**Abstract**

In recent years, Australian researchers’ interest in the use of performance and image-enhancing drugs (PIEDs) has grown, in part because PIEDs use is thought to be on the rise. In much existing research, PIED consumers are described as a new and unique cohort of service users, with distinct needs, expectations and views regarding service provision, harm reduction and risk. There is some evidence that policymakers and service providers have been unsure of how best to support this seemingly distinct cohort. Are their needs different to those of people who use other illicit drugs, or the same? How so? And how might we design services with these similarities and/or differences in mind? As these questions suggest, understandings of PIED use and our efforts to address it are often heavily reliant on comparisons, including between people who consume different kinds of drugs. This article engages with the central role of these comparisons in shaping understandings of PIED-related service delivery and design, and considers what is at stake in the drawing of comparisons. We explore these issues through an analysis of 20 interviews with Australian healthcare professionals conducted for a major research project on PIEDs. As we explain, comparison was a tool commonly used by many of our participants – a way of thinking through who PIED consumers ‘are’ and what they need. Drawing on the work of philosopher of science Isabelle Stengers (2011) and an application in research on the politics of comparison in drug treatment (Fraser & Ekendahl, 2018), we argue that such comparisons can work to reproduce normalising ideals and flawed hierarchies, with PIED consumption positioned as less desirable than ‘mainstream’ ways of being and living, but more desirable than other forms of drug use. The comparisons we identify may also concretise or naturalise differences between consumers, positioning difference as somehow linked to the individual attributes or capacities of people who use different kinds of drugs, thus foreclosing questions about the political contexts in which comparisons are made and which give them their meaning. In concluding, we encourage other ways of thinking about difference, including whether the differences identified by our participants might be shaped by forces beyond those raised in their accounts, and what this means for both future policy responses to PIED consumption and future PIED research.

**Introduction**

According to philosopher of science Isabelle Stengers (2011), comparison is an important knowledge-making technique, a deeply embedded habit of thought and practice. Comparison also plays a central role in alcohol and other drug research, service provision and policymaking. We are prone to comparing all manner of objects, subjects, processes and practices, including the effectiveness of forms of drug treatment, the strengths and weaknesses of harm reduction strategies, and the efficacy of institutions such as drug courts with other responses to drug use. So ubiquitous is comparison – as a way of thinking but also as a method – that it is rarely subjected to critical examination. This has shifted in recent years, however, through an emerging trend in the social sciences that investigates the centrality of comparison to Western thought and practice, and explores what is at stake in the making of comparisons (e.g. Deville, Guggenheim & Hrdličková, 2016; Menon, 2015; Mol, 2011; Stengers, 2011). This work has started to be taken up in alcohol and other drug research (e.g. Fraser & Ekendahl, 2018) but there is much more to be done.

This article represents an attempt to engage further with the process and significance of comparison in the field of alcohol and other drugs, with a specific focus on the use of performance and image-enhancing drugs (PIEDs) in Australia. As we explain, Australian researchers’ interest in the use of PIEDs has grown in part because it is thought to be on the rise and is therefore presenting new challenges for policymakers, service providers and researchers (Seear et al., 2015a). What do we know about PIED use, and what forms of harm might be associated with it? What services and supports do PIED consumers need? Do their needs, experiences and expectations differ from those of people who consume other kinds of illicit drugs? Are available services able to accommodate them or are new approaches required? As these common questions suggest, understandings of PIED use often rely heavily on the making of comparisons, on the interrogation of difference and of similarity. Are drug consumers the same or at least substantially similar? If they differ, how do they differ and what might we make of such differences? How and in what ways are these differences important? And what should we do with similarities and differences where they arise?

This article engages with the central role of comparison in shaping understandings of PIED consumption, service delivery and design. It also considers what is at stake in the drawing of comparisons. These issues are explored through an analysis of 20 interviews with Australian healthcare professionals conducted for a major research project on PIEDs. As we explain, many of our participants made heavy use of comparisons – a way of thinking through who PIED consumers ‘are’ and what kinds of support they need. In this article, we consider what such comparisons enable and foreclose. We turn to the work of philosopher of science Isabelle Stengers (2011), and an application in research on the politics of comparison in drug treatment (Fraser & Ekendahl, 2018) in order to explore these issues. We argue that comparative processes can work to reproduce normalising ideals and flawed hierarchies, with PIED consumption positioned as less desirable than ‘mainstream’ ways of being and living, but more desirable than other forms of drug use. When comparisons are handled uncritically, they risk concretising or naturalising differences between consumers, positioning difference as somehow linked to the individual attributes or capacities of people who use different kinds of drugs, thus foreclosing questions about the political contexts that give comparisons their meaning. We also encourage alternative ways of thinking about difference, including whether the differences identified by our participants might be shaped by forces beyond those raised in their accounts. Finally, we offer some observations about the implications of our analysis for future service provision and policy responses to PIED consumption and for future PIED research.

**Background and literature**

The category of ‘PIEDs’ is shaped by assumptions about reasons for use, and therefore comprises substances of highly variable chemical composition. It includes anabolic-androgenic steroids, anti-oestrogenic agents, beta agonists (e.g. clenbuterol), stimulants, human chorionic gonadotrophin, human growth hormone and other prohormones (Australian Bureau of Statistics, 2011; Larance et al., 2008). Anabolic-androgenic steroids are reportedly the most widely consumed PIEDs (Larance et al., 2008). As noted in the introduction, PIEDs are the subject of growing interest among policymakers, service providers and researchers, partly because their use appears to be increasing, both in Australia and elsewhere. We know, for instance, that people who use PIEDs in Australia have begun accessing needle and syringe programs (NSPs) in greater numbers (e.g. Iversen et al., 2013; McVeigh & Begley, 2017; Memedovic et al., 2017). PIED use is concentrated among men (Day et al., 2008; Iversen et al., 2013), with younger men comprising a large proportion of steroid consumers (Dillon, Copeland, & Peter, 1999; Dunn & White, 2011; Handelsman & Gupta, 1997). PIED injecting can be associated with a range of side effects such as elevated blood pressure, reproductive issues and the transmission of blood-borne viruses, particularly hepatitis C (Larance et al., 2008). Consequently, efforts to improve harm reduction responses are underway.

Research suggests that men use PIEDs for a range of reasons, including to enhance their physical appearance, to optimise athletic performance, and to improve mental and physical functioning for personal and occupational reasons (Larance et al., 2008). In a bid to improve understanding of PIED consumers, several researchers have used methods that identify patterns or themes in consumers’ motivations, psychological attributes and other characteristics, and then group them into ‘clusters’ or ‘typologies’. Together, these typological studies suggest that PIED consumers are a unique cohort of service users, with distinct attributes, needs, expectations and perspectives regarding service provision, harm reduction and risk. This is so even though they might also use other psychoactive drugs. Similarly, some research suggests that service providers find working with this apparently ‘unique’ cohort to be challenging. NSP workers are reportedly unfamiliar with the substances injected and related injecting practices, with some ambivalent about providing harm reduction support to this group because they differ from the usual NSP clients and are not perceived to be in material need (Dunn, McKay, & Iversen, 2014). Some workers have reported feeling out of their depth (Seear et al., 2015b), leading to concerns that the Australian workforce is poorly equipped to deal with the rise in PIED use (Fraser et al., 2020; Iversen et al., 2013; Seear et al., 2015b). One study (Dunn, McKay, & Iversen, 2014) recommended that NSP staff be given training so as to be better equipped to respond to the unique needs of PIED consumers. The question of how best to care for PIED consumers is complicated, however, by issues that go beyond limitations either in knowledge of these practices or staff expertise. These include the ongoing criminalisation of PIED use, possession and supply in most jurisdictions, which can shape healthcare (Fraser et al., 2020), and the resistance of some PIED consumers to harm reduction and safer injecting advice, which they associate with ‘junkies’ and ‘addicts’ (Dunn, McKay, & Iversen, 2014; Fomiatti, Lenton et al., 2020).

As even this brief summary of the literature reveals, comparisons play a central role in shaping understandings of PIED consumption. We hear, for instance, that PIED consumers are ‘unique’; different from other kinds of drug consumers, different sometimes from each other, but also sufficiently similar to permit clustering. NSP workers and researchers make comparisons, and so do consumers themselves. In such judgments we can observe the *power* of comparisons, along with the capacity of comparisons to materially shape supports, harm reduction strategies and related practices. For example, comparative logics may shape perceptions and understandings of risk, or become the framework around which services are designed and delivered. Of central concern in this article is the notion that although comparative modes of thought and practice may seem unavoidable, benign or even desirable, they can also be highly problematic. The notion, for instance, that consumers of other illicit drugs are ‘addicts’ and ‘junkies’ (Dunn, McKay, & Iversen, 2014; Fomiatti, Lenton et al., 2020), and thus more ‘at risk’ of experiencing harm than PIED consumers, stigmatises those consumers, naturalises risk, and shapes forms of harm, especially when it encourages PIED consumers to believe they are immune from forms of harm (such as blood-borne virus infection) that can be associated with injecting drugs.

These few examples suggest that something very important is at stake when comparisons are made, and that more careful thinking about what such comparisons do is required. Some of this work has already been done, although it has often emerged implicitly or tangentially alongside other areas of concern. In 2005, for instance, Helen Keane examined early examples of work documenting PIED use, analysing discourses of steroid use in medical and psychological research. Her analysis identified two dominant and equally limiting interpretations of use in the literature, these being the disordered drug abuser and the vulnerable subject insecure in his masculinity (see also Monaghan, 2001a, 2001b; Moore, Hart, Fraser, & Seear, 2019). As Keane noted, PIED consumption is often described as either ‘psychologically suspect’ or as a manifestation of ‘pathological striving’ and ‘disordered drug abuse’ (see also Latham et al., 2019). According to Keane, PIED consumption is often treated reductively, with heavy reliance on binary logics and normative assumptions. PIED use is pathologised through comparisons to normative assumptions and ideals, such as ‘acceptable’ levels of striving, as opposed to ‘excessive’ or ‘unhealthy’ ones. While Keane’s work does not explicitly rely on *comparative processes*, it nevertheless draws our attention to the central role of the comparator in the construction and interpretation of the category of PIED consumer. An analysis of social science research on PIED consumption published since Keane’s article suggests that these sorts of comparisons endure, underpinning how we have come to understand the ‘problem’ of PIED consumption:

in quantitative, and to a lesser extent qualitative, research, men who use PIEDs continue to be pathologised as insecure, low in confidence and self-esteem, susceptible to media influence, vulnerable, and as marked by ‘obsession’, ‘compensatory behaviours’ and crisis. (Moore et al., 2019: 4)

In contrast, some of our previous work has sought to undo these normative logics and claims, in a bid to think differently about PIED consumption (e.g. Fomiatti, Latham et al., 2019; Fomiatti, Lenton et al., 2020). This article builds on such work, and is similarly concerned with moving beyond the reductive and normalising tendencies evident in some PIED scholarship. To do so, we focus explicitly on comparison, engaging with its role in healthcare professionals’ accounts of PIED use to consider what kinds of comparisons are made and with what possible effects, and to ask what is at stake in the drawing of comparisons.

Theoretical approach

Comparison – whether in research or elsewhere – is an important knowledge-making technique, a deeply embedded habit of thought and practice (Stengers, 2011). In recent years, several researchers (including Stengers) have turned their attention to the critical study of comparison (e.g. Deville, Guggenheim, & Hrdličková, 2016; Menon, 2015; Mol, 2011; Stengers, 2011). A key insight from this work is that comparison is not simply a neutral tool for discovery but an inherently political process of making knowledge and worlds (Deville, Guggenheim, & Hrdličková, 2016). For instance, linked to imperial projects, and the dehumanisation of women and other groups,

comparison was used in the colonial project to ostensibly correct or improve colonial peoples and, in the process, the integrity and wholeness of the other was denied. Comparison was therefore identified as epistemologically compromised. (Fraser & Ekendahl, 2018: 91-92; see also Deville, Guggenheim, & Hrdličková, 2016)

Historically, ‘major European powers’ charted and ranked Indigenous peoples against each other and against animals, based on the view that Indigenous peoples were ‘“nearly human”, “almost human” or “sub-human”’ (Tuhiwai-Smith, 2012: 60). These techniques positioned Western subjects as superior, furthering imperialist projects. According to Stuart Hall (1992), comparative modes were also involved in constituting the very *idea* of the West. In turn, the idea of the West as distinct from ‘the rest’ was productive, becoming ‘the organizing factor in a system of global power relations *and* the organizing concept or term in a whole way of thinking and speaking’ (Hall, 1992: 187).

Despite the obvious flaws of such comparative practices and the purposes to which they have been put, comparison is also, as Stengers (2011) points out, ubiquitous. This ubiquity is also a feature, we argue, of alcohol and other drug scholarship and practice, and poses similar risks of dehumanisation. An important question thus arises: if we cannot avoid comparisons altogether, might there be ways to work with comparison towards better and more just ends? Here, Stengers’ work is especially useful in that it offers a way of thinking beyond binaries when discussing what to make of (or do with) comparison. Drawing on ideas from French theorist Charles Péguy, Stengers takes issue not with comparisons *per se* but with comparisons that are handled poorly. As she explains:

no comparison is legitimate if the parties compared cannot each present his [sic] own version of what the comparison is about; and each must be able to resist the imposition of irrelevant criteria. In other words, comparison must not be unilateral and, especially, must not be conducted in the language of just one of the parties. (Stengers, 2011: 56-57)

Stengers offers her own vision of valid comparison, informed, most directly, by Péguy. As she explains, her concept of valid comparison draws on the etymology of ‘comparison’ (*compar*) which ‘designates those who regard each other as equals — that is, as able to agree, which means also able to disagree, object, negotiate, and contest’ (Stengers, 2011: 63). In this way, valid comparison is an exercise in which, following Péguy, one does not seek to ‘prey upon’ or ‘weaken’ the other (Stengers, 2011: 56).

Stengers also identifies the work of the English mathematician and philosopher Alfred Whitehead as central to her approach. One of the most important philosophers of the 20th century, Whitehead is also a key inspiration for the ontological turn. Stengers has helped revive an interest in his work in recent years, particularly through her book on thinking with Whitehead (Stengers, 2014). In all of this work, Stengers is inspired by Whitehead’s critique of the bifurcation of nature, an observation that is of great value for critical drug scholarship. Part of Stengers’ analysis involves careful clarification that she is not accusing science of merely ‘making up’ reality or that she espouses epistemological relativism. Referencing Whitehead’s work in her critique of relativism and defence of the experimental sciences, Stengers explains:

I refuse to be content with any ‘relativist’ claim about experimental scientists only ‘believing’ that they discover in nature more than is observable at first sight. It may well be that those scientists’ attention functions like a sieve or filter, but it does not follow that what they retain is only what they have already, unilaterally, defined as significant. The question is rather: *‘To what,’ in Whitehead’s words, ‘do they pay due attention?’* (2011: 49; emphasis added)

Stengers’ ruminations provide the inspiration for Fraser and Ekendahl’s (2018) analysis of the politics of comparison in professional accounts of drug treatment. In concluding their analysis, they explain that:

Evident in such an analysis is a tension between the plurality posited by the interview participants (treatment must be varied, specific and holistic as people are different) and the universalising goal of producing change or transformation within these purportedly different individuals. Despite the oft-stated desire to respect this difference, that is, we find the logic of comparison set up in such a way that affected individuals are consistently compared with implicitly normal people and encouraged to change; to become more ‘normal’. The value in using comparative thinking as a lens for this analysis becomes evident here. What kinds of comparisons, we might ask, could instead be drawn here? (Fraser & Ekendahl, 2018: 102)

Applied to the present context, these provocations raise important questions about how to approach comparison. It requires us to think through whether the comparisons being drawn are unilateral and/or conducted in the language of just one party, whether they allow room for negotiation or contest, what is attended to (or ignored) in the drawing of a comparison and what other comparisons might be possible. In what follows, we take up these ideas to consider comparisons being drawn in relation to PIEDs. Before doing so, we outline the method for our research, including how we analyse our data in light of the theoretical approaches outlined above.

**Method**

This article draws on interviews conducted with 20 Australian health professionals (from general practice, pharmacy, sports science and harm reduction) for a project aiming in part to explore their views on PIED use and appropriate harm reduction strategies. The interviews were collected in 2018 and 2019, with participants recruited through key organisations, snowballing and targeted invitations. The dataset comprised general practitioners (GPs, n=5), pharmacists (n=4), sports science practitioners (n=3) and NSP workers (n=8). Collected alongside interviews with men who injected PIEDs, the interviews formed part of a project aiming to generate new insights into the development of more appropriate and sensitive harm reduction information, engagement strategies and hepatitis C prevention resources. The interviews with health professionals covered a range of topics including perspectives on the meanings and motivations associated with PIED consumption, service encounters, health concerns and the provision of harm reduction information. Digitally recorded, they were transcribed verbatim and imported into NVivo 11 for management and coding. A coding framework was generated using a combination of methods. We identified codes based on previous research on PIED consumption and emerging themes in the interview data, and in consultation with the project’s advisory board, which comprised peer advocates, health and policy professionals, and fitness industry representation. All the participants were assigned pseudonyms to protect their identities, and any potentially identifying details were removed from the transcripts. The project received ethics approval from the Human Research Ethics Committees at Curtin University and La Trobe University. More detail on this research project, and the background research that informs it, has been published elsewhere (e.g. Fomiatti, Lenton et al., 2020). The project was funded by the Australian Research Council’s Discovery Project scheme (Ref: DP170100302).

As we noted at the outset of this article, one of our central concerns in this project was to explore the informational needs and concerns of men who use PIEDs and to consider how services could respond to these needs. In the context of asking service professionals about their experiences with PIED consumers, we asked them to describe a ‘typical encounter’ with a man who injects PIEDs, and what made it typical. We also asked them how such an encounter unfolded. As we will see, several practitioners responded to our question with an account of a typical *consumer* and, thereafter, with an account of how typical PIED consumers differ from other kinds of drug consumers. In this sense, comparisons emerged somewhat organically (even if initially prompted by our ‘typical encounter’ question). On other occasions, we asked health professional participants to reflect on the similarities and differences they articulated between men who use PIEDs and people who use other drugs. Thus, in the sections that follow, we focus in particular on how comparison figured in the accounts of our participants. We also focus on what is attended to (or ignored) in the drawing of comparisons regarding PIED consumers and whether other comparisons might be possible.

**Analysis**

***Making the ‘typical’ PIEDs consumer***

Health professionals expressed clear views about who PIED consumers were and about their needs and concerns, describing unique attributes, capacities, motivations and concerns. As we have explained in the methods section, these responses were often elicited in response to our question framed around typical *encounters*, sometimes apparently interpreted as being about typical *consumers*. For instance, when asked about typical encounters with PIED consumers, Sahir, a pharmacist, responded that ‘there’s definitely a type’, and Kenneth, an NSP worker, answered by describing the main types of PIED consumers he encountered in his work:

Some people come in and they work out at the gym, and somebody suggests that they try using something, and that’s appealing to them because they’re not getting the gains from the gym that other guys are. And also a lot of people that we see are working on mine sites, and I’d say a significant proportion of them are older guys, so trying to maintain a physique and muscle mass that enables them to carry on doing [taxing fly-in, fly-out] work as their body ages is a factor. And then there is different types of peer pressure in different communities, and particularly in the gay community.

Kenneth’s account of PIED use is familiar and consistent with the main occupational and social categories of PIED consumers documented in the literature. He identifies distinct pathways into PIED consumption (body image management, employment incentives, peer pressure) and motivations for use. While most of the health professionals we interviewed adopted explicitly ‘non-judgmental’, harm-reduction-focused approaches, many simultaneously described PIED consumers as a distinct category or ‘type’ of client. Some noted that typical PIED consumers could often be identified on sight. As Andrea, an NSP worker, claimed: ‘there’s definitely a look, you know, young, healthy’. In relation to a well-publicised case in Australia, in which a public servant was stood down from his role over allegations of PIED use, Sahir, a pharmacist, said that he had been unsurprised: ‘You could kind of pick it from his haircut’. In arguing that PIED consumers could be identified on sight because of their ‘healthy’ look or other defining features, muscularity, distinctive clothing and choice of car were cited. As Julia, an NSP worker noted, for instance:

That’s, you know, quite obvious, just with the cars that they’re driving and the clothing that they’re wearing and the general appearance of them.

In these accounts, there are two notable aspects. First, there is the tendency to constitute PIED consumers as a distinct category or ‘type’ of client, with common ‘characteristics’ and ‘attributes’. These accounts may concretise the apparently self-evident and clearly defined ‘category’ of the typical PIED consumer. Importantly, although these consumers appear to pre-exist our participants’ accounts, following Stengers we can argue that instead they are *constituted through processes of articulation*, as our interviewees assemble a range of human and non-human elements (clothing, affect, material possessions, and so on) into concrete consumer ‘types’ and assign different bodies/subjects to these ostensibly unique ‘categories’. Second, we note that the ostensibly ‘typical’ consumer is defined in terms that also implicitly construct consumers of other kinds of drugs as different – in their presentation, access to resources and so on. As we will explain, several of our interviewees mobilised such comparisons *explicitly*, raising vital political and ethical questions.

Importantly, the emphasis on appearance and image identified by health professionals as part of PIED consumers’ motivations (an emphasis which is also evident in scientific research on motivations for PIED consumption) became an occasion for judgment in that many problematised it as excessive. According to Victor (pharmacist), for example, for PIED consumers, ‘image is everything’. As Florence, a GP, also noted: ‘the bottom line is that it is a body image issue’. The account offered by Leon (NSP worker) was emblematic of a tendency to go further and pathologise some PIED consumers:

There’s the gym junkie group, but they’re most addicted to their lifestyle and the gyms, and they know that they just got caught up in the more psychological side of it rather than the physiological side.

Similarly, some health care professionals asserted that people who used PIEDs often had ‘a lot of the self-esteem issues’ (Sahir, pharmacist), including body dysmorphia. Lester, a sport science practitioner, observed that ‘a lot of the heavyweights and the larger people definitely have got that style of disorder which is underneath, and they’re not happy unless they’re big’. These perspectives are ultimately unsurprising given the ready availability of psychologising explanatory frameworks such as body image and eating disorder psychopathology, exercise addiction and muscle dysmorphia in much research and many health promotion resources on men’s PIED consumption (Keane, 2005; Moore et al., 2019). Given these tendencies, resorting to depictions of PIED consumer ‘types’ is also unsurprising. Of course, there is more going on here. Comparison is, for instance, a key component of these articulations in that the construction of ‘typical’ consumers as pathological or disordered relies on comparisons with normative conceptualisations of healthy body image (see also Keane, 2005). The characteristics and shortcomings of the ‘typical’ PIEDs consumer – understood to be a specific and distinct kind of drug consumer – are thus constituted in part by comparisons to an imagined normal male subject. In turn, these comparisons reproduce normative aspirations and ideals, including ideas about what matters or counts as valuable, and how much energy should be devoted to bodily cultivation and ideals. Importantly, these accounts also generate a hierarchy – one in which PIED consumers’ lifestyles are self-evidently inferior to those of the imagined, ‘normal’ male subject. The imagined, normal male subject is constituted as the (assumed) benchmark against which other subjects are to be assessed.

In contrast to other areas of life (such as work, study, artistic hobbies and parenting) where commitment and perseverance are highly valued, men’s dedication to and focus on PIED use and exercise was often described as excessively regimented. As Wade, a GP, explained:

So they had this obsession with image and with diet, like having to eat only certain foods at a certain time of day. Many of the guys couldn’t have a long-term relationship with a woman if they were heterosexual because there was no time for a female in all of that. They couldn’t hold down regular jobs, many of them. They were either doing security work or they were selling PIEDs or whatever to finance their lives. Even going to a movie, you know, they go halfway into a movie, their alarm would go off, they’d have to go out and eat half a dozen egg whites or something, you know. Their whole life was totally regimented and revolved around diet and exercise and, to me as an outsider, it seemed a very unhealthy, not a balanced, way of living a life.

As in the earlier observations, Wade’s account constitutes PIED consumers as obsessive, excessively regimented, unhealthy and unbalanced. They are, he indicates, incapable of living up to (hetero)normative expectations of contemporary life (stable employment and heterosexual relationships). In other words, if we focus on what is being paid due attention in Wade’s account (following Stengers, 2011), we see that once again, the ‘problem’ of PIED use is constituted via a series of comparisons with a set of culturally valorised attributes and activities. The limits of this kind of generalising portrait will be evident to many. Previous literature on drug use has cautioned against both generalising portraits of people who use drugs and pathologisation, noting the tendency of such practices to exacerbate stigma (e.g. Brook & Stringer, 2005; Fraser & Moore, 2008; Keane, 2002; Moore & Fraser, 2006). Carefully analysing accounts such as Wade’s enables us to identify precisely how such pathologisation arises and the central role of comparison in the production and concretisation of stigmatising ideas. Importantly, other ways of thinking about the practice of PIED consumption might be open to us. These possibilities might also be accessed via the making of different comparisons, as Stengers reminds us, especially where those comparisons engage more readily with the language of both parties. We know from other research into men’s experiences of PIED consumption that, like many other modern subjects, they are merely responding to normative injunctions to work on the self in ‘make-over’ culture ‘within which we are all implicated’ (Latham et al., 2019: 160). Viewed this way, PIED consumption may not be uniquely or distinctly pathological and disordered. We also note that accounts such as Wade’s also rely on the voluntarity/compulsivity binary that has historically dominated much drug research, and fail to engage with the possibility that repetition and regimentation may be experienced as health-giving, life-affirming and productive among some people who use drugs (Seear & Fraser, 2010).

***Making other drug consumers via comparison***

Many practitioners emphasised their abiding interest in, care for and concern about the health and wellbeing of men who use PIEDs. As discussed above, this process of reflecting on PIED consumption and its relationship to health and wellbeing often involved an assessment – not just about what kinds of people might use PIEDs and why, but about how this group of consumers differed from other drug consumers. PIED consumers were described as ‘totally, totally different’ (Sahir, pharmacist) from other drug consumers, ‘a totally different crowd’ (Andrea, NSP worker) or ‘visually very different’ (Marina, NSP worker), and these differences were frequently described as easy to visually identify. In this sense, accounts of typical PIED consumers were enacted in part through a comparative exercise: a contrast between what they ‘are’ and what they ‘are not’. Sometimes, these comparisons emerged organically and incidentally in health professionals’ accounts of PIED consumers. For instance, as Kenneth, an NSP worker, explained:

You know [PIED consumers] as soon as they walk in the door because they do present differently to the majority of our consumers, and especially where we’re located now, there’s a huge street-based population that use our service and obviously they don’t have access to … they don’t have money, they aren’t well dressed and they don’t have access to washing facilities and their needs are very, very basic. And so we give them what they need to keep them safe. A steroid user walks in, they’re well-groomed, well-presented, generally quite well-built if they’re not new to using steroids, and so immediately as soon as they walk through the door, you know, largely that they are a PIED consumer.

This excerpt draws us in, once more, to the politics of comparison. How might we make sense of Kenneth’s account? What choices are available to us? As Fraser and Ekendahl (2018) and Brook and Stringer (2005) remind us, the field of alcohol and other drugs is characterised by binary assumptions of many kinds. Here, we can see how research questions framed around a ‘typical’ encounter elicit this politics of comparison, reproducing binary logics around health and normality, already so dominant in the field. We might avoid reproducing problematic binaries, however, by once more taking up Stengers’ invitation to consider what is being paid ‘due attention’. So, for instance, and as a first step, we might acknowledge the politics involved in the slippage between typical *encounters* and typical *consumers* itself. Here, we are reminded of Stengers’ (2011: 63) call to ‘evaluate the relevance’ of one’s interests, including, in this case, Kenneth’s interest in the *individual consumer* over the *event of consumption*. This interest reflects the historic focus of PIED research, which, as we noted earlier, tends to focus on identifying and isolating the capacities, attributes and motivations of people who use PIEDs. We do not argue here that understanding something about these matters is irrelevant, but that thinking about the individual subject as consumer instead of the event of consumption is generative. It works to narrow the discussion, enables comparisons between subjects (of the kind described above) and risks pathologisation and stigmatisation. Inverting the focus, so that we examine the event of consumption rather than the individual subject as consumer, opens up the analysis and allows us take the comparison in a new direction. It invites us to attend to new matters, including approaching drug use and so-called drug ‘problems’ as ‘assemblages’ comprising a range of forces and elements (e.g. Duff, 2016; Farrugia, 2017; Fitzgerald, 2015; Moore et al., 2017; Seear, 2020). It also invites us to read the comparison as a negotiation between interested parties, where the language of the ‘preyed upon’ (to use Stengers’ term) might be attended to. This might lead us to read the comparison differently, as one in which Kenneth is speaking to material differences between PIED consumers (who might buy PIEDs relatively easily online) and people impoverished by the criminalisation of other drugs. We might ask why these material differences arise or persist, in a bid to move the comparison beyond the level of the individual. Or, drawing once more on Stengers (2011), we might reconsider the relevance of Kenneth’s interest in clothing, grooming and cleanliness, or even refuse its relevance altogether.

In addition to identifying differences in presentation, and as we touched upon earlier, professionals describe people who use PIEDs as inherently ‘healthier’ than other drug consumers (although sometimes this description was accompanied by a contrary claim that the obsessive focus on health was itself unhealthy, as described earlier). Together, these various comparisons between people who use PIEDs and people who consume other kinds of drugs generated another kind of hierarchy. This hierarchy differs from the one that was present in the earlier accounts on body image. In those earlier accounts, we will recall, PIED consumers were constituted as leading a lifestyle inferior to that of an imagined normal male subject; here, those who consume other kinds of drugs live a life that is inferior to the lives lived by PIED consumers. For example, Shane, a pharmacist, claimed that PIED consumers were ‘inherently healthier’ and ‘higher functioning’ than other drug consumers:

People who are more likely to use PIEDs are already inherently healthier in terms of their diet and exercise and everything is going to be pretty much on point and they’re not … yeah, they’re not in a lower socio-economic demographic. They are at a higher functioning … like they’re at a higher level.

Similarly, Wade, a GP, constituted the groups as belonging to different socio-economic classes even as he recognised the risk of stereotyping:

Look, I’ll probably start getting into stereotypes, but often, but not always, you know, people with substance abuse problems do have trouble, you know, with employment and other aspects of their health. They may not be well looked after, so they do tend to be [from a] lower socio-economic [demographic] and some of them really are an underclass. I think the Germans call it ‘*untermensch*’, you know, this underclass in society that sort of struggles on a day-to-day basis. If you’ve got the money to go [to] the gym and to eat, you know, a dozen egg whites a day and to buy your protein powders and to buy your gear, you’re probably not desperate for money. So you’re probably more likely to either hold down a job or to be able to get by in other ways. Even if you’re not, you know, very well off, you’re probably not struggling terribly.

Here, we can see how quickly practitioners’ accounts of PIED consumption extend to ruminations about difference, including the respective attributes and capacities of drug consumers. Importantly, the comparisons also invite us to assign responsibility for the problems being identified here in ways that become, once again, individualising. This also extends to speculation about how responsible different ‘types’ of drug consumers might be. Of course, we acknowledge here that differences in the accessibility of certain drugs lend support to aspects of this account, even as it misunderstands the causes of such difference. That said, it remains important to consider the risks comparison introduces: it further reifies drug consumer ‘types’ (a feature of much alcohol and other drug research – e.g. Babor et al., 1992; Ball, Carroll, Babor, & Rounsaville, 1995; Bennett, Golub, & Elliott, 2017; Peacock et al., 2016; Schönnesson et al., 2008), enacts homogeneity and difference, and obscures the forces that shape difference. These processes bring to mind classic accounts of the production of abjection in general (e.g. Butler, 1993; Sedgwick, 1994) and the production of abjection regarding alcohol and other drug use, in particular (e.g. Fraser et al., 2020; Fraser & Moore, 2011; Fraser & Seear, 2011). In other words, deliberations over what consumers ‘are like’ or who ‘they are’ can operate to hypostasise both ‘subjects’ and ‘abjects’ and naturalise forms of harm.

In turn, comparisons made unilaterally and in the language of only one of the interested parties introduce further risks. Reflecting on opportunities for disposing of used needles, for instance, Shane (pharmacist) said:

Definitely, [PIED consumers] are not … like I said, they’re not the type of person that is going to be leaving [used syringes] in a back alley behind a Woolworth’s [supermarket] or anything like that.

Implicit in Shane’s account is a sense that PIED consumers can be trusted to make more responsible decisions than other drug consumers. Indeed, later in our interview, Shane referred to other drug consumers as ‘undesirables’, and commented on their relative lack of responsibility regarding needle exchange. This instantiation of the ‘irresponsible’ drug consumer is important, not only because it aligns with common stereotypes of injecting drug use (Fraser & valentine, 2008) but because it overlaps with the counterproductive tendency of some harm reduction and health promotion campaigns to assign blame for drug-related harms to people who use drugs (Fraser, 2004). Such accounts can also undermine public and political support for measures that aim to protect people who consume drugs from harm, or position such measures as ‘more valid’ for some drug consumers than others. Such a process would in itself further entrench material and social disadvantage for people who consume other kinds of drugs.

Moreover, attempts to identify the ostensible similarities between drug consumers can be as problematic as attempts to establish differences. In the previous section, Victor (along with Sahir, Kenneth and Leon) noted differences between drug consumers, primarily in terms of body image concerns. Victor also made generalisations which then justified concerns about service provision. He was uncertain about the merits, for instance, of running a needle exchange from his pharmacy, based on a belief that it brings in an ‘undesirable aspect’. He went on to say that:

experience in previous pharmacies has shown that when you do have a needle program, […] they’ll pinch two or three things on the way out, so it’s not a desirable outcome.

Victor’s account is a little less pointed than Shane’s, noted above. In Shane’s account, individual drug consumers were explicitly positioned as ‘undesirable’, whereas here, Victor views service provision as itself introducing an undesirable ‘aspect’ or ‘outcome’. Despite this slight difference in emphasis, Victor is clearly concerned with what the consumers of harm reduction services might do, or what they are like. We can thus identify three main issues in Victor’s account. First, we can say that accounts that conflate drug consumers or speak to apparent similarities *between consumers* are not necessarily less stigmatising or problematic than descriptions of difference (Fraser & Ekendahl, 2018). Second, when health professionals reflect on the ostensibly benign question of how best to design harm reduction services, typecasting and stereotyping may emerge. These accounts can, in turn, shape both service design and provision, and the materiality of drug-related harms and effects (see Fraser & Seear, 2011). In other words, comparison becomes the logic by which PIED consumers and consumers of other drugs are constituted as similar, and the justification for denying services to all consumers. Third, it reminds us that heterogeneity, nuance and complexity may be elided via simplistic processes of comparison.

It is also important to acknowledge the variations in our participants’ accounts, whether of PIED consumers themselves or of different kinds of drug consumption (PIED vs non-PIED). For example, Kenneth (NSP worker) noted that psychological and body image struggles were ‘not typical of the whole [PIED] community’. Similarly, Nick (NSP worker) emphasised that in thinking about consumers’ motivations, health professionals were likely only able to ‘speculate’ and make ‘assumptions’ about them (given the often-acknowledged difficulty in building rapport and trusting relationships with PIED consumers). In so doing, he points to the role of a range of forces in deliberations about consumers, including the conditions of service provision and the belief that being able to understand the motivations of consumers is vital to providing them with services. These variations also remind us that comparisons are always a ‘matter of interpretation’ (Fraser & Ekendahl, 2018: 96), a key issue for research activity such as ours in that researchers too may miss such subtleties, and be tempted instead to impose order on complex and ostensibly ‘conflicting’ data of this kind (on which, see Law, 2004; Mol & Law, 2002). At those moments, researchers become what John Law (2002: 150) calls the ‘cockpit of difference’: tasked with making decisions about what to do with comparisons or apparent ‘tensions’ in data once. Rather than uncritically repeating these differences (including by concretising them as ‘truths’ about drugs), or smoothing over complexity, researchers need to actively deliberate on what to make of claims to similarity and difference (Fraser & Ekendahl, 2018). What might this deliberation actually look like? In considering these issues within the context of their work on drug treatment, and the imperative to ‘get better’, Fraser and Ekendahl (2018: 102) call for a ‘different assessment’, asking that we identify what else might need to ‘get better’ in treatment other than the individual. In the next section, we explore other ways our focus might change in PIED research.

***Moving towards different assessments***

Our analysis also identified several interviewees who were conscious of the possible problems with comparative accounts of drug consumption (whether in relation to PIEDs or other illicit drugs). For instance, Rohan, a pharmacist, articulated a desire to move beyond abjection and stigmatisation, but struggled to do so. As he explained:

I want to move away from stigmatising or categorising certain people in a certain way because in my experience, I guess, people who are injecting drug users, [who inject] heroin, for example, come in all shapes and sizes but often they become problematic in their life, in their nutrition, in their health, and you can often tell the difference between someone who might be injecting heroin and someone who might be injecting anabolic steroids, for example […] Well, this is a generalisation but people using steroids will tend to be, you know, the gym-going people […] and this doesn’t apply to everyone, but it is the majority that heroin users often are … come with all these other health issues as well: they look malnourished, they look impoverished, they look quite ill.

In this excerpt, Rohan grapples with the ubiquity of comparison, along with the challenge of drawing comparisons and highlighting differences without instantiating stigma. How might we explore PIED consumption without resorting to generalisations and pathologisations? Is it even possible? Some of our other participants grappled with these issues too, attempting to avoid the reproduction of stigma that Rohan sought to push against. For instance, Andrew, a GP, believed that PIED consumers were less stigmatised and shamed than other drug consumers, but noted that for both groups ‘there’s a bit of stigma, clearly’. Fred, a sport science practitioner, thought PIED-related stigma may emerge from a sense of ‘mistrust’. As Fred explained:

that just might be based around, you know, a sense of shame or judgment, even from someone in a role where there’s not been meant to be that judgment, so that’s where it typically shows up for me.

As Corey (a GP) noted, ‘whether they’re PIED users or whatever else, they all feel marginalised by the system, so the worst thing you can do is feed into that’. Here, Corey’s aim in pointing to the possibility of comparison is to highlight its risks. The point, however, is not to collapse all consumers together, which would merely be to undertake a new and no less troubling form of comparison, but to instead mobilise comparison in ways that *attend differently*; that bring to the fore different, less individualistic or normalising, concerns. The view taken by Lester, a sport science practitioner, offers further cause for thought for drug researchers:

the important thing is that we’re communicating with an understanding of what *their goals and requirements are in their life*, and if [consuming drugs] is what they’re doing, that’s not part of my business […] [I’m] dealing with a human being who’s doing something [and] that person’s come to [me] for help. So the good doctors are always good professionals. (emphasis added)

Lester’s comments remind us of the importance of responding to PIED consumption in ways that avoid prioritising the putative ‘deficits’ of individual consumers. We encourage those working in the field to undertake similar deliberations. How can we respect difference and commonality without reverting to universalising tendencies, goals or stereotypes? How can we ensure that we remain sensitive to difference but without reproducing politically and ethically questionable comparisons? As the foregoing analysis shows, when handled poorly, comparison risks producing and reproducing stigma by oversimplifying whole lives and diverse priorities, and by divorcing people from the socially embedded networks in which drug use is negotiated and practised. We already know that people who use drugs experience stigma and discrimination (see, e.g., Fraser et al., 2017). To the extent that any process exacerbates drug consumer hierarchies, creates perceptions of risk and difference, and shapes ideas about worthiness and unworthiness, it requires careful reconsideration.

**Conclusion**

This article has explored some of the ways comparisons function in the context of the emergence of a new and apparently ‘distinct’ or ‘unique’ form of drug consumption: that involving PIEDs. Drawing on ideas from Stengers (2011) and Fraser and Ekendahl (2018), and on interviews with 20 health professionals based in Australia, we considered what the making of comparisons within the context of PIED consumption enables and forecloses. First, in making comparisons, our participants risked concretising consumer ‘types’, by assembling various human and non-human elements, making homogenising generalisations about the ‘kinds’ of people that use PIEDs and how they differ from consumers of other drugs. Of course, there may be patterns to drug use, such as the material differences participants reflect upon. Nevertheless, it is important to pay careful attention to the ontological work being done by these comparisons and to think carefully about their consequences. For instance, judgments about the value of drug consumption and the priorities of consumers were often folded into our participants’ characterisations of ‘typical’ consumers. PIED consumers were constituted as pathological and disordered (e.g. as ‘excessively’ regimented or overly focused on body image) when compared to (hetero)normative and culturally valorised ways of being and living, but as less disordered than people who used other kinds of drugs. Faced with such comparisons, how might we proceed? The key is not to dismiss similarity or difference, but to focus on, first and foremost, what people pay due attention to, and why (following Stengers, 2011). It is vital that researchers consider what conclusions become possible as a result of uncritical, unilateral and/or irrelevant comparative modes of thought. For instance, comparisons regarding drug consumers may have the effect of performing drug use and phenomena attributed to it (including forms of harm) as properties of the individual consumer or consumer category ‘itself’, thereby foreclosing or backgrounding other possibilities.

While our interviewees recognised some of these tendencies and risks in the course of our interviews with them, they struggled to avoid them (for a similar argument regarding responses to ‘addiction’, see Fraser, 2016). We acknowledge that addressing the dilemma articulated by some of our participants is no easy task, but it should begin by taking seriously the obligation to avoid reproducing or reinforcing harms by mobilising comparisons in ways that individualise and naturalise forms of harm, or in ways that treat forms of harm reductively and simplistically. In their foundational work on the role of comparison in alcohol and other drug treatment, Fraser and Ekendahl (2018) encourage us to reflect on what is being compared, what normative assumptions are being reproduced, and how things might be otherwise. For all of these reasons, new techniques for engaging and managing the identification of difference and similarity in responses to drug consumption must be considered. We encourage the development of other ways of thinking about difference, including whether the differences identified by our participants might be shaped by factors and forces unobserved in their accounts, including the legacy of criminalisation, differences in the legal regimes pertaining to different drugs, and other structural factors. These findings have implications for policymakers, service providers and researchers, and require each group to think more carefully about how comparison features in their work, what comparisons do, and whether things might be done otherwise.

Our analysis suggests numerous possibilities for policy and practice. Service providers might be encouraged to critically reflect on their own mobilisation of comparisons, including how comparisons feature when providing care to people who use PIEDs or other drugs. How do they mobilise comparisons? This process of reflection might involve reworking assumptions and language during service encounters (e.g. rethinking references to PIED consumers as having a ‘pathological’, ‘disordered’ or ‘excessive’ focus on body image, both when working with consumers or in discussions with colleagues), and asking more questions designed to unpack and challenge conventional thinking about the origins of harm and putative drug consumer ‘types’. Policymakers could also reflect on these questions, and consider how comparisons figure in their work. How do comparisons function in key policy documents or government campaigns (e.g. harm reduction and health promotion) and what assumptions are being reproduced as a consequence? What issues are being attended to in these policies and associated campaigns, and might these reproduce stigma and marginalisation or naturalise risk? The key, as we noted earlier, is to reflect carefully on what is being attended to in these spaces. The challenge is not to synthesise variations into narrow, naturalised conceptualisations of who drug consumers ‘are’ and why harms might adhere to them, but to articulate differences (Fraser, 2016) and expand possibilities for living.

Finally, given the ubiquity of comparison, the potential for comparisons to be handled poorly and the possibility that such comparisons can be put to work in ways that are harmful, we want to encourage alcohol and other drug researchers to reflect on how comparisons figure within their own research designs (see also Fraser, 2020). Although it is beyond the scope of this article to comprehensively address this question, our provocations are shaped in part by the ‘ontological turn’ (e.g. Fraser & Moore, 2011; Fraser & Seear, 2011; Fraser & valentine 2008; Gomart 2002; Race, 2009) in alcohol and other drug scholarship in recent years and the call for more ‘ontopolitically-oriented research’ (Fraser, 2020). Among other things, work of this kind acknowledges the vital role that researchers play in the enactment of drug-related effects, harms and ‘realities’ (following scholars such as Law, 2004; Mol & Law, 2002) and calls for a greater sensitivity towards how to design and conduct research in light of this power. Thus, we invite researchers to think about how and why comparisons surface in their research, including whether comparisons are shaped in any way by their own research practices. Are comparisons an effect of research design, through, for example, interview schedules or questionnaires that explicitly invite participants to engage in speculative and/or comparative thought exercises? If so, what is the assumed purpose of such invocations, and what do the researchers hope to achieve? Are injunctions to compare shaped by (and thus at risk of reproducing) simplistic assumptions about consumer ‘types’, practices, attributes or motivations? What possibilities are being opened up as a result, and which ones are being foreclosed? Put simply, if the obligation to treat comparison more critically is to have any meaning, we must be prepared to expose our own research practices to more scrutiny. We encourage researchers to work with these new possibilities, and with an openness to comparison as *compar* (Stengers, 2011: 63) – that is, as a negotiation between equals, marked by mutuality and respect.

**References**

Australian Bureau of Statistics. (2011). *The Australian Standard Classification of Drugs of Concern*. Online resource accessed 10 October 2019 at: www.abs.gov.au/ausstats/abs@.nsf/mf/1248.0

Babor, T.F., Hofmann, M., Del Boca, F.K., Hesselbrock, V., Meyer, R.E., Dolinsky, Z.S. & Rounsaville, B. (1992). Types of alcoholics, I: Evidence for an empirically derived typology based on indicators of vulnerability and severity. *Archives of General Psychiatry*, 49, 599-608.

Ball, S.A., Carroll, K.M., Babor, T.F. & Rounsaville, B.J. (1995). Subtypes of cocaine abusers: Support for a Type A-Type B distinction. *Journal of Consulting and Clinical Psychology*, 63, 115-124.

Bennett, A. S., Golub, A., & Elliott, L. (2017). A behavioral typology of opioid overdose

risk behaviors among recent veterans in New York City. (Research Article) (Report). *Public Library of Science*, 12(6), e0179054.

Brook, H. & Stringer, R. (2005). Users, using, used: A beginner’s guide to deconstructing drugs discourse. *International Journal of Drug Policy*, *16*(5), 316-325.

Butler, J. (1993). *Bodies that Matter: On the Discursive Limits of Sex.* New York and London: Routledge.

Day, C.A., Topp, L., Iversen, J., & Maher, L. (2008). Blood-borne virus prevalence and risk among steroid injectors: Results from the Australian Needle and Syringe Program survey. *Drug and Alcohol Review*, 27, 559–561.

Deville, J., Guggenheim, M., & Hrdličková, Z. (Eds). (2016). *Practising Comparison: Logics, Relations, Comparisons*. Manchester, England: Mattering Press.

Dillon, P., Copeland, J., & Peter, R. (1999). Exploring the relationship between male homo/bi-sexuality, body image and steroid use. *Culture, Health and Sexuality*, 1, 317-327.

Duff, C. (2016). Assemblages, territories, contexts. International Journal of Drug Policy, 33, 15–20.

Dunn, M., McKay, F.H., & Iversen, J. (2014). Steroid users and the unique challenge they pose to needle and syringe program workers. *Drug and Alcohol Review*, 33, 71-77.

Dunn, M. & White, V. (2011). The epidemiology of anabolic-androgenic steroid use among Australian secondary school students. *Journal of Science and Medicine in Sport*, 14, 10-14.

Farrugia, A. (2017). Gender, reputation and regret: The ontological politics of Australian drug education. Gender and Education, 29(3), 281–298

Fitzgerald, J. (2015). Framing Drug Use: Bodies, Space, Economy and Crime. Basingstoke: Palgrave Macmillan.

Fomiatti, R., Latham, J., Fraser, S., Moore, D., Seear, K., & Aitken, C. (2019). A ‘messenger of sex’? Making testosterone matter in motivations for anabolic-androgenic steroid injecting. *Health Sociology Review,* 28, 323-338.

Fomiatti, R., Lenton, E., Latham, J., Fraser, S., Moore, D., Seear, K., & Aitken, C. (2020). Maintaining the healthy body: Blood management and hepatitis C prevention among men who injecting performance and image-enhancing drugs. *International Journal of Drug Policy*, 75,1-9*.*

Fraser, S., (2004). ‘It’s your life!’: Injecting drug users, individual responsibility and hepatitis C prevention. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 8(2), 199-221.

Fraser, S. (2006). The chronotope of the queue: Methadone maintenance treatment and the production of time, space and subjects. *International Journal of Drug Policy*, 17, 192-202.

Fraser, S. (2016). Articulating addiction in alcohol and other drug policy: A multiverse of habits. *International Journal of Drug Policy*, 31, 6-14.

Fraser, S. (2020). Doing ontopolitically-oriented research: Synthesising concepts from the ontological turn for alcohol and other drug research and other social sciences. *International Journal of Drug Policy,* early online.

Fraser, S. & Ekendahl, M. (2018). Getting better: The politics of comparison in addiction treatment and research. Contemporary Drug Problems, 45, 87-106.

Fraser, S. & Moore, D. (2008). Dazzled by unity? Order and chaos in public discourse on illicit drug use. *Social Science and Medicine*, 66, 740-752.

Fraser, S. & Moore, D. (Eds.). (2011). *The Drug Effect: Health Crime and Society.* Melbourne: Cambridge University Press.

Fraser, S., Moore, D., Fomiatti, R., Seear, K., & Aitken, C. (2020). Is another relationship possible? Connoisseurship and the doctor-patient relationship for men who consume performance and image-enhancing drugs. *Social Science and Medicine*, 246, 1-9.

Fraser, S., Pienaar, K., Dilkes-Frayne, E., [Moore, D](about:blank" \t "_blank)., Kokanovic, R., [et al](about:blank" \t "_blank). (2017). Addiction stigma and the biopolitics of liberal modernity: A qualitative analysis. International Journal of Drug Policy, 44, 192-201.

Fraser, S. & valentine, k. (2008). *Substance and Substitution: Methadone Subjects in Liberal Societies.* Basingstoke: Palgrave.

Gomart, E. (2002). Methadone: Six effects in search of a substance. *Social studies of science.* 32(10): 93-135.

Hall, S. (1992). The West and the rest: Discourse and power. In S. Hall & B. Gielben (Eds.), *Formations of Modernity*. Cambridge: Polity Press and Open University, pp. 276-320.

Handelsman, D.J., & Gupta, L. (1997). Prevalence and risk factors for anabolic-androgenic steroid abuse in Australian high school students. *International Journal of Andrology*, 20, 159-164.

Iversen, J., Topp, L., Wand, H., & Maher, L. (2013). Are people who inject performance and image-enhancing drugs an increasing population of needle and syringe program attendees? *Drug and Alcohol Review*, 32, 205-207.

Keane, H. (2005). Diagnosing the male steroid user: Drug use, body image and disordered masculinity. *Health* 9(2), 189-208.

Larance, B., Degenhardt, L., Copeland, J., & Dillon, P. (2008). Injecting risk behaviour and related harm among men who use performance- and image-enhancing drugs. *Drug & Alcohol Review*, 27, 679-686.

Latham, J., Fomiatti, R., Fraser, S., Moore, D., Seear, K., & Aitken, C. (2019). Working out in makeover culture: Men’s performance and image-enhancing drug use as self-transformation. *Australian Feminist Studies,* 34, 427-443.

Law, J. (2002). *Aircraft Stories: Decentering the Object in Technoscience*. Durham: Duke University.

Law, J. (2004). *After Method: Mess in Social Science Research*. London and New York: Routledge.

Law, J. (2011). *Collateral realities*. In F. Rubio, & P. Baert (Eds.), *The Politics of Knowledge*. London: Routledge, pp. 156-178.

McVeigh, J. & Begley, E. (2017). Anabolic steroids in the UK: An increasing issue for public health. *Drugs: Education, Prevention and Policy*, 24, 278-285.

Memedovic, S., Iversen, J., Geddes, L., & Maher, L. (2017). *Australian Needle Syringe Program Survey National Data Report 2011-2015: Prevalence of HIV, HCV and Injecting and Sexual Behaviour among NSP Attendees.* Sydney: Kirby Institute.

Menon, M. (2015). *Indifference to Difference: On Queer Universalism.* Minneapolis: University of Minnesota Press.

Mol A. (2002). *The Body Multiple: Ontology in Medical Practice.* Durham: Duke University Press.

Mol, A. (2011). One, two, three: Cutting, counting, and eating. *Common Knowledge,* 17(1), 111-116.

Mol, A. & Law, J. (2002). Complexities: An introduction. In J. Law & A. Mol (Eds.), *Complexities: Social Studies of Knowledge Practices*. Durham: Duke University Press, pp. 1-22

Monaghan, L. (2001a). *Bodybuilding, Drugs and Risk*. London: Routledge.

Monaghan, L. (2001b). Looking good, feeling good: The embodied pleasures of vibrant physicality. *Sociology of Health & Illness,* 23(3), 330-356.

Moore, D. & Fraser, S. (2006). Putting at risk what we know: Reflecting on the drug-using subject in harm reduction and its political implications. *Social Science and Medicine*, 62, 3035-3047.

Moore, D. & Fraser, S. (2013). Producing the ‘problem’ of addiction in drug treatment. *Qualitative Health Research,* 23(7), 916-923.

Moore, D., Pienaar, K., Dilkes-Frayne, E., & Fraser, S. (2017). Challenging the addiction/health binary with assemblage thinking: An analysis of consumer accounts*. International Journal of Drug Policy*, 44, 155–163.

Peacock, A., Norman, T., Bruno, R., Pennay, A., Droste, N., Jenkinson, R., et al. (2016). Typology of alcohol consumers in five Australian nighttime entertainment districts. *Drug and Alcohol Review*, 35(5), 539–548.

Race, K. (2009). *Pleasure consuming medicine: The queer politics of drugs.* Duke University Press: Durham.

Schönnesson, L. N., Atkinson, J., Williams, M. L., Bowen, A., Ross, M. W., & Timpson, S. C. (2008). A cluster analysis of drug use and sexual HIV risks and their correlates in a sample of African-American crack cocaine smokers with HIV infection. *Drug and* *Alcohol Dependence*, 97(1), 44–53.

Seear, K. (2020). *Law, drugs and the making of addiction: Just habits.* Routledge: London.

Seear, K. & Fraser, S. (2010). Ben Cousins and the ‘double life’: Exploring citizenship and the voluntarity/compulsivity binary through the experiences of a ‘drug addicted’ elite athlete. *Critical Public Health*, 20(4), 439-452.

Seear, K., Fraser, S., Moore, D., & Murphy, D. (2015a). Understanding and responding to anabolic steroid injecting and hepatitis C risk in Australia: A research agenda. *Drugs: Education, Prevention and Policy*, 22(5), 449-455.

Seear K., Murphy, D., Fraser, S. & Moore, D. (2015b). *Understanding and Responding to the Rise of Steroid Injecting in Australia: Recommendations From a National Consultation*. Perth: NDRI, Curtin University.

Stengers, I. (2011). Comparison as a matter of concern. *Common Knowledge,* 17(1), 48-63.

Stengers, I. (2014). *Thinking with Whitehead: A Free and Wild Creation of Concepts*. Cambridge: Harvard University Press.

Tuhiwai-Smith, L. (2012). *Decolonizing Methodologies: Research and Indigenous Peoples.* (2nd edn). Dunedin: Otago University Press.