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Commentary

The Liver King Lie: Misrepresentation, justification, and public health implications



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ABSTRACT

It is well-established that performance and image enhancing drugs (PIEDs) are effective in increasing muscle mass and strength. PIEDs are unique in that, while harm may result from use, there is little evidence of widespread individual or social harm comparable with other illicit substances. However, given the rapid growth of the online health and fitness industry, the digital consumption of hardcore fitness content represents a space ripe for indirect harms. A poignant example of this trend among the digital health and fitness community is the contestation around 'fake natty' users, who falsely claim to not use PIEDs. The non-disclosure of use has the potential to give individuals who are not enhanced the false impression that they too can achieve a bodily ideal which is similar, potentially resulting in psychological distress and risky behaviours. In this commentary, we discuss this harmful phenomenon using the case study of the fitness influencer Brian Johnson, more commonly known as Liver King. Employing a psycho-criminological lens, we use Social Identity Theories to understand the 'Primal' identity, before unpacking Johnson's disavowal of his PIED consumption through Sykes and Matza's (1957) techniques of neutralization. We conclude with an overview of the harms surrounding fake natural influencers and cognitive dissonance, before attempting to map a path towards emic harm reduction in collaboration with the digital fitness community.

Introduction

Barefoot, bare-chested, and sporting a back-to-front baseball cap, Brian Johnson – better known as Liver King – is an imposing sight. With his unkempt beard dominating his rugged facial features, Johnson wears his musculature like armour, with granite pectorals, veiny biceps, and protruding abdominals, which he puts to use through a range of primordial tasks like hunting, working out, and, most notably, ripping apart and consuming raw meat, particularly organs such as liver, on camera – hence the name 'Liver King'. Liver King's brand, which is framed around 'a return to ancestral living' through nine 'Ancestral Tenets' (Liver King, 2021; 2022), taps into a growing discourse of stripping back modern life and recapturing an elemental viscerality that, he claims, has been lost in contemporary society. Motivated by a seeming distrust of medical institutions, the forty-five year old entrepreneur identifies as something of a digital health guru (Lawrence, 2022) for an audience predominantly made up of young men (Flagrant, 2022), to whom he preaches a message of atavistic idealism as a means of assuaging what has been identified elsewhere as 'masculinity in crisis' (Horrocks, 1994). The concept of masculinity in crisis is not new (Levant, 1997), however, there has been a seeming rise in online male personalities advertising to

men that they must 'reclaim their masculinity'. Contentious examples of this trend include, for instance, Johnny Cassell, a self-proclaimed dating coach and expert for men (Cassell, 2017), Andrew Tate (2022), a male 'life coach' and, of course, Liver King (2022). Despite only launching his brand in October 2021, Liver King (at the time of writing) has amassed a tremendous social media following, as evidenced by 237,000 subscribers on YouTube, 1.7 million followers on Instagram, and 3.8 million followers on TikTok.

The centre piece of Johnson's back-to-basics brand is his regular consumption of raw meat, including heart, testicles, and crucially liver, which he promotes due to its status as 'a nutritional powerhouse full of peptides, growth factors and natural vitamins' (Liver King, 2022). Given this outright rejection of ultra-processed food and non-natural lifestyle, when asked repeatedly about performance and image enhancing drug (PIED) consumption, Johnson had previously denied the use of any enhancement drugs, declaring himself to be a 'natural' trainer on numerous occasions. It is this premise of 'excessive naturality' (Ravn & Coffey, 2016; Kotzé and Antonopoulos, 2021) – and the subsequent implication that Liver King's physique is the result of an 'ancestral' lifestyle and an ascetic training regimen alone – that underpins this commentary. This is because, on 29th November 2022, a fitness YouTuber

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named *More Plates More Dates* released an hour-long video exposing Liver King's consumption of anabolic-androgenic steroids (AAS) and a variety of other PIEDs (*More Plates More Dates, 2022*), citing leaked emails detailing Johnson's correspondence with an anabolics coach (see *Gibbs et al., 2022*). This public outing led to Liver King releasing an apology video that has, at the time of writing, been viewed on YouTube alone by 3.2 million people.

Though this case, even in its infancy, has attracted an outpouring of media attention (*Hearing, 2022; Hopkins, 2022; Lefroy, 2022; Smit, 2022; Ward and Hicks, 2022*), few accounts – certainly none from the academy – have unpacked the mechanisms through which Johnson was able to disavow the knowledge of his consumption whilst maintaining his ultra-natural brand. Nor has the impact of Liver King's public shaming and exposure as a 'fake natty' been analysed through a criminological, psychological, and public health lens. This commentary, therefore, strives to explore these key themes in Johnson's case as a manifestation of a wider culture of digital fitness, PIED consumption, and group identity.

A note on methodology

An effective way to contextualise Johnson's PIED use and examine the social lives of his Primals is to take what we describe as a passive or 'non-reactive' (*Janetzko, 2008*) digital ethnography, which is just one of the many recent iterations in digital ethnographic technique (*Horst & Miller, 2012; Pink et al., 2016; Abidin & de Seta, 2020*). Within this, the digital ethnographer engages in the role of processing the collection of textual and graphical data available on digital mediums, and attempts to make sense of their meaning (*Murthy, 2008; Gibbs & Hall, 2021*). The online approach was taken predominantly as the Primal identity and muscular-subcultures more broadly are formed digitally (*Underwood, 2017*), and therefore this community ultimately communicates and dwells online (*Pink et al., 2016*). In order to collect data, the authors 'lurked' online (*Antonopoulos & Hall, 2016*), collecting 'unsolicited' textual and graphic content (*Enghoff & Aldridge, 2019*) via surface websites, social media and online forums, and popular media more broadly. Concerted attention was paid to Liver King's apology video.

Overall, we felt that a digital immersion in Liver King's world of raw meat, intense workouts and captivated Primals allowed this commentary a view into this online subculture and its broader implications. Importantly, the decision to spotlight Liver King, as opposed to the numerous analogous 'fake natty' cases, was two-fold. First, with his substantial following and the attendant highly public backlash, Johnson's case has amassed global interest and shaped much of the recent discourse about the role of PIEDs and health and fitness influencers. Secondly, Liver King's ancestral brand, and the devotion with which his Primals consume his content, provides us with a poignant periscope into the mechanics of the power of such influencer figures, as well as the consequences of large-scale PIED deception. As such, what follows, whilst ostensibly focussed on Johnson and his followers, can be read as a broader analysis of these themes.

The ancestral brand, primordial masculinity, and anabolic identities

The ancestral health movement is a collection of those individuals applying an evolutionary perspective to improve their health with lifestyle changes to diet and physical activity (*Basile et al., 2020*). The lure of an ancestral health lifestyle is understood to be attractive to two distinct groups (*Stapell, 2013*). Firstly, those who are sick or unhealthy, and for whom conventional medicine has failed. Secondly, and importantly for this piece, there are individuals who are seeking to optimise performance, usually in physical and psychological domains. They are attracted to the ancestral movement due to their identity as "optimizers" (*Stapell, 2013, p.1*), who attempt to discover the best way to eat, workout, and optimize overall health and performance. Recent surveys

of those participating in ancestral health movements suggest increasing discrepancy among participants (*Basile et al., 2020*). For example, participants in the 2013 and 2018 ancestral health movement surveys were predominately white, female, and motivated by health and weight-loss concern (*Basile et al., 2020*). These participant characteristics contrast sharply with what *Basile et al. (2020)* refer to as "common young, vain, male, and single moderncaveman media stereotypes" (p.17). Liver King's ancestral-primordial brand may be one avenue where male's seeking performance through ancestral health lifestyle may be diverted to.

At first glance, Liver King's content mirrors that of many other health and fitness influencers, as he shares advice on diet, lifestyle, and general health, employing his bodily capital (*Wacquant, 1995*) to maximise his audience and, ultimately, his revenue streams. One would be forgiven, discounting the gritty aesthetic upheld by Johnson, for categorising Liver King as simply another vapid 'micro-celebrity' (*Khamis et al., 2017*) intent on cashing in on the 'attention economy' (*Zulli, 2018*). However, central to Johnson's brand is a purportedly more profound mission to 'put back what the modern world has left out, returning *our* people to strength and happiness' (*Liver King, 2022*, italics added). Tellingly, Johnson's use of the collective 'our' here relates to his followers – or 'Primals' as he terms them – who are mostly made up of young men seeking to reconnect with a pre-modern sense of self through corporeal development. Liver King's story, as told by a sleek integrated video on his website homepage, is rooted in alleviating (post)modernity's 'suffering and struggling', which he defines in several interviews as the crisis in male suicide, endemic levels of mental disorders, infertility, and (ironically) excessive pharmaceuticalisation. Indeed, citing the impetus to begin his regime of ancestral living, Johnson speaks about his son's respiratory issues, which apparently could not be successfully treated by modern medicine and were instead miraculously cured by adhering to a back-to-basics lifestyle.

Crucially for this commentary, the potency of this message – which is delivered against the collapse of many of the bastions of traditional manhood and an attendant shift in the conceptualisation of masculinity (*Hakim, 2018; Gibbs et al., 2022*) – appears to be amplified for Johnson's younger viewers, as he states in his first ever YouTube video that, 'Our young men are hurting the most, feeling lost, weak, and submissive. So I made it my job to model, teach, and preach a simple elegant solution called ancestral living' (*Liver King, 2022*). Doubling down on this in a sprawling interview with YouTube talkshow *Flagrant*, Johnson remarks, 'You know how many fifteen year-olds have [direct messaged] me [saying] 'I wish you were my dad. I hate the fucking life that I'm living, I hate myself, and I wish you were my dad?'' (*Flagrant, 2022*). Evidently, Liver King's promordial teachings resonate with this population of young men, still in their formative years and susceptible to misinformation and influence.

As is evidenced above, Liver King's 'Ancestral Tenets' are indelibly tied to orthodox notions of hegemonic masculinity (*Connell & Messerschmidt 2005*). Johnson sets out the nine pillars of his brand as; sleep; eat; move; connect; cold; sun; fight; bond; and fun. Alongside those explicitly referencing health and lifestyle, these tenets map seamlessly onto the wealth of literature on traditional masculinity. This view dictates that the construction of masculinity requires a man to be moulded into a role founded on traits such as autonomy, competition, and aggressiveness (*Philaretou & Allen, 2001*). Interestingly, there is an emerging focus on the role of masculinity in men's mental health outcomes, with a growing body of work postulating that traditional masculine norms - positioning men as strong, stoic, tough, and self-reliant - are contributing to mental health symptoms and disorders (*Seidler et al., 2016*). Ironically then, the very ethos that Liver King promotes appears to be a causative factor in the crisis of masculinity to which he hints. Indeed, idealised forms of masculinity, which are informed by societal standards and traditional norms, place expectations on men that lead to gender role conflict (*O'Neill, 2008*), wherein 'hegemonic' masculine ideals are unattainable for most, leaving them feeling deficient in what *Bridges (2009)* terms 'gender capital'. A similar pro-

ness has been well-documented with the male physique, wherein the masculine body ideal, which is generally held to be lean and muscular (Wagner, 2017; Greenway and Price, 2018), has also been linked to masculinity (Piatkowski et al., 2020) through the notion of embodiment (Bordo, 1999; McDowell, 2003). One need only glimpse Johnson's physique to note its hyperbolic overidentification with this muscular ideal. Given the primacy of the masculine physique in contemporary fitness culture, evidence shows that bodily dissatisfaction in men is increasing at alarming levels (Blond, 2008). This trend may be linked with the heightened role that social media sites like Instagram and TikTok play in increasing the visibility of the idealised male body and a culture of mediated self-presentation online (Hakim, 2018; Gültzow et al., 2020; Modica, 2020).

Given this grounding, we contend that the social construction of a misleading 'boosted' masculine identity (Kotzé and Antonopoulos, 2019) – as was the case with Liver King – could be predisposing those striving for lean and muscular body ideals to both physical and psychological risks. Indeed, much of the media coverage and social media backlash around More Plates More Dates' revelations centres on those vulnerable followers who were somewhat duped by Johnson's false claims of naturality and, therefore, this digitally mediated disconnect between reality and fantasy is ripe for further analysis. Before unpacking this postulation, however, it is worth introducing the framework through which we can make sense of Liver King's 'Primals' and their dedication to his brand of gruff ancestral masculinity. Particularly relevant to understanding the underlying factors contributing to individuals feeling deceived, is the significance of social identity.

Social identity theories

Evidence suggests that young men frequent social media to develop and reinforce their identities (Modica, 2020) especially in relation to muscularity (Piatkowski et al., 2021). Attempts at adhering to a masculine identity through social media may, through the lens of Social Identity Theory (SIT) and social identity processes (Turner, 1985; Hogg & Turner, 1987) lead to distress through a number of psychosocial mechanisms. Social identities describe attitudes by definition and evaluation of who one is and a description and evaluation of what this entails (Turner, 1991). These identities also prescribe what an individual should think and how they should behave as a member of the group. In this way SIT frameworks assist in understanding the mechanisms of devotion of Johnson's followers and, therefore, why they are potentially vulnerable to taking parts of his behaviour out of context. Summarily, those who were drawn in to Liver King's narrative may have had more fractured self-concept leading to increased internalisation of the identity and, thus, comfort offered by the group membership.

According to SIT, a crucial component of self-concept is derived from memberships in social groups and categories (Tajfel & Turner, 1979). Identity theories contend that individuals behave in a certain way with the purpose of remaining consistent with their ingroup's norms (Tajfel & Turner, 1979). Identity is based on social categorisation and shared group memberships (Turner, 1991). Group identification, via relevant prototypes, is a way of instantly and automatically defining individuals' relationships with in and outgroup members and sets out how members will act (Hogg & Reid, 2006). Individuals who feel a level of uncertainty regarding themselves generally prefer to identify with highly entitative groups, given that they provide a higher level of structure and a clearer sense of self (Hogg et al., 2007). This dynamic is poignant here given Johnson's continual references to the insecure teenage boys for whom he acts as a paternalistic presence. A detrimental implication of this preference is that it leads individuals to identify with groups that are not merely entitative but rather extreme (Hogg & Turner, 1987), for example when group norms involve eating raw liver and engaging in excessive bodywork. Therefore, a combination of low self-concept and ease of communication through social media seemingly operates to increase internalisation of the salient identity. However, there are caveats

to the way the normalisation and dissemination of this behaviour and the internalisation of the identity occurs.

Communication Theory of Identity (CTI) posits that an individual's sense of self is part of their social behaviour which also emerges and is continuously redefined in the process of social interaction (Hecht et al., 2005) such as in the instance of social media engagement. In a CTI framework, identity is positioned as a relational and discursive process (Jung & Hecht, 2004). This framework has been suggested as a vehicle to construct and communicate health messages to targeted individuals (Hecht & Choi 2012). We propose that identity frameworks assist in understanding the way in which Johnson's followers have been positioned in user narratives regarding body ideals and their idol. Indeed, the Primal identity represents a form of social construction, reliant upon a shared ethos of Johnson's Ancestral Tenets. CTI suggests that members in certain groups share language, beliefs, norms, and culture, as well as common images of selfhood which transcend the individual and are reflected in cultural products and myths (Jung & Hecht, 2004). These shared beliefs and norms are evident through public messages by Johnson himself, "9 Tenets, 1 Mission" on his Twitter page, indicative of a broader cultural infrastructure. A distinctive group norm is that of 'simulated hunts' which represent undertaking strenuous exercise prior to a meal. The shared language referring to his "Tribe" and #AncestralLiving are heavily featured in his social media following through 'tagged' content on Instagram and feature on networking sites such as Reddit, where he has his own subreddit - www.reddit.com/r/LiverKing/. On this forum, 'Primals' can be found seeking sources for the clothing Liver King wears (i.e., his shorts and shoes) and, in this way, furnishing themselves with what is required for ingroup membership. More broadly, the body which Johnson has attained represents, in itself, an iconic component of the group identity – to be lean and muscular. This body ideal is a component of the prototype which represents group membership and around which 'junior Primals' often seek advice from 'senior Primals' for optimising training, nutrition, and supplementation. Fitting this prototype is important among Primals as it is a route to convey their group membership to out-group members (Hogg & Turner, 1987) and ensure they are externally viewed as members of the #Tribe. These conditions of external categorisation also serve to ensure strengthening of the internalisation of the identity (Barreto & Ellemers, 2003) and, therefore, may provide the individual with a stronger perceived sense of self as a result of the way they present themselves. Importantly, self-presentation motives are thought to interfere with identity expression, given that people need to consider many varying social norms, audiences, and psychological burden associated with the management of their social identity (Barreto & Ellemers, 2011). This burden has the potential to increase significantly, however, when the very identity internalised by and individual is underpinned by deception.

Notably, there are no Ancestral Tenets which outline the dosage of PIEDs which are required to attain the mesomorphic ideal which Johnson sports year-round. Therefore, given the revelation that Johnson was using a variety of substances for the purposes of enhancement, the consequences for his following and fan-base are likely disconcerting. Specifically, millions of (potentially vulnerable) people were unaware of wilfully disavowed knowledge of Johnson's PIED use. The next section of this commentary attempts to disentangle Johnson's historical denial of PIED consumption through a criminological lens.

Techniques of neutralization

In their seminal article, Gresham Sykes and David Matza (1957) sought to understand how deviant behaviour is justified by offenders, leading them to identify five means by which criminality is rationalised. They termed these strategies 'techniques of neutralization', which consist of; The Denial of Responsibility; The Denial of Injury; The Denial of the Victim; The Condemnation of the Condemners; and The Appeal to Higher Loyalties. Importantly, the employment of this framework is by no means novel, as a litany of 'deviant' groups and actions have been un-

packed with reference to Sykes and Matza's tenets, including marijuana users (Priest & McGrath, 1970), cyber attacks (Bossler, 2021), sexual abuse (Spraitz & Bowen, 2016), and occupational violence (Johnston & Kilty, 2016).

Given this precedent, this framework represents a productive means of unpacking both Liver King's decision to be dishonest about his PIED consumption as well as his post-hoc justifications, which he shared in a YouTube video entitled 'Liver King Confession... I Lied.'. In this six minute video, a sombre looking (but nonetheless shirtless) Johnson sits on what appears to be a throne, eyes fixed on the camera as he delivers a characteristically robust apology. 'Primals, I'm making this video to apologise, because I fucked up', Liver King begins... His narrative is one of doubling and tripling down on an initial lie, where in his words 'I dug myself into a bigger and deeper hole'. It is not necessarily this cycle which is of interest here however, but rather the techniques that he employs which are 'critical in lessening the effectiveness of social controls [...] behind a large share of delinquent behavior' (Sykes and Matza, 1957: 669).

Firstly, Johnson mobilises a *denial of responsibility*, casting himself as akin to a 'billiard ball [...] helplessly propelled' (Sykes and Matza, 1957: 667) towards PIED consumption. His use of this technique coheres around his sudden rise to stardom and subsequent naivety, as he states that 'before social media, I was rich and anonymous. But after social media I'm still rich but no longer anonymous, and I never expected this kind of exposure'. Johnson positions his meteoric rise – which propelled him to the status of a messianic figure for some – as leaving him ill-prepared to lead his Primals with integrity. Perhaps most tellingly, Liver King then mobilises his own insecurity as deterministic in his PIED consumption. He imploringly states, 'when I talk about the 85% of the population that suffers from self esteem issues [points at self], that's me. I'm part of that fucking statistic. This is why I fucking work myself to death in the gym. This is why I do twelve to fifteen blood-burning workouts a week, just to feel okay'. He goes on to cite his PIED use as a 'profound and significant' aid in facilitating his training regimen and recovery. Ultimately, by employing the narrative of determinism, Liver King denies responsibility for his actions.

The *denial of injury* also features prominently in Johnson's apology. This strand of Liver King's neutralisation centres on the responsible means by which he consumes his PIEDs, as he continually states that his use is 'monitored and managed by a trained hormone clinician'. This claim serves to nullify the harm posed on him as an individual, particularly as he states that, despite taking copious supplements and peptides prior to use, his hormone levels 'remained below the normal level'. Echoing the literature on therapeutic testosterone replacement therapy (Andreasson and Henning, 2022; Dunn et al., 2021; Harvey et al., 2021; Turnock, 2022; Underwood et al., 2020), Johnson suggests that, even with heavy PIED consumption, it was only when taking human growth hormone that he 'finally found success in managing therapeutic levels in the normal range'. Mapping onto this, Liver King also utilises the *denial of the victim* by effectively citing himself as a 'wellbeing type' user (Christiansen et al., 2017), questioning 'I convinced myself that I'm not a competitive athlete of any kind, so who the fuck am I cheating?'. This supports the ironically medicalised framing of his PIED consumption.

The final two techniques show an interdependence, as Liver King lambasts the online fitness community in an act of *condemnation of the condemners*, before attempting to *appeal to the higher loyalties* of his Primals. Johnson 'shifts the focus of attention from his own deviant acts to the motives and behavior of those who disapprove of his violations' (Sykes and Matza, 1957: 668) by stating 'I convinced myself that [those calling his PIED use out prior to More Plates More Dates] was the vocal minority, usually in the fitness category, driving to an unproductive conversation'. Escalating this, Johnson claims that he had dismissed such interrogation as 'unproductive' in that PIED discourse distracted from his higher calling as the 'king' of ancestral living. He goes on, 'I convinced myself that [PIED consumption] had nothing to do with the ancestral message [...] that this topic was a placeholder for a far more important

conversation'. This archetypal use of Sykes and Matza's fifth technique seeks to cast Liver King's PIED use – which certainly contributed substantially to his physique and therefore brand – as an inconsequential background factor, dwarfed by his Ancestral Tenets and his faux-natural primordial ethos. Ultimately, Sykes and Matza's framework goes some way in explaining Johnson's willingness to mislead his Primals, and how he justified his consumption to both him and the world around him.

However, what this framework does not interrogate is the reason why Johnson was so persistent in his denial of PIED use. Indeed, given the relative normalisation of anabolic steroids and other enhancement drugs in hardcore fitness spaces and digital cultures (Underwood, 2017), numerous figures from the world of bodybuilding, powerlifting, and strongman are now open about their PIED consumption. With this said, it may be suggested that given Liver King's wholehearted commitment to embodying the primordial ancestral lifestyle, he felt unable to disclose his PIED use for fear of undermining his growing (and highly profitable) brand. Similarly, as Johnson built his brand not upon a range of products, but instead used his own physique as the central pivot, admitting that the muscle-strapped object around which his persona coheres was not 'earned' may have heightened the sense that PIED disclosure was not viable. This was surely compounded by him digging himself 'into a bigger and deeper hole' with his early denials. As such, we postulate that Johnson ultimately valued the cultivation and maintenance of a coherent brand, as well as his projected identity as an all-natural trainer, over the wellbeing of his Primals. This is an area ripe for further investigation.

Implications

Body ideals and cognitive dissonance

Sitting at the heart of this case study are some substantial apprehensions around social media, body image, and PIED consumption. As has been evidenced elsewhere, the tendency for young men to link a muscular body ideal with masculinity (Cafri et al., 2006; Murray & Touyz, 2012) and the attendant use of PIEDs is becoming increasingly concerning (Dunn & Piatkowski, 2021; Griffiths et al., 2017). For instance, men who reported using PIEDs purely for appearance-related reasons have been found to report elevated levels of body dissatisfaction as well as eating disorder symptomatology (Murray et al., 2016). Body dissatisfaction has been shown to be associated with psychological outcomes such as lower self-esteem among men (Boyda & Shevlin, 2011; Greenway & Price, 2018; Griffiths et al., 2017) and, therefore, it is unsurprising that many may attempt to overcome this psychological distress with strategies to enhance their body and appearance. Young men are increasingly engaging in muscle-building behaviours such as extreme exercising and dieting, supplement use, and PIED use (Piatkowski et al., 2022; Yager & McLean, 2020), and these activities are seen as a normal part of many muscularity-centred subcultures (Piatkowski et al., 2020; Underwood, 2017; Underwood & Olsen, 2019). Pressure on populations who strongly identify with such subcultures to engage in these behaviours is exerted through their normalisation via influences such as peers (Stratton et al., 2015) and social media (Piatkowski et al., 2020). This trend is amplified by digital social media culture (Modica, 2020; Piatkowski et al., 2021) and, therefore, there is increasing opportunity for 'influencers' to propagate harmful messages – knowingly and unknowingly. At times, messages and identities propagated through social media have resulted in an array of risky behaviours (e.g., unprotected intercourse, polysubstance use) for young men using PIEDs (Piatkowski et al., 2021). However, it is important to note that some research has also suggested a that weak link exists between social media and PIED use (Griffiths et al., 2018). Therefore, we acknowledge that the influence of Johnson via social media should not be overplayed in the context of an individual's choice to use PIEDs.

However, as has been illustrated in the Liver King case, the digital turn of health and fitness means that figures like Brian Johnson

wield enormous sway over the self-concept of their followers. Liver King's Primals – a seemingly vulnerable group – may have, therefore, fostered a profound disconnect between the fantasy of social media and the limits of natural bodywork. Johnson's followers may therefore have experienced substantial cognitive dissonance (Festinger, 1962), wherein the content they consumed was psychologically inconsistent with their corporeal reality. Applying dissonance theory suggests that these men will attempt, in a variety of ways, to 'make things consistent' (Festinger, 1962) and therefore questions can be raised as to whether this population may now be drawn towards PIED use through mimetic desire. Those in public health policy may consider the implications for these young men's psychological health and PIED risk. Specifically, social media content, particularly that with a heavy concentration of video and images (e.g., Instagram, YouTube) has potential to harm body image perceptions (Rodgers et al., 2021). This type of content, therefore, is capable of forming peoples' opinions and health perceptions. Raggatt et al. (2018) found that 'fitspiration' content can negatively influence individuals' wellbeing and perception of healthy goals. Notably, the social media content posted by 'relatable' individuals was perceived as most trustworthy (Raggatt et al., 2018). Given that there have been restrictions and laws placed regarding health advice on social media recently in the instance of the COVID-19 pandemic (Tsoy et al., 2021), policy-makers in this space may look to consider how options for appropriate health advice may be disseminated. Rodgers et al. (2021) suggest that a promising avenue may involve targetting the contrived and unrealistic nature of social media content in order to highlight the potential of PIEDs being used to attain a body ideal.

PIED consumer health

Despite the concerning themes of risk and distress emanating from this case study, we believe that opportunities for harm reduction exist amongst the milieu of digital fitness influencers like Johnson. Given the above identification of the substantial voice that figures like Liver King have, if such digital fitness gurus were empowered to be honest about their consumption and share best practice messages, the reach of this emic harm reduction could be profound. For Australia and the United Kingdom particularly, the open use and advertisement of PIEDs has proliferated over social media platforms (Gibbs et al., 2022; Piatkowski et al., 2021), yet this has not been mobilised by public health initiatives in any real sense (McVeigh & Begley, 2017). For example, although PIED consumers do seek medical advice when experiencing harm, these are not the first experts that consumers turn to (Piatkowski et al., 2022; Rowe et al., 2017; Tighe et al., 2017). Instead, social networks involving other PIED consumers appear to be more preferred and trusted options. As Gibbs et al. (2022) have identified, culturally-embedded networks reliant on peers and coaches are often preferable sources of advice on account of their bodily and social capital, gained through predominantly lived experience (Henning and Andreasson, 2022). Research has demonstrated that established members of the community straddle roles across exercise, nutrition and supplements, as well as PIED use (Gibbs et al., 2022). Those possessing high peer reputation are uniquely positioned to provide advice around PIED use through mentorship via lived experience. They are also particularly well-placed to encourage their clients to participate in harm reduction initiatives. Importantly, there already exist some public figures who are open regarding their PIED use, and we note previous Mr. Olympia winner Dorian Yates is one of these. As an influential person who has been open about use, Yates may have provided some level of harm reduction for younger generations and has been quoted doing so: "[on steroids] Personally, my advice would be, unless you're competing, I wouldn't really consider it" (GI Team, 2014). Future research may consider comparing cases of those who have been open regarding their PIED use and the influence they have had on harm reduction.

Looking forward, harm reduction initiatives may consider leveraging involvement of established peer-leaders in this space to disseminate

health messages which more accurately reflect ethical frameworks of honesty, utilising the same tools that have propelled these actors to positions of influence in the first place. Initially, this may take the form of a collaborative pilot which includes the voices of PIED consumers when disseminating health-related information regarding these substances to the public. Through an iterative process, such a pilot program could grow into a carefully considered co-design and consumer advisory process which occurs alongside researchers and select industry partners.

Conclusion

The Liver King scandal is a vehicle through which to revisit the importance of harm reduction and public health messaging in digital fitness culture, as well as the dangers in the non-disclosure of PIED consumption. There are clear public health and regulation lessons regarding engagement and the potential dangers of undisclosed PIED use by high profile figures like Brian Johnson, who remains just one part of a vast tapestry of social media fitness influencers in the industry. As has been argued, the commitment of followers like Liver King's Primals predispose them to harm if, as was the case with Johnson, undisclosed PIED consumption, justified by various techniques of neutralization, is present.

On a more optimistic note, we have highlighted the potential for the online PIED community to engage in digital emic harm reduction. Consistent with the lens of CTI, digital anabolics coaches and those open about their consumption online may be leveraged by public health initiatives to disseminate realistic information and best practice advice with prosocial values in mind. We hope that thoughtful collaboration in this space can, in turn, spur more discussion which brings researchers and consumers together more successfully with the intention for effective frameworks to assist those considering to use PIEDs in the future.

Declaration of competing interests

The Authors declare that there is no conflict of interest.

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