

While "formal" data collection for the research occurred between 2014 and 2017, findings draw on the first author's experiences as a gym user in the region, spanning from 2010 to 2020, encompassing hundreds of hours of observation and conversations in a variety of gyms, including both "hardcore" and more "commercial" establishments. "Hardcore" gyms are often associated with urban, post-industrial locales (Antonopoulos & Hall, 2016; Kotzé & Antonopoulos, 2021; Salinas et al., 2019), and seen as spaces where masculine performances of graft and craft associated with cities' traditional industry are now enacted in the leisure economy, as a substitute space for masculine capital and fraternity (Gibbs, Salinas, & Turnock, 2022). While rural locales may be less typically associated with hardcore gyms, there have been similar trends toward these spaces as sites for the development of substitute masculine capital in rural towns, even where traditional industries such as farming, logging and quarries may persist. This may be linked to the rise of automation and casualization in local industries (Gibbs, Salinas, & Turnock, 2022), along with broader cultural and economic shifts that are shaping the ways in which contemporary rural men seek to acquire masculine capital and identity (Turnock, 2021). The prominence of the military as a career path in rural regions, and norms of physical capital linked to this, may also shape the development of hardcore gym spaces in these locales (Turnock, 2021).

While a portion of the research was undertaken in the region's main port city, field sites also incorporated several independent "hardcore" gyms located in remote towns ($n = 5$) across the region, with a significant portion of the research undertaken in small towns within rural surroundings, such as working farmland, timber forests and moorland, or the aforementioned remote coastal towns. Additionally, some participants recruited in city gyms had travelled upward of an hour to the city in order to train in gyms with specific lifting equipment, and were thus able to offer insights on their experiences as rural commuters to urban gym space, as well as their interactions with those who trained in their more remote hometowns. Consequently, a significant amount of data relating to rural trainers' IPED use and service access was gathered in the course of ethnography, which informs the findings of this article.

In addition to observational and conversational data gathered in gyms, a total of 36 semi-structured qualitative interviews were undertaken for the project, 18 of which were conducted with individuals specifically engaged based on their perceived knowledge of IPED use and markets, 17 of whom were male. Perceptions of knowledge regarding IPEDs used in recruitment were based on the first author's informal discussions with participants when conducting initial observation work in gyms. In these conversations, many individuals would talk about their steroid use and experiences buying or selling, and were consequently asked if they would be willing to participate in an interview on the subject. Some were further recruited through "snowball" sampling, as initial interviewees recommended others whom they thought would be knowledgeable and willing to speak on the topic. These participants included a range of powerlifting competitors, gym owners, personal trainers, and open steroid users and suppliers (with some overlap between these categories). IPED use and harms formed key themes in these 18 interviews, including discussion of users' approaches to harm minimization and engagement with harm reduction services, which forms some of the primary data cited in this article. The remaining 18 participants were interviewed more broadly on topics relating to gender and gym cultures, and while not specifically engaged regarding IPED use, were able to offer some insights into how rurality, class and masculinities are relevant to understanding harms in these gym cultures, in addition to broader observations regarding their personal perceptions of others' drug use. Interviews across both portions of the research project lasted an average of 1 hr.

Analysis of both interview data and ethnographic field-note data was conducted following a constructivist grounded theory approach (Charmaz, 2014; Glaser & Strauss, 2017). Analysis followed the

constant comparative method to the development of conceptual categories which were systematically "worked out" with reference to new and emerging fieldwork data, in the course of simultaneous data collection and analysis, followed by subsequent re-analysis once categories had been refined. The grounded theory approach has been adopted by others researching body cultures as it can better reflect the "realities" of cultural participants surveyed (Monaghan, 2001; Watson, 2000). Coding and analysis was undertaken manually by the first author without specialist software, so that the full contexts and narrative relevance of transcript and field diary data could be accounted for.

The first author's positionality as both a researcher, but also a participant in gym cultures who grew up in the region studied, are also important to acknowledge as shaping both my interest in this topic, as well as the construction of findings (Charmaz, 2014). With ethnography a collaboration between the researcher and researched (Blackman, 2016), my status as a semi-"cultural insider" is important to highlight, as this aided in access and cultural understanding, but may also have led to my potentially overlooking data that would appear significant to a cultural outsider, but which I considered cultural norms (Taylor & Potter, 2013). Nonetheless, the access and cultural understanding offered by my biography are felt to outweigh these limitations, and the use of "insider" understandings in this work parallels that drawn on by other researchers in this field (Piatkowski et al., 2022).

Research was conducted with ethics approval from the University of Plymouth, as part of the first author's doctoral studies.

Findings

This section shall explore the four key themes which arose from interviews and ethnographic findings in relation to the impacts of rurality/remoteness on participants' IPED use and experience of harms, particularly regarding their engagement with harm reduction services. These were, in turn, issues linked with: Limited service provision and poor transportation links; heightened stigma associated with accessing NSP in a small town context; distrust of institutions and regional employment concerns; and the impacts of rural masculinities and cultural norms on help-seeking and IPED using behaviors.

Limited Services and Transport Links

Much IPED harm minimization policy to date has focused on the dissemination of sterile injecting equipment and information on safe use through NSP, along with similar establishments such as specialist "steroid clinics" (Kimergård & McVeigh, 2014; McVeigh & Begley, 2017), with IPED users having been the primary clients of many NSP for some years now (Kimergård, 2015; Kimergård & McVeigh, 2014). In a recent Delphi study, Hope et al. (2022) estimate that between 25% and 40% of IPED users in the UK access NSP, a figure which justifies the focus on these establishments in much harm reduction work, while also acknowledging that broader interventions must be considered. Ethnographic observations in the present research suggest that for those living in the peripheral South-West, however, the 25%–40% NSP engagement figure is likely to be a sizeable over-estimate.

Across multiple interviews and conversations conducted in the region's gyms, it was observed that a significant number of participants either did not access NSP themselves, or relayed that they knew other users in their gyms did not do so. One established trainer in a small town gym estimated "*maybe 10%*" of steroid users in his gym actually engaged with NSP, and the remainder of the sample drawn from regional gyms seemed to support this suggestion, with the consensus being that most IPED users sourced injecting equipment and information either from peers, or online:

> [The] needles I got on eBay . . . I think it cost me about eight quid for a pack of a hundred needles, and about twelve quid for a hundred syringes.

While the reasons for non-engagement with services were numerous, a key issue identified in the literature on rural harm reduction relates to the lack of specialist services in many rural locales, and lack of transportation links for accessing existing services (Thomas et al., 2020). These issues similarly face rural IPED users, with poor transport links identified as an issue by several participants, who noted that bus services between smaller towns and urban centers were close to non-existent in some portions of the region, and even in the few towns with rail services (e.g., the larger coastal towns), these were often inconsistent, expensive and unreliable:

> 8 am train cancelled. 9 am train cancelled. 10 am train turns up, half coaches missing, already full and standing.

> Bus service sucks too. One hour travel [to the city, and] it costs less to travel across Central London [than local fares].

Such transport issues discouraged travel to specialist NSP for many, with alternatives such as peer supply seen as far more convenient, despite potentially being absent the harm reduction information offered through specialist NSP establishments. While transport and access is a problem even within urban settings, as users may still have to go out of their way to access NSP compared to utilizing gym-based peer supply, the low numbers of the sample from outlying towns who accessed these services relative to those who trained in the city gym highlights that it may be a particular issue in more rural locales.

While most towns large enough to have a gym will also have a pharmacy, which may provide sterile injecting equipment, one specialist drug service provider interviewed in the broader research—the "steroid lead" at her organization—noted that pharmacy chains would tend to simply have "packs" on hand for steroid users, containing needles, a sharps bin and basic information sheet, and would not generally be involved in knowledge exchange regarding safe use beyond this. While specialist NSP services in larger towns and cities will generally have experts who can advise on safe injecting practice, in small towns the extent of harm reduction services might therefore be limited to such "pick up and drop off" schemes, without any substantial harm minimization advice being offered. Consequently, harm reduction interventions beyond simple equipment provision are much more difficult for rural populations who cannot travel to specialist services, even in towns where some means of needle exchange is accessible. This may be linked to broader issues with the lack of funding for specialist NSP services in general, with even urban locales often featuring few of these, and most access occurring through pharmacies without specialist knowledge being offered. The tendency to prefer peer supply or online access among IPED-using participants may therefore correlate with perceptions that the only accessible services do not come with any particular advantage compared to these, but could present further challenges and barriers that peer supply does not (unpacked in the next section).

Additionally, with not all pharmacies providing needle exchange services, and uncertainty regarding which ones did among IPED users, for those in small towns without specialist NSP providers or even multiple pharmacies, it is clear that poor transport links have a disproportionate impact on their ability to access harm reduction services. In the context of long-standing public services being shut down in rural locales under austerity (Willet et al., 2019), including small town hospitals, police stations and other sites closing in the region during the (post-recession) research period, it is perhaps unsurprising there were few establishments offering specialist NSP services, particularly those tailored to IPED users explicitly, in many smaller towns in remote areas. Discussion of IPED use and harm reduction must therefore acknowledge the challenges that rurality and distance may present to accessing services in the context of poor transport links outside of most urban and semi-urban locales.

Small Town Stigma and Service Access

Importantly, even among those who could feasibly access a needle exchange, many voiced hesitation around doing so owing to fears of the stigma attached to accessing these services. Stigma is a recurring theme in research into IPED users, with Simmonds and Coomber (2009) noting this group often fear association with "stereotypical" injecting drug users (IDUs) when accessing NSP, which Harvey et al. (2020) observe can lead to users avoiding NSP establishments, thus missing out on harm reduction information delivered in these spaces. While stigma through association with other IDUs can impact on service access, research has also noted the stigma attached to IPED use itself, with Richardson and Antonopoulos (2019) observing this resulted in participants even lying to medical professionals regarding their IPED use, over fear of their loved ones discovering it. With stigma impacting NSP access for IPED users more broadly, it is therefore important to consider how the barriers created by stigma may be exacerbated in a rural, small town context. Notably, aspects of stigma and related shame are likewise reflected in the criminological literature which has shown how victims of domestic and family violence may choose not to report their victimization due to issues of social density, and in particular that the abuser may have strong community connections, including with the police and local authorities, combined with an absence of infrastructure and transportation which further discourages reporting crime and seeking help (see Campo & Tayton, 2015).

With even basic needle exchange provision often limited to a single establishment in remote towns, and poor transportation links between towns, rural IPED users may face their only accessible NSP being located in an establishment where they are likely to be seen and recognized by people they know when entering. Small town norms of surveillance, and community interest in residents' behaviors and lack of anonymity have long been explored in research into rural drug users, with much work noting the impact these norms can have on perceptions of stigma, and willingness to access services (Allen et al., 2019; Browne et al., 2016; Hammarlund et al., 2018; Thomas et al., 2020). Extrapolating this to rural IPED users, it is clear that IPED use—particularly to the extent that it links to broader stigma against IDUs—will thus be similarly subject to such norms of cultural surveillance, and heightened perceptions of stigma. Concerns regarding the impacts of stigma on IPED users' NSP access more broadly are thus magnified by rurality, given social density and the increased probability of being recognized when accessing services, and the consequences this may have:

> You can go to Boots and get [needles], but I know people who work in Boots, so I don't really want them to have it that I've got a bin full of needles. (Simon)

This participant further noted that being recognized was of particular concern for him, since the mother of his child was strongly against steroids and other drugs, and also had friends who worked in their town's pharmacy ("Boots"), making his visiting this local needle exchange an impossibility for him. Without an alternative NSP he could access without significant travel, and a high likelihood of his being recognized if he accessed the service based in his town's pharmacy, Simon consequently bought his needles from eBay, resulting in his missing out on any knowledge exchange regarding safe use and injection practice this service could have provided beyond simple needle provision.

The impact of the lack of knowledge exchange associated with acquiring needles through such alternative sources was visible in several participants' observations regarding poor injection practice they had witnessed. Dan, a bodybuilder, discussed an acquaintance who had started using steroids, and had come to him for advice after experiencing bad pain at his injection sites. Dan noted he had needed to explain to this acquaintance that he was using the wrong needles, which was causing the pain:

> I explained to him, like "mate, it's cos you're injecting into your fat cells, you've got to use the greens [21G/38 mm needle] so it actually reaches the muscle." He'd bought the short ones cos they looked less scary, thought they were just as good.

While this illustrates how subcultural advice is disseminated in gyms and can itself serve to minimize harm in these communities (see van de Ven & Mulrooney, 2017), this issue only occurred because needles were accessed online rather than through NSP, where such advice would likely have been given, and the correct needles provided, even if only in the form of a "steroid pack" with an information leaflet if accessed through a pharmacy. With other participants noting either they had injected incorrectly when first using, or knew others who had, there were several issues linked to poor injection practice which highlight how a lack of engagement with NSP in remote towns correlated with harm.

While most participants from hardcore gym subcultures such as powerlifters learnt appropriate injecting practice from experienced peers (as with Dan, above), for other participants their knowledge regarding things such as the correct needles for particular muscle groups was something they had acquired through trial and error, or through equally inexperienced peers, owing to their perceived inability to access services which could provide this, whether caused by remoteness, fears of stigma, or a combination of the two. While internet forums were noted by some participant as enabling their acquisition of appropriate knowledge regarding IPEDs, potentially minimizing the divide between rural and urban populations' understandings of use, prior research has discussed the limitations of information available in these spaces (see Tighe et al., 2017), including noting how even where good advice is offered, it may be difficult for non-cultural participants to parse what is legitimate versus potentially harmful advice (Turnock & Townshend, 2022). As such, the impact of stigma on NSP access in rural geographies likely still affects harm reduction knowledge levels, even if internet access facilitates some degree of independent knowledge acquisition.

Notably, even among participants who did access NSP, the impact of stigma in the rural context was visible. For instance, while powerlifter Rich often drove an hour to the city in order to train in a specialist powerlifting gym, and could then anonymously access NSP while in the city, he nonetheless discussed how he would often pick up needles for friends while there, so they did not have to visit a local needle exchange themselves, noting:

> Not everyone wants to go there, do they? You know, people don't want to be seen there, or it's inconvenient or whatever . . . [so] if I went in there I would pick needles up for whoever wanted them.

While in this instance the correct needles would be picked up, along with appropriate sterilizing equipment, the fact that Rich's friends accessed these through him still precluded any specific knowledge exchange regarding injecting practice being delivered to them, making them reliant on Rich relaying this advice, including in relation to things they might be embarrassed to ask him about (such as how to properly inject in a glute). While even in more urban geographies the rates of users who access NSP to collect for others may be high, with van Beek and Chronister (2015) recording that 44% of their respondents recruited in NSP were involved in such peer supply, the prominence of these narratives among rural gym users illustrates the need to situate discussions of stigma and its impacts within such a social geographic context.

Heightened stigma in the small town context thus combined with transportation issues, and resulted in many injecting IPED users avoiding accessing harm reduction services even where provided. These findings correlate with the literature regarding broader drug harms in rural communities, where the close-knit nature of communities, and lack of alternative services have been identified as risk factors (Jenkins & Hagan, 2020; Showalter, 2020; Thomas et al., 2020), and also highlights why estimates drawn from NSP data are likely to greatly underestimate rates of IPED use in more rural regions

relative to urban or sub-urban ones, even when accounting for the degree of stigma and avoidance observed for urban IPED-using populations.

Institutional Trust and Regional Employment Concerns

Building on the barriers that rural social and cultural norms presented to accessing harm reduction services, a further barrier identified related to institutional distrust, particularly of the medical community. IPED users have historically had an adversarial relationship with healthcare providers (HCP), with much work documenting the distrust of doctors within these communities, whom they often do not trust to give valuable advice regarding IPED use, and who are perceived as unfairly stigmatizing users (Bonnecaze et al., 2020; Piatkowski et al., 2022; Pope et al., 2004; Zahnow et al., 2017). While a distrust of HCP has been observed across many IPED-using cultures, in deprived rural regions this may extend further, owing to the realities of employment prospects for working-class men in these regions.

The significance of the military in the region studied is important to focus on in relation to harms arising from institutional distrust, as this was discussed by several participants as impacting their behaviors. With many working-class young men in the region citing limited career prospects for those who remained, the armed forces were highlighted by several as a perceived "way out," with multiple participants discussing their plans to join one of the service branches. With the peninsula home to key military bases and training facilities, and with the military often undertaking recruitment outreach in schools in the region, there was a strong link with military service and the motivations of many working-class gym users surveyed (see Turnock, 2021a).

Despite the apparent prevalence of IPED use and knowledge within the forces (Hanley-Santos & Coomber, 2017; Whyte et al., 2021a), the selection process requires both medical and criminal record checks, and applicants are warned that drug use, including steroids, may be disqualifying. Indeed, one senior Navy officer interviewed confirmed to the first author that he had kicked service members out for steroid use. Consequently, despite the clear relationship between military ideals and enhancement drug use, with some participants noting they were using enhancers to train for the "beasting" sessions they would face upon joining, for many whose future plans revolved around military service, the prospect of having steroid use on their medical records was a strong motivating factor to not see HCP regarding any harms experienced relating to use or cessation, which could result in a black mark against them.

The significance of this in the context of IPED harms could be seen most starkly in one participant developing what he worried might be testicular cancer following a steroid cycle, noting one testicle was twice the size of the other, but going to online fitness forums to seek advice on what he should do, rather than immediately contacting his GP. Explaining his thought process to me some time after the fact, and justifying why he had not immediately sought treatment, the participant noted it was:

> 'cos I didn't want to go to the doctor and tell him I was messing around with steroids, and have that on my medical records permanently.

With the issue of "medical records" and the distrust of doctors being raised on several occasions, it is clear that while other IPED-using populations may have adversarial relationships with medical professionals, among rural working-class men in military regions this is exacerbated by the importance of jobs for which one must undergo medical and criminal record checks in these communities, but which are also dependent on some degree of physicality, thus simultaneously motivating steroid use (see Whyte et al., 2021b). With another participant describing how a good friend had informed his doctor in what he believed to be strictest confidence that he was using steroids, only to later discover this information had been permanently stored in his medical records, it is clear these men's belief they could not trust doctors when their employment prospects were at stake was not unfounded. Harms were

thus intimately linked with career prospects among these men, suggesting that policy recommendations for how doctors may better engage IPED users must also consider the importance of concerns over anonymity when seeking help among steroid users, particularly among rural, working class young men.

Rural Masculinities and Cultural Influences

Finally, it is worth considering how rural cultural ideals of masculinity more broadly may tie in with non-engagement with HCP, and broader IPED-related harms. Rural masculinities are often conceptualized as "orthodox" masculinities, celebrating ideals of stoicism, self-reliance and similar attributes above all, all of which may correlate with harm (Coen et al., 2013; Creighton et al., 2017). Beyond the above-noted concerns over employment prospects and medical records, rural men's resistance to help-seeking more broadly is significant to examine, with the literature particularly highlighting issues in relation to depression and mental health issues. Several studies of suicide and harm in rural communities have explored rural men's reluctance to seek help over fears that doing so is a sign of weakness, and that it undermines their masculine self-conception to do so (Alston & Kent, 2008; Bryant & Garnham, 2015; Coen et al., 2013). With depressive symptoms being one of the key negative side-effects associated with steroid use, and particularly cessation of use (Kanayama et al., 2008; Pope & Katz, 1994), it is likely that resistance to help-seeking rooted in orthodox conceptions of masculinity may be significant to IPED users' non-engagement with HCP over such issues, and several participants discussed either their own or friends' struggles with steroid-related (and other) depression, for which they had not sought help. While deliberately avoiding help-seeking is an issue with masculinity in society more broadly (Clearly, 2012; Johnson et al., 2012; Oliffe et al., 2020), this may be exacerbated in regions where certain cultural ideals of the stoic "real man" are more prevalent, with gym-going men in rural and deprived post-industrial locales particularly liable to subscribe to such notions of masculinity (see Turnock, 2021a).

Non-engagement with services rooted in cultural conceptions of masculinity may be relevant to all manner of harms beyond depression, of course, and research has identified the reluctance of men with more "orthodox" masculinities to engage with health services for a range of conditions and reasons, including notions of self-reliance and a belief one should handle problems oneself, as well as potential feelings of embarrassment over engaging with services (Bryant & Garnham, 2015; Noone & Stephens, 2008). Once again, we see similar findings as it relates to the reporting of crime. Specifically, Harkness (2017) notes that farmers in rural Victoria, Australia were more likely to deal with victimization without the involvement of criminal justice agencies in part on account of subscribing to the view that they could take care of it themselves or, adopting an Australian expression, the view that "we kill our own snakes in the bush".

It is therefore likely that beyond geographic factors limiting engagement with NSP and HCP, there may be a certain degree of "self-stigma" relating to masculine conceptions of the self-acting as a barrier to some male IPED users accessing harm reduction services, which may be more prevalent in certain social geographies (Turnock, 2021a). Indeed, while blood tests and similar wellbeing checks are increasingly promoted for IPED users on fitness-related social media pages (Gibbs, Cox, & Turnock, 2022), only one participant in the present research proactively sought out medical advice and health monitoring regarding his plans to use, suggesting this sample had particularly low engagement with medical services, even accounting for degrees of stigma-related resistance documented elsewhere (e.g., Harvey et al., 2020). Understanding the impacts of culturally and geographically bounded conceptions of masculinity on stigma and self-stigma may therefore be a further way of addressing the harms caused by non-engagement within populations where this is likely to be a greater risk, particularly when situated in relevant structural and employment contexts such as prevalence of "military masculinities" (Turnock, 2021a; Whyte et al., 2021b), as noted above.

Beyond the impacts of stoic ideals of masculinity and barriers to help-seeking created by these, broader issues potentially associated with orthodox masculinities are also worth considering in relation to IPED harms, particularly regarding the impacts of notions of the macho "real man" and importance of male "toughness" prevalent in many rural cultures (Campbell et al., 2006; Carrington & Scott, 2008; Leap, 2020; Tyler & Fairbrother, 2013). While gyms in many locales feature discussion of training as "hard graft," and offer the opportunity to performatively show one's toughness (Fussell, 1991; Gibbs, Salinas, & Turnock, 2022) in rural locales where these values are dominant, this may manifest in shows of "toughness" akin to or directly inspired by military hazing or "beasting" (Turnock, 2021a; Whyte et al., 2021b). Notions that "real men" should continue training and grafting through pain and injury might plausibly correlate with the use of drugs specifically to continue training among those who subscribe to such ideals, creating further risks of harm.

Indeed, some participants noted their use of substances specifically to enhance repair and their ability to train when injured, such as deca-durabolin or boldenone to "lubricate" injured joints, and human growth hormone to speed up injury recovery. At its most extreme, one powerlifter bragged about squatting heavy two weeks after a hamstring tear which should have been rested for months, using IPEDs to allow him to get back to training faster. Although such hardcore lifters are not generally the highest-risk users, generally understanding the drugs they are taking better than more casual, YOLO-type users (Christiansen et al., 2017; Turnock, 2018), such findings nonetheless indicate how risky drug-using behaviors may correlate with culturally bounded ideas of the "tough guy real man" in these cultures, which may be more prevalent in certain geographies.

Similarly, as IPED use becomes more common for wellness optimization purposes (Dunn et al., 2021; Turnock, 2022; Underwood et al., 2021), it is plausible the prevalence of physical labor in a region will also impact on the use of IPEDs for repair, as users look to offset pain related to laboring. In the present sample, despite the focus being on gym-goers, some respondents nonetheless noted that their wellbeing-oriented IPED use also helped to reduce pain when they were working, with one participant noting his main motivation for IPED use was:

> my joints when I'm at work. Having good joints to me [is more important] than some obscure worry about getting cancer or heart disease in twenty years' time.

Particularly in regions where physical labor such as quarrying, agriculture, or the military are the primary avenues for good employment prospects among working class men, understanding how IPED use may intersect with the strains of demanding physical labor (e.g., Whyte et al., 2021b) is therefore likely to be significant in directing harm reduction. While such labor is on the decline in much of Britain, it is also worth noting that, even among those who no longer undertake hard physical work, the cultural inheritance of labor-derived conceptions of masculinity in post-industrial geographies may nonetheless shape behaviors and IPED use among hardcore gym cultures (Gibbs, Salinas, & Turnock, 2022), indicating a need to be aware of such influences. With economic decline in mind, especially in the context of rural spaces where physical labor may have been paramount in individual identity formulation, we can consider the role of IPEDs use in upholding and sustaining such identities and associated expressions of masculinity in light of the decline and subsequent disappearance of such industry.

Building on this, it is finally important to consider how harms relating to polydrug use among rural IPED-using populations might also differ from those in other geographies. Several studies have highlighted correlations between IPED use and the use of a variety of polydrugs, particularly stimulants, and how user motivations and cultural factors shape these, suggesting this is an important area for harm reduction efforts to focus on (Piatkowski et al., 2021; Salinas et al., 2019; Zahnow et al., 2020). With much work documenting the link between rurality and opioid harms (particularly in the US), often linked with deprivation and a cultural inheritance of hard labor in these regions (e.g., Cloud et al., 2019; Leukefeld et al., 2007), it is interesting to consider the links between rural geographies and such

drug use in the context of IPED users, despite the UK not witnessing the same degree of issues with rural opioid harms as seen in, for example, the US (Turnock, 2021b).

As with the suggestion that IPED use may be linked to desires to continue "grafting" through pain and injury, whether in the gym or when laboring, poly-use of opioids to mask pain may similarly be heightened in regions where there is either a prevalence of hard physical work, or a cultural inheritance of this and decline of industry. In Turnock (2021b) the prevalence of opioid use was discussed in the context of powerlifters in remote regions using these drugs to deal with injury pain and bodily strains, and these findings are likely indicative of a need for increased awareness of harms associated with such use among other rural populations, where opioid access may be somewhat normalized for strain-related pain relief (Thomas et al., 2020). While opioid use among gym goers is by no means unique to rural locales or those holding rural conceptions of masculinity (Sagoe et al., 2015), it is nonetheless clear that geographic influences are worth paying attention to when discussing harm reduction for rural IPED-using populations, and those in more deprived regions where opioids and similar drugs are more prevalent will likely need interventions which explicitly acknowledge this form of polydrug use, despite stimulant and alcohol use remaining a greater polydrug risk for IPED users more broadly (Piatkowski et al., 2021; Zahnow et al., 2020).

Discussion and Conclusion

While transport limitations and physical access to specialist services were highlighted as issues by participants, this was generally identified as an exacerbating factor on top of more significant barriers, surrounding perceptions of stigma and distrust of HCPs. While there are many similarities between rural users' reasons for non-engagement with these services and observations in works exploring other IPED-using populations (Harvey et al., 2020; Simmonds & Coomber, 2009), the compounding effects of rurality and living in a remote deprived area exacerbated these issues, with the impacts of small town surveillance and stigma, as well as greater concerns over the personal impacts of being identified as a user on employment prospects clearly coming through in the research findings. As such, while not greatly distinct from the barriers identified in the broader IPED harm reduction literature, the findings of this research nonetheless support the suggestion that more attention needs to be given to variations in use and service access based on geographic and linked factors (Dunn et al., 2016; Hope et al., 2022), contributing to addressing the observed gap in the literature here. Additionally, findings also support the suggestion that estimates regarding levels of use in given geographies based on NSP data may not offer a reliable picture of the realities of use in a given population (Hope et al., 2022), highlighting the need for continued in-depth research into these cultures across geographies.

Findings regarding barriers to service access contribute to the increasing body of work regarding how harm reduction can be better tailored to suit the needs and desires of IPED-using populations, and increase their engagement with NSP, HCP and other services (Harvey et al., 2020; Piatkowski et al., 2022; Zahnow et al., 2017). Anonymity was a key theme which came through in this research, both in relation to the need to access injecting equipment and advice in a context where one could not be identified by neighbors and friends, made difficult by small town contexts, as well as in relation to being able to seek health advice and monitoring without risking this being permanently recorded on medical records, in a way which could harm future employment prospects. Deprivation and the lack of career prospects thus constituted a key aspect of the risk environment of the men surveyed, with class playing a significant role in access to harm reduction services in the research. With many perceiving they had few career prospects outside of the military owing to their working-class rural backgrounds, it is clear how the intersections of class and distance shaped the risks to which they were exposed, owing to the barriers these created to accessing harm reduction services. On a smaller scale, this economic stratification also played out in differences in ability to travel to more urban locales, with those who could drive to specialist NSP able to access better information and services than those who could not,

who had to rely on the supply of needles and harm reduction information from those who did. Economic deprivation and class thus shape the rural risk environment for IPED users, and the ability of public health to deliver effective harm reduction to this population.

With recent research exploring the ways in which health services may better address the needs of IPED users to increase engagement (Atkinson et al., 2021; Bates et al., 2021; Harvey et al., 2020), awareness regarding how concerns over stigma and a need for anonymity may vary geographically, and be heightened within certain user populations, particularly among those from deprived rural backgrounds, will also be worth considering in continued policy development. It is clear, however, that hesitance to engage with HCP may be more pronounced among specific populations, and concerns regarding employment in particular may make increasing HCP's knowledge of IPEDs an insufficient—albeit still valuable—approach to addressing the lack of help seeking within these populations. Focusing on how to encourage engagement among populations who may believe their future careers and life goals could be at risk in doing so, as well as those who are too remote to access regular harm reduction services, is therefore important in reducing the risks identified in this article.

With both physical barriers and a perceived need to access advice without being seen or recorded key factors in the present research, it is worth noting the suggestion from recent works that peer mentors conducting outreach in gyms might be an effective policy for increasing engagement with harm reduction advice and services (Gibbs, Cox, & Turnock, 2022; Piatkowski et al., 2022), as this would address the key concerns raised by rural gym users in each of these domains. With the more informed IPED users in the present research (competitive powerlifters and bodybuilders) often obtaining their initial knowledge through more experienced peers in gyms, following patterns observed elsewhere (van de Ven & Mulrooney, 2017), it is clear that policies which utilize such culturally embedded peer networks have scope to be adopted in remote gyms, if effective harm reduction training can be provided for reputable gym members. While there are questions regarding the precise logistics of how such harm reduction outreach should operate, and the specific resources required, this is an area that is currently being focused on by both researchers and community participants (Gibbs, Cox, & Turnock, 2022). With both community outreach workers and mobile harm reduction outreach having been shown to be effective policies in other contexts (e.g., Owczarzak et al., 2020; Shorter et al., 2022), this is likely an appropriate avenue to focus on, given such outreach would particularly benefit gym users facing barriers to accessing existing services, and reduce the identified issues with stigma and concerns over medical records. Policies such as trained outreach workers are therefore likely to be an even more valuable avenue for policy makers to pursue when considering remote/rural users than in contexts previously explored.

While the impact of masculinities is perhaps harder to unpack, findings nonetheless indicate that cultural conceptions of masculinity must be considered in discussing IPED use and harm, even when focusing on service access. Work to address issues in HCP access must consider not only perceptions of stigma among IPED users, but also appropriate messaging to navigate self-stigma surrounding healthcare access among rural men, and other geographic populations where orthodox conceptions of masculinity are more prevalent. With recent discussions highlighting the importance of addressing self-stigma around help seeking among suicidal men (e.g., Clary et al., 2021; Oliffe et al., 2020), policies which consider how to shift understandings of masculinity in relation to help-seeking more broadly may also contribute to the issue of IPED users' non-engagement with services, particularly in geographies where such narratives of masculinity are dominant.

Of course, these characteristics of rurality are not experienced in isolation, and it is the compounding nature of which may drive user behavior and risk harmful outcomes. Indeed, going back to the example on domestic and family violence, it is not only an issue of social density and access to services, but also wider socio-cultural change in relation to gender roles and expressions of masculinity as well as how may be impacted and shaped by economic decline. Likewise, is it necessary to consider

holistically the myriad ways in which locational context and cultural geography may shape IPED use and access to related services, including associated harms and opportunities for intervention.

While this research has made contributions to knowledge in relation to the ways in which rurality shapes IPED use, harms and service access, findings also suggest a need for continued in-depth research into geographic variations in relation to these factors, as argued by Hope et al. (2022). Significantly, with drug policy an important aspect of the risk environment for IPED users (Henning & Andreasson, 2022), continued work examining geographic variations in differing international policies contexts is likely to be significant. With the UK something of an outlier in its approach to steroids—criminalizing supply but decriminalizing possession (Bates et al., 2021)—further work into how policy contexts shape the risk environment (Henning & Andreasson, 2022) is likely to compliment continued examination of geographic impacts, particularly in countries where there exist greater distances and cultural divides between rural and (sub)urban populations than in the UK, and harms may be exaggerated further still.

Finally, while this article has focused on harms associated with IPED use, it is important to acknowledge that IPED supply may also be shaped by other geographic factors, which may also impact on the risk environment of users. While Turnock (2021b) discusses how geography may shape IPED and polydrug markets, specific work investigating the impacts that rurality has on supply and access will likely be beneficial to understanding rural users' risk environment, following understanding from works examining illicit drug markets (Moyle & Coomber, 2018; Thomas et al., 2020). With recent works discussing harms linked to disruption in IPED markets owing to Covid-19 lockdowns (Dunn & Piatkowski, 2021; Gibbs, 2021), and rural markets likely to be particularly susceptible to disruption, this highlights a need for ongoing work investigating rural IPED-using populations and harms more broadly.

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References

Allen, S. T., Grieb, S. M., O'Rourke, A., Yoder, R., Planchet, E., White, R. H., & Sherman, S. G. (2019). Understanding the public health consequences of suspending a rural syringe services program: A qualitative study of the experiences of people who inject drugs. *Harm Reduction Journal*, *16*(1), 1–10. https://doi.org/10.1186/s12954-019-0305-7

Alston, M., & Kent, J. (2008). The Big Dry: The link between rural masculinities and poor health outcomes for farming men. *Journal of Sociology*, *44*(2), 133–147. https://doi.org/10.1177/1440783308089166

Anderson, E. (2010). *Inclusive masculinity: The changing nature of masculinities*. Routledge.

Andreasson, J., & Johansson, T. (2016). Gender, fitness doping and the genetic max. The ambivalent construction of muscular masculinities in an online community. *Social Sciences*, *5*(1), 11. https://doi.org/10.3390/socsci5010011

Antonopoulos, G., & Hall, A. (2016). 'Gain with no pain': Anabolic-androgenic steroids trafficking in the UK. *European Journal of Criminology*, *13*(6), 696–713. https://doi.org/10.1177/1477370816633261

Atkinson, A. M., van de Ven, K., Cunningham, M., de Zeeuw, T., Hibbert, E., Forlini, C., Barkoukis, V., & Sumnall, H. R. (2021). Performance and image enhancing drug interventions aimed at increasing knowledge among healthcare professionals (HCP): Reflections on the implementation of the Dopinglinkki e-module in Europe and Australia in the HCP workforce. *International Journal of Drug Policy*, *95*, 103141. https://doi.org/10.1016/j.drugpo.2021.103141

Barclay, E., Donnermeyer, J. F., & Jobes, P. C. (2004). The dark side of gemeinschaft: Criminality within rural communities. *Crime Prevention and Community Safety*, *6*(3), 7–22. https://doi.org/10.1057/palgrave.cpcs.8140191

Bates, G., & McVeigh, J. (2016). *Image and performance enhancing drugs*. National IPED INFO Survey. Liverpool John Moores University Centre for Public Health.

Bates, G., McVeigh, J., & Leavey, C. (2021). Looking beyond the provision of injecting equipment to people who use anabolic androgenic steroids: Harm reduction and behavior change goals for UK policy. *Contemporary Drug Problems*, *48*(2), 135–150. https://doi.org/10.1177/0091450921998701

Bates, G., Ralphs, R., Bond, V. W., Boardley, I., Hope, V., van Hout, M. C., & McVeigh, J. (2022). Systems mapping to understand complexity in the association between image and performance enhancing drugs (IPEDs) and harm. *International Journal of Drug Policy*, *107*, 103801. https://doi.org/10.1016/j.drugpo.2022.103801

Blackman, S. (2016). The emotional imagination: Exploring critical ventriloquy and emotional edgework in reflexive sociological ethnography with young people. In S. Blackman & M. Kempson (Eds.), *The subcultural imagination* (pp. 65–79). Routledge.

Bonnecaze, A. K., O'Connor, T., & Aloi, J. A. (2020). Characteristics and attitudes of men using anabolic androgenic steroids (AAS): A survey of 2385 men. *American Journal of Men's Health*, *14*(6), 1557988320966536. https://doi.org/10.1177/1557988320966536

Bosworth, G., & Willett, J. (2011). Embeddedness or escapism? Rural perceptions and economic development in Cornwall and Northumberland. *Sociologia Ruralis*, *51*(2), 195–214. https://doi.org/10.1111/j.1467-9523.2011.00533.x

Brennan, R., Wells, J. S., & van Hout, M. C. (2017). The injecting use of image and performance-enhancing drugs (IPED) in the general population: A systematic review. *Health & Social Care in the Community*, *25*(5), 1459–1531. https://doi.org/10.1111/hsc.12326

Browne, T., Priester, M. A., Clone, S., Iachini, A., DeHart, D., & Hock, R. (2016). Barriers and facilitators to substance use treatment in the rural south: A qualitative study. *The Journal of Rural Health*, *32*(1), 92–101. https://doi.org/10.1111/jrh.12129

Bryant, L., & Garnham, B. (2015). The fallen hero: Masculinity, shame and farmer suicide in Australia. *Gender, Place & Culture*, *22*(1), 67–82. https://doi.org/10.1080/0966369X.2013.855628

Bye, L. M. (2009). 'How to be a rural man': Young men's performances and negotiations of rural masculinities. *Journal of Rural Studies*, *25*(3), 278–288. https://doi.org/10.1016/j.jrurstud.2009.03.002

Campbell, H., Bell, M. M., & Finney, M. (2006). *Country boys: Masculinity and rural life*. Penn State Press.

Campo, M., & Tayton, S. (2015). *Domestic and family violence in regional, rural and remote communities: An overview of key issues*. Australian Institute of Family Studies. https://aifs.gov.au/sites/default/files/publication-documents/cfca-resource-dv-regional_0.pdf

Carrington, K., McIntosh, A., Hogg, R., & Scott, J. (2013). Rural masculinities and the internalisation of violence in agricultural communities. *International Journal of Rural Criminology*, *2*(1), 3–24. https://doi.org/10.18061/1811/58849

Carrington, K., & Scott, J. (2008). Masculinity, rurality and violence. *The British Journal of Criminology*, *48*(5), 641–666. https://doi.org/10.1093/bjc/azn031

Charmaz, K. (2014). *Constructing grounded theory*. SAGE.

Christiansen, A. V., Vinther, A. S., & Liokaftos, D. (2017). Outline of a typology of men's use of anabolic androgenic steroids in fitness and strength training environments. *Drugs: Education, Prevention and Policy*, *24*(3), 295–305. https://doi.org/10.1080/09687637.2016.1231173

Clary, K. L., Pena, S., & Smith, D. C. (2021). Masculinity and stigma among emerging adult military members and veterans: Implications for encouraging help-seeking. *Current Psychology*, 1–17. https://doi.org/10.1007/s12144-021-01768-7

Cleary, A. (2012). Suicidal action, emotional expression, and the performance of masculinities. *Social Science & Medicine*, *74*(4), 498–505. https://doi.org/10.1016/j.socscimed.2011.08.002

Cloke, P. (2006). Conceptualizing rurality. In P. Cloke, T. Marsden, & P. Mooney (Eds.), *Handbook of rural studies* (pp. 18–28). SAGE.

Cloud, D. H., Ibragimov, U., Prood, N., Young, A. M., & Cooper, H. L. (2019). Rural risk environments for hepatitis C among young adults in Appalachian Kentucky. *International Journal of Drug Policy*, *72*, 47–54. https://doi.org/10.1016/j.drugpo.2019.05.006

Coen, S. E., Oliffe, J. L., Johnson, J. L., & Kelly, M. T. (2013). Looking for Mr. PG: Masculinities and men's depression in a northern resource-based Canadian community. *Health & Place*, *21*, 94–101. https://doi.org/10.1016/j.healthplace.2013.01.011

Coomber, R., & Moyle, L. (2018). The changing shape of street-level heroin and crack supply in England: Commuting, holidaying and cuckooing drug dealers across 'county lines'. *The British Journal of Criminology*, *58*(6), 1323–1342. https://doi.org/10.1093/bjc/azx068

Cooper, H. L., Bossak, B., Tempalski, B., Des Jarlais, D. C., & Friedman, S. R. (2009). Geographic approaches to quantifying the risk environment: Drug-related law enforcement and access to syringe exchange programmes. *International Journal of Drug Policy*, *20*(3), 217–226. https://doi.org/10.1016/j.drugpo.2008.08.008

Cooper, H. L., & Tempalski, B. (2014). Integrating place into research on drug use, drug users' health, and drug policy. *International Journal of Drug Policy*, *25*(3), 503. https://doi.org/10.1016/j.drugpo.2014.03.004

Creighton, G., Oliffe, J., Ogrodniczuk, J., & Frank, B. (2017). "You've gotta be that tough crust exterior man": Depression and suicide in rural-based men. *Qualitative Health Research*, *27*(12), 1882–1891. https://doi.org/10.1177/1049732317718148

Dunn, M., Henshaw, R., & McKay, F. H. (2016). Do performance and image enhancing drug users in regional Queensland experience difficulty accessing health services? *Drug and Alcohol Review*, *35*(4), 377–382. https://doi.org/10.1111/dar.12363

Dunn, M., Mulrooney, K. J., Forlini, C., van de Ven, K., & Underwood, M. (2021). The pharmaceuticalisation of 'healthy' ageing: Testosterone enhancement for longevity. *International Journal of Drug Policy*, *95*, 103159. https://doi.org/10.1016/j.drugpo.2021.103159

Dunn, M., & Piatkowski, T. (2021). Investigating the impact of COVID-19 on performance and image enhancing drug use. *Harm Reduction Journal*, *18*(1), 1–8. https://doi.org/10.1186/s12954-021-00571-8

Ellis, A. (2016). *Men, masculinities and violence: An ethnographic study*. Routledge.

Eurostat. (2019). *GDP per capita in 281 EU regions*. Eurostat News Release. Retrieved July 14, 2020, from https://ec.europa.eu/eurostat/documents/2995521/9618249/1-26022019-AP-EN.pdf/f765d183-c3d2-4e2f-9256-cc6665909c80

Evans-Brown, M., McVeigh, J., Perkins, C., & Bellis, M. A. (2012). *Human enhancement drugs: The emerging challenges to public health*. North West Public Health Observatory.

Fadanelli, M., Cloud, D. H., Ibragimov, U., Ballard, A. M., Prood, N., Young, A. M., & Cooper, H. L. (2020). People, places, and stigma: A qualitative study exploring the overdose risk environment in rural Kentucky. *International Journal of Drug Policy*, *85*, 102588. https://doi.org/10.1016/j.drugpo.2019.11.001

Fussell, S. (1991). *Muscle: Confessions of an unlikely bodybuilder*. Poseidon Press.

Gibbs, N. (2021). 'No one's going to buy steroids for a home workout': The impact of the national lockdown on hardcore gym users, anabolic steroid consumption and the image and performance enhancing drugs market. *Journal of Contemporary Crime, Harm, and Ethics*, *1*(1), 45–62. https://doi.org/10.19164/jcche.v1i1.1120

Gibbs, N., Cox, L., & Turnock, L. (2022). Anabolics coaching: Emic harm reduction or a public health concern? *Performance Enhancement & Health*, *10*, 100227. https://doi.org/10.1016/j.peh.2022.100227

Gibbs, N., Salinas, M., & Turnock, L. A. (2022). Post-industrial masculinities and gym culture: Graft, craft and fraternity. *British Journal of Sociology*, *73*(1), 220–236. https://doi.org/10.1111/1468-4446.12921

Glaser, B. G., & Strauss, A. L. (2017). *The discovery of grounded theory: Strategies for qualitative research*. Routledge.

Hall, A., & Antonopoulos, G. A. (2016). *Fake meds online: The internet and the transnational market in illicit pharmaceuticals*. Springer.

Hammarlund, R., Crapanzano, K. A., Luce, L., Mulligan, L., & Ward, K. M. (2018). Review of the effects of self-stigma and perceived social stigma on the treatment-seeking decisions of individuals with drug- and alcohol-use disorders. *Substance Abuse and Rehabilitation*, *9*, 115. https://doi.org/10.2147/SAR.S183256

Hanley Santos, G., & Coomber, R. (2017). The risk environment of anabolic–androgenic steroid users in the UK: Examining motivations, practices and accounts of use. *International Journal of Drug Policy*, *40*, 35–43. https://doi.org/10.1016/j.drugpo.2016.11.005

Harkness, A. (2017). Crime prevention on farms: Experiences from Victoria, Australia. *International Journal of Rural Criminology*, *3*, 131–156. http://doi.org/10.18061/1811/81050

Harvey, O., Parrish, M., van Teijlingen, E., & Trenoweth, S. (2020). Support for non-prescribed anabolic androgenic steroids users: A qualitative exploration of their needs. *Drugs: Education, Prevention and Policy*, *27*(5), 377–386. https://doi.org/10.1080/09687637.2019.1705763

Harvey, O., Parrish, M., van Teijlingen, E., & Trenoweth, S. (2021). Libido as a motivator for starting and restarting non-prescribed anabolic androgenic steroid use among men: A mixed-methods study. *Drugs: Education, Prevention and Policy*, *29*, 276–288. https://doi.org/10.1080/09687637.2021.1882940

Henning, A., & Andreasson, J. (2022). Preventing, producing, or reducing harm? Fitness doping risk and enabling environments. *Drugs: Education, Prevention and Policy*, *29*(1), 95–104. https://doi.org/10.1080/09687637.2020.1865273

Hillyard, S. (2008). *Sociology of rural life*. Berg Publishers. https://doi.org/10.26530/OAPEN_390771

Hope, V. D., Bond, V., Boardley, I., Smith, J., Campbell, J., Bates, G., Ralphs, R., van Hout, M. C., & McVeigh, J. (2022). Anabolic androgenic steroid use population size estimation: A first stage study utilising a Delphi exercise. *Drugs: Education, Prevention and Policy*. https://doi.org/10.1080/09687637.2022.2070058

Hope, V. D., McVeigh, J., Marongiu, A., Evans-Brown, M., Smith, J., Kimergård, A., Croxford, S., Beynon, C., Parry, J., Bellis, M., & Ncube, F. (2013). Prevalence of, and risk factors for, HIV, hepatitis B and C infections among men who inject image and performance enhancing drugs: A cross-sectional study. *BMJ Open*, *3*(9), e003207. http://dx.doi.org/10.1136/bmjopen-2013-003207

Ibragimov, U., Young, A. M., & Cooper, H. L. (2020). Understanding rural risk environments for drug-related harms: Progress, challenges, and steps forward. *International Journal of Drug Policy*, *85*, 102926. https://doi.org/10.1016/j.drugpo.2020.102926

IoD. (2019). *The English indices of deprivation 2019, statistical release*. Ministry of Housing, Communities & Local Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835115/IoD2019_Statistical_Release.pdf

Jenkins, R. A., & Hagan, H. (2020). What is a rural opioid risk and policy environment? *International Journal of Drug Policy*, *85*, 102606. https://doi.org/10.1016/j.drugpo.2019.11.014

Johnson, J. L., Oliffe, J. L., Kelly, M. T., Galdas, P., & Ogrodniczuk, J. S. (2012). Men's discourses of help-seeking in the context of depression. *Sociology of Health & Illness*, *34*(3), 345–361. https://doi.org/10.1111/j.1467-9566.2011.01372.x

Kanayama, G., Hudson, J. I., & Pope, H. G., Jr. (2008). Long-term psychiatric and medical consequences of anabolic–androgenic steroid abuse: A looming public health concern? *Drug and Alcohol Dependence*, *98*(1–2), 1–12. https://doi.org/10.1016/j.drugalcdep.2008.05.004

Kanayama, G., Kaufman, M. J., & Pope, H. G., Jr. (2018). Public health impact of androgens. *Current Opinion in Endocrinology, Diabetes, and Obesity*, *25*(3), 218. https://doi.org/10.1097/MED.0000000000000404

Kimergård, A. (2015). A qualitative study of anabolic steroid use amongst gym users in the United Kingdom: Motives, beliefs and experiences. *Journal of Substance Use*, *20*(4), 288–294. https://doi.org/10.3109/14659891.2014.911977

Kimergård, A., & McVeigh, J. (2014). Variability and dilemmas in harm reduction for anabolic steroid users in the UK: A multi-area interview study. *Harm Reduction Journal*, *11*(1), 1–13. https://doi.org/10.1186/1477-7517-11-19

Klein, A. M. (1995). Life's too short to die small: Steroid use among male bodybuilders. In D. F. Sabo & D. F. Gordon (Eds.), *Men's health and illness: Gender, power, and the body* (pp. 105–120). SAGE. https://doi.org/10.4135/9781452243757.n5

Kolak, M. A., Chen, Y. T., Joyce, S., Ellis, K., Defever, K., McLuckie, C., Friedman, S., & Pho, M. T. (2020). Rural risk environments, opioid-related overdose, and infectious diseases: A multidimensional, spatial perspective. *International Journal of Drug Policy*, *85*, 102727. https://doi.org/10.1016/j.drugpo.2020.102727

Kotzé, J., & Antonopoulos, G. A. (2021). Boosting bodily capital: Maintaining masculinity, aesthetic pleasure and instrumental utility through the consumption of steroids. *Journal of Consumer Culture*, *21*(3), 683–700. https://doi.org/10.1177/1469540519846196

Leap, B. (2020). Seasonal masculinities: The seasonal contingencies of doing gender. *Men and Masculinities*, *23*(2), 348–367. https://doi.org/10.1177/1097184X18756710

Leider, J. P., Meit, M., McCullough, J. M., Resnick, B., Dekker, D., Alfonso, Y. N., & Bishai, D. (2020). The state of rural public health: Enduring needs in a new decade. *American Journal of Public Health*, *110*(9), 1283–1290. https://doi.org/10.2105/AJPH.2020.305728

Leukefeld, C., Walker, R., Havens, J., Leedham, C. A., & Tolbert, V. (2007). What does the community say: Key informant perceptions of rural prescription drug use. *Journal of Drug Issues*, *37*(3), 503–524. https://doi.org/10.1177/002204260703700302

Lunz Trujillo, K. (2022). Rural identity as a contributing factor to anti-intellectualism in the US. *Political Behavior*, *44*, 1509–1532. https://doi.org/10.1007/s11109-022-09770-w

Maycock, M. (2018). "They're all up in the gym and all that, tops off, fake tan." Embodied masculinities, bodywork and resistance within two British prisons. In M. Maycock (Ed.), *New perspectives on prison masculinities* (pp. 65–89). Palgrave Macmillan.

McDowell, L. (2011). *Redundant masculinities? Employment change and white working class youth*. John Wiley & Sons.

McVeigh, J., & Begley, E. (2017). Anabolic steroids in the UK: An increasing issue for public health. *Drugs: Education, Prevention and Policy*, *24*(3), 278–285. https://doi.org/10.1080/09687637.2016.1245713

McVeigh, J., Hearne, E., Boardley, I., Bates, G., Hope, V., Ralphs, R., & van Hout, M. C. (2021). Generating evidence on the use of Image and performance enhancing drugs in the UK: Results from a scoping review and expert consultation by the Anabolic Steroid UK network. *Harm Reduction Journal*, *18*(1), 1–12. https://doi.org/10.1186/s12954-021-00550-z

McVeigh, J., Salinas, M., & Ralphs, R. (2021). A sentinel population: The public health benefits of monitoring enhanced body builders. *International Journal of Drug Policy*, *95*, 102890. https://doi.org/10.1016/j.drugpo.2020.102890

Monaghan, L. F. (2001). *Bodybuilding, drugs and risk*. Routledge.

Monaghan, L. F. (2002). Vocabularies of motive for illicit steroid use among bodybuilders. *Social Science & Medicine*, *55*(5), 695–708. https://doi.org/10.1016/S0277-9536(01)00195-2

Nayak, A. (2003). Last of the 'Real Geordies'? White masculinities and the subcultural response to deindustrialisation. *Environment and Planning D: Society and Space*, *21*(1), 7–25. https://doi.org/10.1068/d44j

Noone, J. H., & Stephens, C. (2008). Men, masculine identities, and health care utilisation. *Sociology of Health & Illness*, *30*(5), 711–725. https://doi.org/10.1111/j.1467-9566.2008.01095.x

Oliffe, J. L., Broom, A., Rossnagel, E., Kelly, M. T., Affleck, W., & Rice, S. M. (2020). Help-seeking prior to male suicide: Bereaved men perspectives. *Social Science & Medicine*, *261*, 113173. https://doi.org/10.1016/j.socscimed.2020.113173

Owczarzak, J., Weicker, N., Urquhart, G., Morris, M., Park, J. N., & Sherman, S. G. (2020). "We know the streets": Race, place, and the politics of harm reduction. *Health & Place*, *64*, 102376. https://doi.org/10.1016/j.healthplace.2020.102376

Piatkowski, T. M., Dunn, M., White, K. M., Hides, L. M., & Obst, P. L. (2021). Exploring the harms arising from polysubstance use among performance and image enhancing drug users among young Australian men. *Performance Enhancement & Health*, *9*(3–4), 100197. https://doi.org/10.1016/j.peh.2021.100197

Piatkowski, T. M., Hides, L. M., White, K. M., Obst, P. L., & Dunn, M. (2022). Understanding harm reduction perspectives of performance and image enhancing drug consumers and health care providers. *Performance Enhancement & Health*, *10*, 100223. https://doi.org/10.1016/j.peh.2022.100223

Piatkowski, T. M., White, K. M., Hides, L. M., & Obst, P. L. (2020). Australia's Adonis: Understanding what motivates young men's lifestyle choices for enhancing their appearance. *Australian Psychologist*, *55*(2), 156–168. https://doi.org/10.1111/ap.12451

Pope, H. G., Kanayama, G., Ionescu-Pioggia, M., & Hudson, J. I. (2004). Anabolic steroid users' attitudes towards physicians. *Addiction*, *99*(9), 1189–1194. https://doi.org/10.1111/j.1360-0443.2004.00781.x

Pope, H. G., & Katz, D. L. (1994). Psychiatric and medical effects of anabolic-androgenic steroid use: A controlled study of 160 athletes. *Archives of General Psychiatry*, *51*(5), 375–382. https://doi.org/10.1001/archpsyc.1994.03950050035004

Rhodes, T. (2002). The 'risk environment': A framework for understanding and reducing drug related harm. *International Journal of Drug Policy*, *13*(2), 85–94. https://doi.org/10.1016/S0955-3959(02)00007-5

Rhodes, T. (2009). Risk environments and drug harms: A social science for harm reduction approach. *International Journal of Drug Policy*, *20*(3), 193–201. https://doi.org/10.1016/j.drugpo.2008.10.003

Richardson, A., & Antonopoulos, G. A. (2019). Anabolic-androgenic steroids (AAS) users on AAS use: Negative effects, 'code of silence', and implications for forensic and medical professionals. *Journal of Forensic and Legal Medicine*, *68*, 101871. https://doi.org/10.1016/j.jflm.2019.101871

Russell, D. J., Humphreys, J. S., Ward, B., Chisholm, M., Buykx, P., McGrail, M., & Wakerman, J. (2013). Helping policy-makers address rural health access problems. *Australian Journal of Rural Health*, *21*(2), 61–71. https://doi.org/10.1111/ajr.12023

Sagoe, D., McVeigh, J., Bjørnebekk, A., Essilfie, M. S., Andreassen, C. S., & Pallesen, S. (2015). Polypharmacy among anabolic-androgenic steroid users: A descriptive metasynthesis. *Substance Abuse Treatment, Prevention, and Policy*, *10*(1), 1–19. https://doi.org/10.1186/s13011-015-0006-5

Sagoe, D., Molde, H., Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). The global epidemiology of anabolic-androgenic steroid use: A meta-analysis and meta-regression analysis. *Annals of Epidemiology*, *24*(5), 383–398. https://doi.org/10.1016/j.annepidem.2014.01.009

Sagoe, D., & Pallesen, S. (2018). Androgen abuse epidemiology. *Current Opinion in Endocrinology & Diabetes and Obesity*, *25*(3), 185–194. https://doi.org/10.1097/MED.0000000000000403

Salinas, M., Floodgate, W., & Ralphs, R. (2019). Polydrug use and polydrug markets amongst image and performance enhancing drug users: Implications for harm reduction interventions and drug policy. *International Journal of Drug Policy*, *67*, 43–51. https://doi.org/10.1016/j.drugpo.2019.01.019

Shorter, G. W., Harris, M., McAuley, A., Trayner, K. M., & Stevens, A. (2022). The United Kingdom's first unsanctioned overdose prevention site: A proof-of-concept evaluation. *International Journal of Drug Policy*, *104*, 103670. https://doi.org/10.1016/j.drugpo.2022.103670

Showalter, D. (2020). Steps toward a theory of place effects on drug use: Risk, marginality, and opportunity in small and remote California towns. *International Journal of Drug Policy*, *85*, 102629. https://doi.org/10.1016/j.drugpo.2019.102629

Shucksmith, M. (2012). Class, power and inequality in rural areas: Beyond social exclusion? *Sociologia Ruralis*, *52*(4), 377–397. https://doi.org/10.1111/j.1467-9523.2012.00570.x

Simmonds, L., & Coomber, R. (2009). Injecting drug users: A stigmatised and stigmatising population. *International Journal of Drug Policy*, *20*(2), 121–130. https://doi.org/10.1016/j.drugpo.2007.09.002

Taylor, M., & Potter, G. R. (2013). From "Social Supply" to "Real Dealing" drift, friendship, and trust in drug-dealing careers. *Journal of Drug Issues*, *43*(4), 392–406. https://doi.org/10.1177/0022042612474974

Thomas, N., van de Ven, K., & Mulrooney, K. (2020). The impact of rurality on opioid-related harms: A systematic review of qualitative research. *International Journal of Drug Policy*, *85*, 102607. https://doi.org/10.1016/j.drugpo.2019.11.015

Tighe, B., Dunn, M., McKay, F. H., & Piatkowski, T. (2017). Information sought, information shared: Exploring performance and image enhancing drug user-facilitated harm reduction information in online forums. *Harm Reduction Journal*, *14*(1), 1–9. https://doi.org/10.1186/s12954-017-0176-8

Turnock, L. A. (2018). *"Gear is the next weed": A qualitative exploration of the beliefs, attitudes and behaviors of performance and image enhancing drug using subcultures in the South-West of England* [Doctoral thesis]. University of Winchester.

Turnock, L. A. (2021a). Rural gym spaces and masculine physical cultures in an 'age of change': Rurality, masculinity, inequalities and harm in 'the gym'. *Journal of Rural Studies*, *86*, 106–116. https://doi.org/10.1016/j.jrurstud.2021.05.013

Turnock, L. A. (2021b). Polydrug use and drug market intersections within powerlifting cultures in remote South-West England. *Performance Enhancement & Health*, *8*(4), 100186. https://doi.org/10.1016/j.peh.2021.100186

Turnock, L. A. (2022). Exploring user narratives of self-medicated black market IPED use for therapeutic & wellbeing purposes. *Performance Enhancement & Health*, *10*, 100207. https://doi.org/10.1016/j.peh.2021.100207

Turnock, L. A., & Townshend, H. D. (2022). How digital fitness forums shape IPED access, use, and community harm reduction behaviours. In A. Henning & J. Andreasson (Eds.), *Doping in fitness and sport* (pp. 155–179). Emerald. https://doi.org/10.1108/S1476-285420220000016009

Tyler, M., & Fairbrother, P. (2013). Bushfires are "men's business": The importance of gender and rural hegemonic masculinity. *Journal of Rural Studies*, *30*, 110–119. https://doi.org/10.1016/j.jrurstud.2013.01.002

Underwood, M. (2019). The unintended consequences of emphasising blood-borne virus in research on, and services for, people who inject image and performance enhancing drugs: A commentary based on enhanced bodybuilder perspectives. *International Journal of Drug Policy*, *67*, 19–23. https://doi.org/10.1016/j.drugpo.2018.11.005

Underwood, M., van de Ven, K., & Dunn, M. (2021). Testing the boundaries: Self-medicated testosterone replacement and why it is practised. *International Journal of Drug Policy*, *95*, 103087. https://doi.org/10.1016/j.drugpo.2020.103087

van Beek, I., & Chronister, K. J. (2015). Performance and image enhancing drug injectors' access to needle syringe programs: Responding to a public policy dilemma. *International Journal of Drug Policy*, *26*(9), 868–874. https://doi.org/10.1016/j.drugpo.2015.05.009

van de Ven, K., Maher, L., Wand, H., Memedovic, S., Jackson, E., & Iversen, J. (2018). Health risk and health seeking behaviours among people who inject performance and image enhancing drugs who access needle syringe programs in Australia. *Drug and Alcohol Review*, *37*(7), 837–846. https://doi.org/10.1111/dar.12831

van de Ven, K., & Mulrooney, K. J. (2017). Social suppliers: Exploring the cultural contours of the performance and image enhancing drug (PIED) market among bodybuilders in the Netherlands and Belgium. *International Journal of Drug Policy*, *40*, 6–15. https://doi.org/10.1016/j.drugpo.2016.07.009

van de Ven, K., Mulrooney, K., & McVeigh, J. (2019). *Human enhancement drugs*. Routledge.

Vinther, A. S., & Christiansen, A. V. (2019). Different users, different interventions: On the ideal typology of anabolic-androgenic steroid use and its implications for prevention, harm reduction and treatment. In K. van de Ven, K. J. D. Mulrooney, & J. McVeigh (Eds.), *Human enhancement drugs* (pp. 249–263). Routledge.

Watson, J. (2000). *Male bodies. Health, culture and identity*. Open University Press.

Whyte, I., Pattinson, E., Leyland, S., Soos, I., & Ling, J. (2021a). Performance and image enhancing drugs use in active military personnel and veterans: A contemporary review. *Translational Sports Medicine*, *4*(1), 72–87. https://doi.org/10.1002/tsm2.186

Whyte, I., Pattinson, E., Leyland, S., Soos, I., & Ling, J. (2021b). *Performance and image-enhancing drug use in military veterans*. Forces in Mind Trust.

Willett, J. (2009). *Why is Cornwall so poor? Narrative, perception and identity* [Doctoral thesis]. University of Exeter.

Willett, J., Tidy, R., Tregidga, G., & Passmore, P. (2019). Why did Cornwall vote for Brexit? Assessing the implications for EU structural funding programmes. *Environment and Planning C: Politics and Space*, *37*(8), 1343–1360. https://doi.org/10.1177/2399654419825654

Zahnow, R., McVeigh, J., Bates, G., Hope, V., Kean, J., Campbell, J., & Smith, J. (2018). Identifying a typology of men who use anabolic androgenic steroids (AAS). *International Journal of Drug Policy*, *55*, 105–112. https://doi.org/10.1016/j.drugpo.2018.02.022

Zahnow, R., McVeigh, J., Bates, G., & Winstock, A. R. (2020). Motives and correlates of anabolic-androgenic steroid use with stimulant polypharmacy. *Contemporary Drug Problems*, *47*(2), 118–135. https://doi.org/10.1177/0091450920919456

Zahnow, R., McVeigh, J., Ferris, J., & Winstock, A. (2017). Adverse effects, health service engagement, and service satisfaction among anabolic androgenic steroid users. *Contemporary Drug Problems*, *44*(1), 69–83. https://doi.org/10.1177/0091450917694268

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