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Pure, white and deadly: sugar addiction and the cultivation of urgency

Abstract

Sugar is supplanting fat as public health enemy number one and is increasingly described in terms of addiction, particularly in relation to obesity. Drawing on newspaper reporting of sugar addiction, as well as the sources upon which that reporting draws, and conceptualising sugar addiction as multiply enacted rather than singularly knowable, this paper explores the ways in which sugar addiction is 'done' and to what effects. It argues that the enactment of 'addiction' in newspaper coverage is mobilised rhetorically to fan the flames of crisis surrounding the 'obesity epidemic', solidifying the connection between sugar, ill-health and obesity and bolstering calls to action. The paper contributes to an ontological politics of sugar addiction, inserting doubt and multiplicity where singular certainties prevail, making visible the deleterious exclusions and harms that those certainties both rely on and generate and opening up spaces for thinking about how things could be different.

Keywords: sugar, addiction, obesity, newspapers, science; ontological politics

Introduction

In January 2014, the campaigning organisation, *Action on Sugar*, launched itself into the public eye with the declaration by clinical epidemiologist, Professor Simon Capewell, that "sugar is the new tobacco" (Action on Sugar 2014). The claim quickly entered the anti-sugar lexicon, speaking directly to intensifying concerns about sugar, which is increasingly supplanting fat as public enemy number one in public health campaigns (PHE 2015; WHO 2015). This is particularly true in the context of obesity, where successive public health campaigns have proved largely ineffectual and the search for new solutions continues apace (Department of Health and Social Care 2018). In the wake of the failures of low-fat prescriptions, the attack on sugar bears the weight of expectation of the 'war on obesity', in which fat bodies are the visible manifestation of a health crisis of epidemic proportions (WHO 2000, NAO 2001, NICE 2006).

The analogy between sugar and tobacco has a number of valences. First, it references the ways in which the tobacco industry aggressively marketed its products, including extensive efforts to deny the now widely accepted relationship between smoking and harm to health. Many see the sugar and tobacco industries as sharing a playbook in this regard (Kearns, Schmidt et al. 2016; Malhotra, Schofield and Lustig 2018). Second, tobacco exemplifies the transition of a consumer product from wide social acceptability to tight regulation and legal circumscription in ways seen by many as a model for sugar regulation (Gearhardt, Grilo et al. 2011; Boseley 2018). And finally, the 'new

tobacco' claim endorses the proliferating attempts to categorise sugar as addictive.

The clustered claims that sugar is addictive, that there is a crisis of obesity and that sugar addiction is an important factor in that crisis, are the starting points for this paper, which explores critically the ways in which sugar addiction and obesity are mutually 'done' and to what effects. The paper begins from the understanding that neither addiction nor obesity are singular, discoverable 'facts', but rather, that they are constituted in practice; they are "events-in-practice" (Mol 2002, 21), which are inseparable from the social and material contexts within which they are brought into being. They are multiple rather than discoverably singular, but still hang together in an "intricately co-ordinated crowd" (viii), not as divergent perspectives on a singular reality, but as entangled multiple realities. In John Law's terms, there is no prior real awaiting discovery once values have been stripped away, but only ever sets of practices doing reals; it is "sets of practices all the way down" (2012, 171), no matter how transparent any given representation appears to be. He argues that asking how realities are 'done' and refusing the washing away of practices is always to think about how they might be undone. Similarly, for Mol, this insistence on ontological multiplicity, and by extension, the possibility of an ontological politics, "lays bare the permanent possibility of alternative configurations" (164).

Focusing on newspaper reporting of sugar addiction alongside key sources for that reporting, this paper lays bare the practices constituting sugar addiction as a knowable threat to health not to displace those claims with alternative realities,

but rather, to create spaces for thinking about sugar addiction and obesity differently. The paper asks: How is sugar addiction 'done'? What do different enactments make imaginable or necessary? What are their unintended effects? The paper begins with a discussion of both obesity and addiction as intersecting contested categories, before describing the research project on which the paper draws. The main body of the paper is divided into two key sections, focusing first on the ways in which sugar addiction is enacted and second, on the effects of those enactments. The paper argues that multiple addictions function rhetorically rather than literally, and are held together by, and work to intensify, the urgency that characterises anti-obesity discourse and practice. This empties out the category of 'addiction', sediments the dangerous 'wrongness' of obesity and flattens out social inequalities. The paper concludes that the enactment of sugar addiction, and the focus on (anti-)sugar more generally, constitutes a reconfiguration and intensification of the 'war on obesity', breathing new life into a campaign mired in its own past failures to achieve its goals.

Addiction, sugar and the 'war on obesity'

To claim sugar as addictive is to mobilise a term riven with long-standing definitional uncertainties. The histories of substances commonly understood as addictive such as illicit drugs, alcohol and tobacco demonstrate the shifting and uneven regulatory and conceptual foundations of both addiction and its associated substances (Valverde 1998; Keane 2002; Berridge 2013), and Helen Keane (2002, 9) describes addiction as existing in a state of "conceptual chaos", ranging across chronic disease, visceral drives, acquired tastes, habits and irrational attachments. These definitional uncertainties are reflected in

successive iterations of the Diagnostic and Statistical Manual of Mental Disorders (DSM), with the fifth (and most recent) version maintaining DSM-IV's refusal of 'addiction' as a diagnostic category, in favour of the umbrella term, 'substance abuse disorder' (SUD) – a decision intended to circumvent addiction's stigmatising potential and problems of definition (American Psychiatric Association 2013). Suzanne Fraser et al (2014: 44) summarise SUD in the DSM-V as "a mental disorder in which a pattern of repeated and compulsive substance use produces significant physical, psychological and social harm", while resisting its closure of definition by raising questions about what constitutes harm and the multiple ways in which dependence can manifest within the singular diagnostic category.

But for the purposes of this paper, the title of the relevant DSM-V chapter – *Substance-Related and Addictive Disorders* – is of greater significance than the specific diagnostic content of SUD, since in spite of addiction's exclusion as a distinct diagnostic category, its qualified reintroduction opens up the possibility of non-substance and behavioural addictions in which sugar can potentially be included (Peele 2011). This reflects the expansion of what Eve Sedgwick (1993) calls "addiction attribution", where the currency of addiction is spreading to include process addictions, and while gambling disorder is the only example included in the DSM-V, the manual's publication was preceded by extensive debate about whether obesity and / or food could be meaningfully conceptualised in terms of addiction (Volkow and O'Brien 2007, Avena and Gold 2011, Gearhardt, Grilo et al. 2011, Rogers 2011). This conceptual shift has been facilitated by shifts towards neuroscientific accounts of addiction, which

conceptualise it as a 'hijacking' of the brain's reward systems, constituting what the National Institute of Drug Abuse (NIDA) describe as "a chronic, relapsing brain disease" (NIDA 2007, cited in Vrecko 2010, 53). Neuroscientific models of addiction gained momentum (and funding) in the context of President Nixon's 'war on drugs' (Courtwright 2010, Vrecko 2010), and these molecular models of drug addiction were solidified through the late 20th century development of neuro-imaging technologies through which people were able to 'see' the effects of drugs on the brain (Courtwright 2010, Campbell 2012). However, it is important not to overstate the scientific consensus around these models, and in 2014, a letter co-signed by 95 scientist and researchers was published in *Nature* protesting the journal's characterisation of addiction as "a brain malfunction', arguing that "substance abuse cannot be divorced from its social, psychological, cultural, political, legal and environmental contexts" (Heim 2014).

Both the expansion to include non-substance and behavioural addictions and the (contested) rise of neuroscientific accounts of addiction are foundational to claims that sugar is addictive. Unlike dietary fat, which is widely (but reductively) understood as manifesting on particular parts of the body in visible ways, sugar is conceptualised as flowing invisibly through and around the body's structures and systems, including the brain, wreaking unseen havoc as it goes (Throsby 2018a). It is also strongly associated with pleasure, and the familiar experience of craving more of something sweet gives common sense purchase to the discourse of addiction as a disruption to the brain's hedonic pathways (Malika, Hayman et al. 2015). But this alone cannot explain the recent proliferation of discourses of sugar addiction, and just as the neuroscience of

addiction gained ground in the context of the 'war on drugs', the 'war on obesity' provides vital context for the attribution of sugar addiction. Every war needs an enemy, and without the 'war on obesity', there would not need to be an attack on sugar, whose primary sin is its presumed role in weight gain.

The understanding of obesity as a crisis of epidemic proportions against which war must be waged has achieved near unassailable status. However, as with addiction, obesity exists in a state of "diagnostic fluidity" (Boero 2012, 94), and there is little consensus over what *kind* of problem (if any) fat bodies constitute (Saguy 2013). The primary challenges to the certainties and practices of the 'war on obesity' have come from the diverse field of fat studies (Rothblum and Solovay 2009, Tomrley and Kaloski Naylor 2009, Cooper 2010), whose critical focus includes the moral dimensions of obesity science (Gard and Wright 2005, Jutel 2005); the shaming, stigmatisation and deviant categorisation of fat bodies (Farrell 2011); the historical contingency and diagnostic limitations of key technologies such as body mass index (BMI) (Burgard 2005, Monaghan 2007); the inefficacy and harms of weight loss interventions (Greenhalgh 2015); and the gendered, raced and classed dimensions of an institutionalised attack on fat bodies (Herndon 2005, Murray 2008). In spite of these challenges, the mainstream attachment to the 'wrongness' of obesity not only remains largely intact, but can also be seen as intensifying in the context of neoliberal ideologies of self-management and individual responsibility for healthy, productive citizenship (LeBesco 2011).

One strategy through which the longevity of the 'war on obesity' is achieved is through the co-optation of the very critiques through which its legitimacy is challenged. This is particularly true in relation to intervention failure, which has provided fertile ground for the rush to blame sugar and its attribution as addictive. The majority of weight loss interventions end in long-term regain, often beyond the starting weight (Mann, Tomiyama et al. 2007), but while this is often used within fat studies scholarship to challenge the 'war on obesity', it inadvertently creates a space for its reinvention. Food addiction in general, and sugar addiction in particular, fit neatly into the opening left by past failures, particularly when located within a neuroscientific frame, which provides both an alibi for past shortfalls and a manifesto for future research and intervention. For example, Nora Volkow and Charles O'Brien argue that the common inability to sustain lifestyle changes in spite of weight loss and positive metabolic outcomes proves that obesity is a disease of the brain that will require investment in the development of targeted therapeutic interventions (Volkow and O'brien 2007). These appropriations of failure leave the urgent demands of the 'war on obesity' intact, bolstered by the added portent of 'addiction' and the promise of new departures.

Sugar Rush

This paper comes from a Leverhulme Trust-funded project called *Sugar Rush: Science, Obesity and the Social Life of Sugar* [i]. The core of the project is a database of 424 news articles from 2013-17, drawn from 9 UK newspapers. This included three broadsheet newspapers in their daily and Sunday iterations (*The Guardian* / *The Observer, The Times* / *The Sunday Times* and *The Daily Telegraph* / *The*

Sunday Telegraph) and two tabloids, including one Sunday edition (*The Daily Mail* / *The Mail on Sunday* and *The Sun*). The selection was designed to capture a range of political inclinations, ranging from the (centre) left (*The Guardian / The Observer)* to the unambiguously right (*The Daily Mail / The Mail on Sunday*). The articles were gathered using the *Nexis* database, beginning with an initial headline search for "sugar" for the years 2000-2017. Following the manual filtering of the results to remove irrelevant articles (e.g. recipes), this process revealed an increase in news reporting from 2013 (see Figure 1), providing the parameters for the core 2013-17 dataset. [Figure 1 near here] This rise coincides with the implementation of the 2012 Welfare Reform Act, and reflects the ways in which the presumed over-consumers of sugary foods have become emblematic of the feckless over-consumers of public resources (e.g. benefits, health care) that are targeted in those reforms (Mollow and McRuer 2015, Throsby 2018b). *The Guardian* dominates the coverage, providing just over a third of all the articles in the dataset; this is an outcome of the paper's sustained and detailed coverage of questions of sugar regulation and taxation. [Figure 2 near here]

Using the qualitative data analysis software, *NVivo*, the 424 articles were each assigned an overarching theme and then coded across multiple themes selected through repeated re-readings of the data. During this process, I also identified key research papers, popular science texts, campaign press releases, websites and other sources that had triggered or informed news stories, and these were added to the data set alongside other texts encountered along the way including popular science tracts, lifestyle guides and autobiographical accounts. This

assemblage of texts has been analysed using a critical discourse analytic approach (Richardson 2007; Fairclough 2010). This means treating texts as both active and productive, and asking what those texts are *doing*, *how* and to what *effects*. As such, it relies not simply on the analysis of, or commentary on, discourse, but explores the relations between discourses and social processes (Fairclough 2010, 10-11).

Of the 424 newspaper articles in the sample, only four were categorised as explicitly *about* addiction, and only one of these engages in debate about whether sugar can be understood as addictive (Davis 2017). However, including these four, 81 articles (19% of the total) included references to sugar addiction, mostly in the form of uncontested claims mobilised uncritically to shore up calls to action. This stands in contrast to the period from 2000-2012, during which only 7 mentions of sugar addiction were found. The proportion of articles mentioning addiction varies significantly between newspapers, with tabloid coverage including a higher percentage than their broadsheet counterparts. This reflects the tabloid preference for dramatic, personalised stories, using addiction narratives more overtly to dramatize their accounts. For example, only 12% (20/166) of articles in the *Guardian* and the *Observer* include mentions of addiction, compared to 28% (16/57) of those in the *Daily Mail* and the *Mail on Sunday*.

While the news media is by no means the only place where sugar addiction is 'done', it is an important site for the production of social norms and hierarchies, and operates as an important source of health information for many people

(Nelkin 1995; Saguy and Almeling 2008; Saguy 2013). This is particularly true in the construction of the 'obesity epidemic', to which extensive media coverage is integral (Boero 2007, 42). Consequently, without invoking a straightforwardly causative model where texts make individuals feel, think or act in a particular way, newspaper reporting of sugar addiction offers insights into what different enactments make imaginable or necessary, as well as their unintended effects. It is to these enactments and their effects that this paper now turns.

'Doing' sugar addiction

A drug like any other

Sugar addiction is 'done' in the newspaper reports through two key discursive strategies: first, by aligning sugar with other substances widely understood as addictive; and second, by establishing (contested) hierarchies among those substances. In both cases, sugar addiction can only be realised in relation to other substances whose addictiveness can be enacted as uncontestable, as demonstrated in this extract from an article in *The Sun* in August 2017:

> "Tobacco. Alcohol. Drugs. Sugar. A devilish quartet crooking their boney fingers at us, promising all sorts of fun. Then kidnapping and force feeding us to a standstill" (Leckie 2017)

The substances form a collective whole through which sugar, as addiction's latest arrival, can be known, and the elision of sugar with other more easily recognised substances of abuse amplifies the perceived risk. This generalisation across substances and bodies erases the differences in social acceptability, legality, consumption practices and embodied effects and pathways between substances (see also, Fraser 2013), with the threat of addiction realised through the

language of bodily force. This sameness across substances is further consolidated in newspaper, lifestyle and scientific texts through the lexicon of drug addiction: sugar is "pure, white and deadly" (Yudkin [1972] 2012; Castro 2017); it is "the white stuff"; consumers are "hooked" and "tripping out"; they have to be "weaned off" sugar, or go "cold turkey"; purveyors of sugary foods are "pushers" and "dealers" who "spike" and "lace" everyday foods with sugar.

These affinities are solidified in newspaper enactments of sugar addiction by reference to two scientific articles that have become touchstones for the claim that sugar is addictive. Neither of these papers was reported widely in the newspapers when they were published, but they became go-to sources as anxiety around sugar began to rise. Reporting follows familiar patterns of newspaper coverage of science, adhering closely to the abstracted conclusions rather than engaging critically with the material, avoiding discussions of methodology, treating science as authoritative, generalising attributions ("some scientists"), and overstating findings, especially when they reaffirm social values (Nelkin 1995). The first of these is a paper by Magalie Lenoir and colleagues (2007), which describes an experiment where rats, by pulling on levers, could choose between intravenously administered cocaine and water sweetened with saccharin, with the sweetened water proving by far the most common choice, even for rats considered to be 'addicted' to cocaine (Lenoir et al. 2007). The subsequent conclusions are cited as fact, as in this extract from *The Daily Telegraph* in April 2013:

> "French scientists in Bordeaux reported that in animal trials, rats chose sugar over cocaine (even when they were addicted to cocaine) and speculated that no mammals' sweet receptors are naturally adapted to the high concentrations of sweet tastes on offer in modern times. They worried […] that the intense stimulation of these receptors by our typical 21st century sugar-rich diets must generate a supra-normal reward signal in the brain, with the potential to override self-control mechanisms and thus lead to addiction" (Lambert 2013).

In her discussion of neuroscientific accounts of food addiction and obesity, Fraser (2013) argues that discourses of hijacked hedonic pathways rely on what Law calls "collateral realities". These are "realities that get done incidentally and along the way" (Law 2012, 156) and which Fraser argues enact addiction, drugs and obesity as conceptually stable and beyond contestation. Lenoir et al's conclusions are built upon a number of similar collateral realities, which are reproduced in the subsequent newspaper uptake. First, the paper opens with the claim that "overconsumption of diets rich in sugars contributes together with other factors to drive the current obesity epidemic" (Lenoir et al. 2007, 1). This opening gambit endows the 'problem' of obesity and sugar's role in it with a knowable certainty, enacting a deletion of practices through which that conclusion has been constituted. As Law argues, whatever is not contested "is that which operates most powerfully to do the real", quietly turning "what is being done in practice into what HAS to be" (2012: 173-4). Three further intersecting collateral realities follow. First, the paper assumes that the *taste* of sweetness can be meaningfully compared with the effects of an intravenously

injected substance; and second, that for a taste sensation to be preferred over the effects of intravenous cocaine, that sensation too must signify addictive potential. These are held in place even though the authors also note that cocaine activates brain stress pathways in rats, and that in choosing the sweetened water, they may be trying to avoid negative side effects rather than seeking something even more compelling (Lenoir et al. 2007, 6). This points to the final collateral reality – that the findings of animal models are readily transferable to humans. This is achieved through generalisations about evolved sensitivities to sweetness across "most mammals, including rats and humans" (1), concluding that more research is needed on animals raised in sugar-rich environments "to better approximate the modern human condition" (Lenoir et al. 2007, 6). This slippage between animals and humans is also evident in *The Daily Telegraph* extract above, as it moves from the rats' choices to mammalian evolution to "our typical 21st century sugar-rich diets". As Nicole Nelson observes in her ethnography of an animal behaviour genetics laboratory, "using mice as stand-ins for humans in scientific experiments has today become so commonplace that news articles […] can effortlessly slide back and forth between the animal and the human with only a hint of a caveat" (2018, 4).

The claim that rats prefer sweetness over cocaine is frequently paired with a second study, led by research neuroscientist, Nicole Avena and colleagues, which claims that under certain circumstances, rats can become addicted to sugar (Avena, Rada and Hoebel 2008). The study deprived rats of food daily for 12 hours, followed by 12-hour access to a sugar solution and regular chow. When the sugar solution became available, the rats would consume it heavily. This was

followed by what were interpreted as symptoms of withdrawal, including anxiety, depression and craving. The paper looks to neuroscience to cement the affinities between sugar and drugs already widely recognised as addictive, arguing that sugar activates the same neurochemical changes as addictive drugs, rendering sugar addiction 'plausible' (20). They conclude, "the rise in obesity, coupled with the emergence of scientific findings of parallels between drugs of abuse and palatable foods has given credibility to this idea" (32). Just as in Mol's (2002) study, where multiple atherosclerosis are enacted in different parts of the hospital and are constituted through different diagnostic practices and objects, the neuroscientists in both of these studies enact addiction through specific knowledges and practices of animal experimentation. Resting upon the collateral reality of a rise in obesity, and articulated through authority of neuroscience, the addiction enacted in the animal laboratory and reproduced in the news is rendered a "virtual common object" that appears "overwhelmingly real"; as Mol observes, "doubt is smothered and certainty is being manufactured" (2002: 163).

A hierarchy of drugs

These two claims – that rats prefer sweetness over cocaine, and that sugar is addictive for rats – can also be combined to solidify the much more potent claim that sugar is *more addictive than cocaine*. Cardiovascular research scientist, James DiNicolantonio, made this claim explicitly in *The Guardian* in an article debating the findings of his recently released review article (DiNicolantonio, O'Keefe and Wilson 2017). Referencing studies showing rodent preferences for sweetness over cocaine, he argues, "In animals, it is actually more addictive than

even cocaine, so sugar is pretty much probably the most consumed addictive substance around the world and it is wreaking havoc on our health'" (Davis 2017).

The twin claims that rodents prefer sweetness to cocaine and that they can become addicted to sugar are combined syllogistically to form the conclusion that sugar is *more* addictive than cocaine. This marks a different enactment of addiction from the undifferentiated merging of substances of abuse, and instead enacts a hierarchy of addictions, with sugar at its apotheosis. But the precise order of the hierarchy is contested. For example, in December 2013, popular anti-sugar advocate, Robert Lustig, argued in *The Sunday Times* that "sugar is addictive – not as addictive as tobacco or alcohol, but if it's everywhere, you can't get rid of it" (Mansey and Ungoes-Thomas 2013). However, in an earlier article in *The Guardian,* he is reported as claiming "Not only is sugar the most "addictive" foodstuff, it is […] also the most toxic" (Erlichman 2013). Together, these invoke a hierarchy of addictive drugs, a sub-hierarchy of addictive *foodstuffs* and a hierarchy of toxicity, whereby addiction *per se* is rendered less important than the inherent harms of sugar, which are seen as amplified by addiction-driven overconsumption and easy availability.

This section has argued that sugar's addictive potential is enacted by drawing affinities across different substances widely understood as addictive, as well as by creating hierarchies of risk among those substances. These multiple addictions are enacted in diverse spaces, as well as in newspapers and scientific reports, and are defined by a variety of practices, behaviours, preferences,

embodied effects and capacities for harm. The urgency of the 'obesity epidemic' both holds together this choreographed multiplicity and, as discussed in the next section, is intensified by it.

Effects

"Something must be done…"

Urgent demands that 'something must be done' are a hallmark of anti-obesity rhetoric and practice (Mayes 2016), and this urgency has transferred itself easily onto sugar as the newly elevated enemy in the 'war on obesity'. This fuels the demand for new anti-sugar interventions in a context where action is prioritised over the demonstrable efficacy of those interventions. For example, an article in *The Observer* in August 2013 about proposals to tax sugary drinks included a brief interview with University College London professor, David Colquhoun, who is known for vigorously debunking what he calls "dubious and dishonest science" in his popular blog, "DC's Improbable Science". Asked whether he endorses the view that fizzy drinks are actively harmful, he is reported as replying: "Bugger all is known with certainty about the effects of diet on health. […] Nevertheless the best current guess is that sugar is a much bigger problem than fat. And it's addictive, which is why manufacturers do it (I'll happily eat a whole bag of jelly babies). That can't be good – so, yes, I'd say let's tax it" (Renton 2013). The inability to stop eating a bag of sweets is evidence enough for Colquhoun to confirm sugar's addictive potential, which then confirms the need for taxation – an intervention whose efficacy is also assumed. Against the background of his well-established scepticism about diet and health claims, his anecdotal claim to sugar's addictive potential only makes sense in the wider context of urgency

surrounding obesity. As with Volkow and O'Brien's (2007) argument that regain proves that obesity is a brain disease, the presumed over-consumption of sugar by the fat body is evidence enough to warrant action.

Appeals to sugar addiction, therefore, are not only stabilised by urgency, but also function rhetorically to cultivate that same urgency. In this context, the precise content of the category of 'addiction' is less important than its rhetorical weight; addiction doesn't need to be 'real' to be effective. This rhetorical function was made explicit by the chair of *Action for Sugar*, Graham, MacGregor, in an article in *The Times* in January 2014:

> "I agree that sugar is not like tobacco. It's not as addictive, but it's a major source of hidden calories and if you get it down it will help with obesity. It's an overstatement. Sometimes to get your point across you need to make it stronger. [But] sugar is addictive, particularly in young children, and the food industry uses it as a weapon to sell rubbish food to young children" (Smyth 2014).

In this rhetorical wielding of 'addiction', the 'problem' of addiction is defined by its presumed capacities for harm (in the form of obesity) rather than the severity of its addictive capacities, but the seriousness of the threat relative to tobacco is reinstated by attaching the risks of sugar to 'young children'. In this way, both the urgency invoked by discourse of addiction and the calls for regulation that characterise *Action on Sugar*'s campaigns, are held in place, regardless of the confession of 'overstatement'.

Retraining the body

The cultivation of the imperative to act is implicated in two further effects: first, the construction of a hijacked, but recoverable, body; and second, the simultaneous smoothing over, and reproduction, of social inequalities. The invocation of an addicted brain hijacked by an environment awash with sugar to which it is ill-adapted is a staple of sugar in the news, popular and scientific literatures. This evolutionary discourse posits a paleolithic, hunter-gatherer genetic inheritance that has been unable to keep pace with the sugar-saturated 21st century food environment. For example, in the first of a series of articles in 2014 in *The Sunday Times* on giving up sugar, diet and wellness author Jenna Zoe reassures readers that "Craving sugary foods doesn't make you a weak human being. We are programmed to opt for sweet foods, because in nature, sweetness is a sign that foods are safe to eat" (Avansino 2014a). DiNicolantonio et al argue that this 'natural' desire for sugar would have provided an evolutionary advantage in a context where foods such as ripened fruit and honey were relatively scarce, creating an opportunity to lay down fat in preparation for times of scarcity (2017, 1). However, they continue that "unfortunately humans never adapted to the intense reward that follows the consumption of highly refined added sugars, and the 24/7 availability of these sugars provides us with little reprieve" (1).

This nostalgic invocation of our hunter-gatherer ancestry presumes a 'natural' body dislocated from time and space that precedes the social and which is inherently healthful in its desires and habits (Zuk 2013). Nevertheless, it has

gained considerable purchase, not least because it potentially brings food environments and 'Big Sugar' into the sightlines of policy interventions rather than individual failings (Lawrence 2004), potentially relieving the stigmatisation and shaming of the fat body (Meleo-Erwin 2012, DePierre, Puhl et al. 2013). However, while the discourse of the hijacked body and brain appears to offer respite from the relentless shaming of fat people, Anna Kirkland (2011) cautions against the progressive promise of obesogenic explanations, arguing that they inevitably reproduce fat panics while remaining remain firmly grounded in elite assumptions about how to eat and live. Furthermore, the reliance in sugar addiction recovery narratives on the notion of the overwhelmed 'natural' body holds in place not only the possibility of recovery, but also the obligation to do so (Campbell 2012). This reinstates rather than relieves individual responsibility, as exemplified in this article from the *Sunday Times* in January 2014 in the second part of its series on giving up sugar:

> "How did the first week go, my sugar-free warriors? Whether it was absolute torture or utterly effortless, the good news is that your first sugar-free week is the toughest. […] Remember, sugar affects the same feel good brain hormones as street drugs, but unfortunately, this sweet object of our desire is around every corner. Research shows that once you retrain your taste buds and your psyche, the obsession with sugar does go away." (Avansino 2014b)

This extract builds upon familiar discursive enactments: that sugar is addictive in ways that parallel illicit drugs; that addiction is rooted in the brain; and that

our food environment is at odds with our evolutionary biology. These combine with the call to urgent action to stabilise a new, but also very familiar, reality: that even though addiction signifies the absence of control, it is both possible and necessary to exercise control over it to allow the body to revert to its natural equilibrium. Where addiction is understood neuroscientifically, this invokes a plasticity to the brain that Victoria Pitts-Taylor argues is "saturated with neoliberal capitalism models of thought (2010: 647); that is, "the brain has joined the rest of the body in becoming integral to self-identity, open to self-styling and modification" (648). Consequently, as brain health and health in general become synonymous, and as the neoliberal ideologies of self-management and bodily discipline intensify their focus on fat bodies (LeBesco 2011), the potential of neuroscientific accounts of addiction to relieve the stigma of obesity (and of addiction) is negated.

Gendering sugar addiction

Fundamental to the retraining of the body is the imperative to shun 'unnatural' processed foods in favour of 'natural' or 'whole' foods. This points to a core tension in accounts of food addiction – that food is simultaneously necessary for survival and (potentially) toxic. This is negotiated in the case of sugar addiction by the creation of a special category of 'unnatural', drug-like foods, which are to be avoided (see also, Fraser 2013). DiNicolantonio and colleagues make this explicit, describing sugar as a "chemical-like substance" whose "extraction and refinement process is similar to that of other addictive white crystals, that is, cocaine from the coca leaf, and opium from the poppy seed / pod" (2017, 1).

Their account solidifies the affinity between sugar and other addictive substances, both in terms of its crystalline appearance and the process through which it is produced, with its 'chemical-like' nature marking it out as a threat. However, the focus on the nutrient-stripping practices of food processing in contrast with the 'wholeness' of food coded as healthy obscures the significant labour and resources required to achieve this dietary standard (Throsby 2018a). They also ignore the gendering of that labour, with women most likely to bear the burden of food purchasing and preparation, and by extension, to be blamed when the bodies of those for whom they are caring fail to meet normative standards of size, composition and well-being (Charles and Kerr 1988; DeVault 1991; Cairns and Johnston 2015).

The gendering of sugar addiction can also be seen in the stratification of vulnerabilities to sugar's allure, with women frequently positioned alongside children as innately unable to resist sweet foods. For example, James Erlichman, whose e-book, *Addicted to Food*, was extracted in *The Guardian* in February 2013, offers the familiar narrative of "our hunter-gatherer genetic inheritance" at odds with a food-rich environment to which we cannot adapt (2013, 571). However, in contrast with the repeated assertions that 'we' are all at risk, women are identified as uniquely vulnerable, and he describes them as finding refined carbohydrates "especially seductive", including, "the ultimate seduction….chocolate" (2013, 349). This editorialised claim comes at the end of a 3-article chain of citation that begins with a paper documenting a laboratory study of overweight and obese women who identified as experiencing carbohydrate cravings (Spring, Schneider et al. 2008). The paper found that the

women, when induced into a negative mood, chose a carbohydrate drink over a carbohydrate and protein alternative. This initial finding travels along the citation chain (in chronological order, Spring, Schneider et al. 2008; Corsica and Pelchat 2010; Blumenthal and Gold 2010), and by the time it reaches Erlichman, it has morphed into a generalised claim about women and refined carbohydrates that presumes an innate difference between men and women and which aligns comfortably with gendered assumptions of emotional instability, comfort eating and vulnerability to sweetness (Lupton 1996). The collateral reality of innate sex difference solidifies Erlichman's claims and the erasure of the texts preceding those claims obscures the practices through which the reality of women's vulnerability to refined carbohydrates is constituted. This exemplifies Law's argument that realities are not 'known', but rather, are 'done' via practices of selection, juxtaposition, deletion, ranking and framing, and could always have been assembled differently (2012: 162).

A further dimension to this gendering of sugar addiction is demonstrated in an article in *The Times* in October 2013, which reported the launch of David Gillespie's *The Sweet Poison Quit Plan*. On the topic of withdrawal symptoms, the article notes: "These symptoms lasted two to three weeks [for Gillespie], although women in their thirties and forties following his programme say that it takes up to two months for withdrawal to end; no-one knows why men tend to find it easier" (Carlyle 2013). There is a striking absence of curiosity about this anecdotal difference, which is presented as simultaneously too bewildering and too self-evident for Gillespie to explain. This passive acceptance is at odds with his description of himself in his book, *Sweet Poison*, as "one of those people who

can't leave a problem alone" (2008, 9). Women emerge in these accounts as vulnerable to sweet food and the imperatives of their unpredictable bodies, with gender differences written into the body in intractable ways. This 'naturally' chaotic female body is in tension with the homeostatic 'natural' body of the hunter-gatherer, which is implicitly coded as male (Mol 2012). Not all bodies (and brains) are equally salvageable in the world of sugar addiction.

Sugar addiction and class

The vulnerability to sugar is also stratified along classed lines, with a working class habitus taken as indicative of the liability to be hijacked by sugar. For example, in January 2016, *The Observer* reported on the reality TV show, *Sugar Free Farm*, where a group of minor celebrities identified as sugar addicts were taken to a rural retreat where sugar was completely removed from their diet. The article exposes the classed assumptions about who the archetypal sugar addict is:

> "As the series began, one of those who was consuming the most sugar was the actor Peter Davison, a charming, sensible-seeming man who did not appear to me to be vastly overweight. He eats […] 52 kilos of sugar a year. Just imagine it. Piled up, it would fill your downstairs loo. Two days into cold turkey, it was Davison, rather than, say, Gemma Collins from TOWIE, who came over all dizzy. The paramedics took him away in an ambulance, just another pitiful, trembling addict" (Cooke 2017)

As a working class woman and star of the reality TV show, *The Only Way Is Essex*, it is Collins who is assumed to be unable to control her sugar intake rather than Davison. The use of the toilet bowl as a comparator for the quantity of sugar consumed serves to emphasise just how far Davison has strayed from proper middle-class masculinity in his acquiescence to sugar.

The path out of sugar addiction is also profoundly classed, with 'addicts' encouraged to expect (and aspire to) not only a transformation in health but also in *taste*. This is premised on the assumption that once people change to a diet of whole, unprocessed, sugar-free food, their tastes will change and they will no longer *want* to eat the 'bad' foods of their immediate dietary pasts. For example, in the article in *The Times* describing David Gillespie's experience of sugar withdrawal, his recovery is charted through his sensory transformation:

> "Once he was through the withdrawal phase it became easier: sweet food now tasted cloying and he couldn't no longer even stand diet fizzy drinks. […] 'What I really noticed was that I could now taste things I couldn't before, like the difference between cheap and expensive wine, and I could actually smell sugar: I could tell you blindfolded where the confectionary aisle is in the supermarket by its perfumed sweet smell'" (Carlyle 2013)

By breaking his sugar addiction, Gillespie not only transforms his sense of taste, but also renders himself a connoisseur; taste here emerges as a marker of earned privilege, both through enhanced and discerning taste sensation and as a form of distinction (see also, Naccarato and LeBesco 2012; Johnson and Baumann 2015).

This reinforces the derogation of particular tastes and preferences in favour of the subtle qualities of elite products such as expensive wine. In line with many popular campaigns against cheap snacks and fast food, this determinedly disregards the pleasures that sweet or fast food might bring, not only in terms of taste, comfort and satisfaction, but also sociality and belonging, as well as the socio-economic conditions which make particular patterns of consumption practical and necessary rather than irrational choices (see, for example, Naccarato and LeBesco; Best 2017). Sugar addiction, therefore, is both constituted by, and inextricable from, the social inequalities of the wider social context within which it is enacted.

Conclusions

This paper has argued that sugar's recent elevation as public health enemy number one is both reflected in, and exacerbated by, increased newspaper coverage. This includes the attribution of sugar as addictive – an idea that is not new (Dufty 1975; Yudkin [1972] 2012), but which has been given renewed purchase by sugar's contemporary infamy. By exploring the ways in which sugar addiction is enacted, both in newspaper reporting and through the scientific sources on which that reporting draws, the analysis identified multiple 'sugar addictions'. These function rhetorically to fan the flames of crisis surrounding the 'obesity epidemic', solidify the connection between sugar, ill-health and obesity and bolster calls to action. This cultivated urgency choreographs the multiple sugar addictions enacted in the newspapers in ways that consolidate the dual claims that something both *can* and *should* be done. This empties out the categories of both addiction and obesity and obscures the practices through

which invocations of sugar addiction and its culpability in a 'crisis' of obesity are constituted. This, in turn, has effects, including the entrenchment of individual responsibility in relation to health, consumption and body size; the fortification of gendered norms of domestic labour and embodied vulnerability; and the consolidation of classed norms of consumption. As such, the entrenched attribution of sugar as addictive does not change the familiar dietary game, but rather, intensifies it.

The contributions of this analysis are three-fold. First, it adds to ongoing work within addiction studies, which holds up a critical lens to claims of 'addiction' as singular and knowable (Keane 2002; Fraser 2013; Fraser, Moore and Keane 2014). In doing so, the analysis highlights the ways in which the category of 'addiction' is rendered singular and knowable in newspaper reporting of sugar – an effect that is sustainable because the specific features of 'sugar addiction' are less important in the social and cultural context of a 'war on obesity' than the rhetorical weight it brings to bear. In this way, sugar addiction in the newspapers is simultaneously empty of, and replete with, meaning and is not only enacted rather than given, but is always *doing* something. As Law notes, it is "sets of practices all the way down" (2012, 171).

Second, the anti-obesity sentiment that 'sugar addiction' cultivates and on which it relies highlights the normative entrenchment of the 'wrongness' of the fat body – a collateral reality whose multiple enactments are erased through its confident singularity. The ease with which claims to 'addiction' have been co-opted into the material-discursive practices of anti-obesity signals disturbing levels of comfort

with the willingness to speak and act against fatness without regard for the negative impacts of those interventions and ideologies (Boero 2007; Greenhalgh 2015). The uneven distribution of the social costs of enactments of sugar addiction, and the opportunities that this presents for some, but not others, to establish their own responsible citizenship and good taste, compound this concern. Consequently, while the increasingly mainstream conceptualisation of sugar as addictive, and of obesity as the outcome of sugar addiction, suggests a fresh departure in the 'war on obesity', it is better understood as its strategic revivification, giving it momentum through the cultivation of urgency.

And finally, while offering a rather bleak picture of the sustained fat-phobia that both underpins attributions of sugar addiction and is fortified by them, the identification of those attributions as multiple, contingent and constituted through practices also opens up new possibilities. As Law observes, "if there is a multiplicity rather than a singularity then we have an entry point" (2012, 175); in Mol's terms, ontological multiplicity is not a path to political immobilisation, but rather, comes with "different ways of *doing* the good", where 'good' is also always multiple (2002, 176, original emphasis). The analysis offered in this paper, therefore, is not an attempt to simply displace one 'reality' with another, but rather, casts doubt on the inevitability and transparency of enactments of sugar addiction (and obesity), inviting instead Mol's question: "is this practice good for the subjects (human or otherwise) involved in it?" (165). This analysis, then, is a contribution to an ontological politics of sugar addiction, inserting doubt and multiplicity where singular certainties prevail, making visible the deleterious exclusions and harms that those certainties both rely on and

generating and opening up spaces for thinking about how things could be different.

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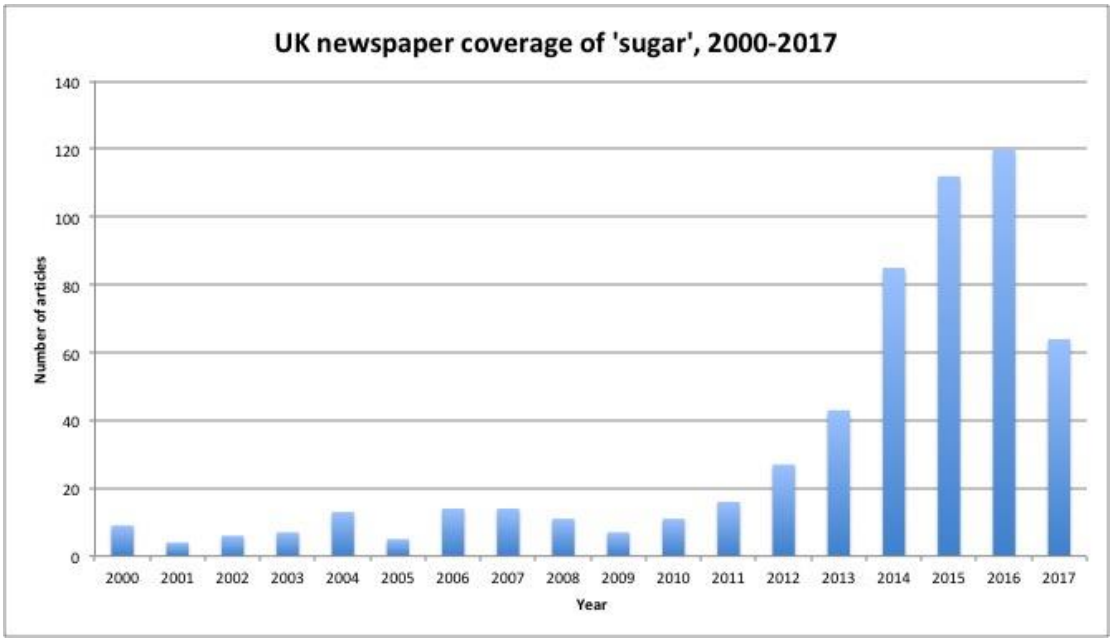
Figure 1:



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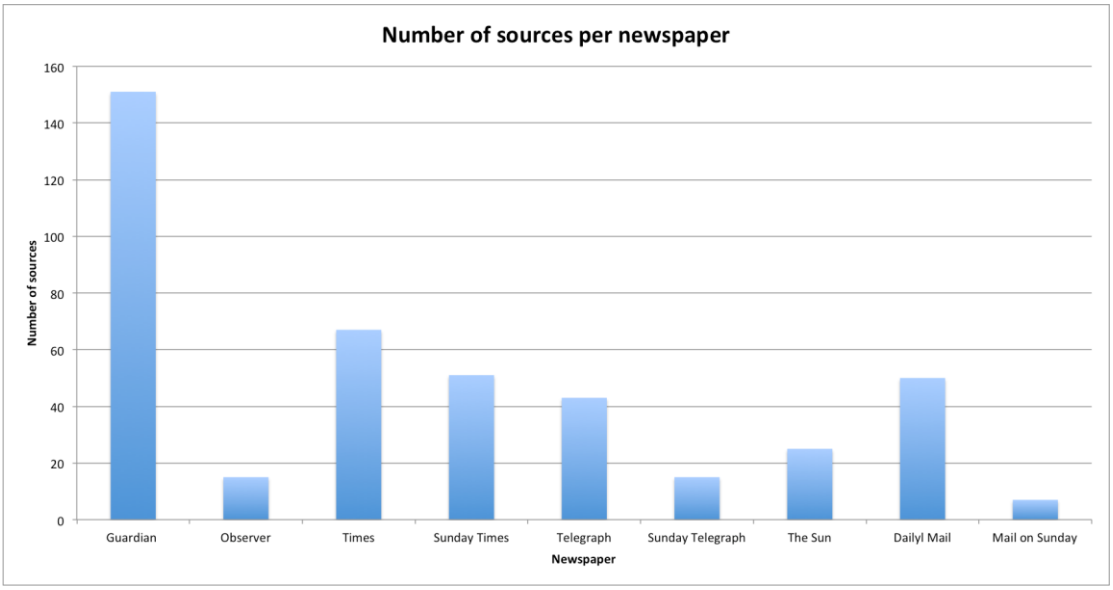

[i] Reference number: RF-2017-382