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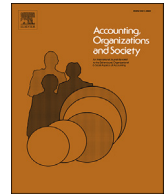
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# Calorie accounting: The introduction of mandatory calorie labelling on menus in the UK food sector

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## ABSTRACT

Obesity has become a topic of public discourse in Britain with claims that it is now one of the major causes of ill health and premature death. In an effort to tackle this obesity 'crisis', the UK government has introduced mandatory calorie labelling on menus. This legislation requires that the number of calories associated with a meal option, together with the recommended calorie consumption per day, be displayed on menus. Such 'calorie accounting' seeks to prompt the consumer to make menu choices consistent with public health ambitions and to encourage food establishments to reformulate lower calorie menu offerings. Drawing on the concepts of technologies of government (Miller & Rose, 1990; Rose & Miller, 1992) and biopedagogy (Harewood, 2009; Wright, 2009), this paper suggests that calorie accounting operates as a *technology of biopedagogy* which seeks to discipline and govern the body in contemporary neoliberal society. The paper also contributes to recent accounting scholarship on counter-conduct (Foucault, 2007) by highlighting how calorie accounting produces a form of counter-conduct that coexists with conformity to governmental goals. The paper draws upon three primary data sources: a documentary analysis of 44 policy documents on obesity and calorie reduction, an analysis of 112 responses to a public consultation exercise on calorie labelling, and 20 interviews with relevant actors. © 2023 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

In the spring of 1933, a 37 year old London housewife died of starvation; she had starved herself so that she had enough food to feed her seven children (Mayhew, 1988, p. 449). This shocking event produced a public uproar in the press and appeared to confirm the claims that socialist and political activist Fenner Brockway had made a year earlier in his book *Hungry England* (Brockway, 1932). Some 90 years later, the British press is still publishing shocking stories with regards to diet, but these days the cause of death is invariably due to obesity rather than starvation.<sup>1</sup> The national discourse is that Britain is facing an obesity 'crisis' and this is supported by a range of public health pronouncements. For example, it is reported that 29% of women and 26% of men are classified as obese (NHS Digital, 2020) and that over 25% of primary school children are now obese (NHS Digital, 2021). It is argued that

obesity has become one of the major causes of ill health and premature death in the UK, contributing to conditions such as heart disease, type II diabetes and cancer (Department of Health and Social Care, 2018a). More recently, obesity has been viewed as a possible risk factor for Covid-19 complications (Public Health England, 2020). The cost consequences of obesity for Britain's National Health Service (NHS) are also well heralded in public health messaging. For example, it is estimated that obesity related medical conditions cost the NHS approximately £6.1 billion annually (Department of Health and Social Care (2020b, p.3).

In an effort to tackle this obesity 'crisis', the Westminster and Scottish governments have implemented a broad set of policies in recent years aimed at improving the nation's diet and health. One of the new initiatives, which is the focus of this paper, is the introduction of mandatory calorie labelling on menus in the 'out of home' food sector (i.e. restaurants, cafes, takeaways). Legislation on calorie labelling came into force in England on 6th April 2022.<sup>2</sup> It requires that larger food businesses (businesses with 250+ employees) prominently display on their menu the number of

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<sup>1</sup> For example, the front page story of the Daily Mirror on the 29th April 2019 declared: "18.5m Brits in Fat Danger Zone".

<sup>2</sup> The Calorie Labelling (Out of Home Sector) (England) Regulations 2021

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kilocalories (in the form of kcal) associated with each meal option (Department of Health and Social Care, 2020a). It also requires that the recommended total number of calories to be consumed per person per day (2000 kcal) should be displayed somewhere on the menu so that the consumer can compare the calorie content of menu options, not just against each other, but also against healthy dietary intake norms.<sup>3</sup> Meanwhile, the Scottish government announced an Out of Home Action Plan in 2021, a component of which was to consult on the issue of mandatory calorie labelling with a view to legislate on the issue.<sup>4</sup>

This paper seeks to build on existing accounting scholarship on governmentality (Graham, 2010; Himick, 2016; Kurunmäki & Miller, 2011; McKinlay & Pezet, 2010; Miller & O'Leary, 1987; Neu, 2000; Radcliffe, 1998; Radcliffe et al., 2017; Spence & Rinaldi, 2014) by facilitating an understanding of the range of programmes and technologies of government that have been elaborated to address the 'problem' of obesity, of which mandatory calorie labelling is one. Specifically, the paper views the introduction of mandatory calorie labelling as a practice of biopedagogy. Drawing on Foucault's notion of biopower (Foucault, 2008), biopedagogies encompass the myriad range of disciplinary and regulatory practices that seek to govern the body under the auspices of improving the health of the population (Harewood, 2009; Wright, 2009). The concept of biopedagogy provides a useful theoretical lens to understand the framing of calorie labelling as a way of teaching the consumer to act in a manner consistent with governmental health advice – to be a 'good' bio-citizen. Biopedagogy also helps to explain the actions of restaurateurs and food establishments as they reformulate menu items and become self-regulating in the delivery of lower calorie offerings.

Calculative practices (Miller & Napier, 1993; Vollmer, 2003) are at the heart of the biopedagogy of mandatory calorie labelling. The counting of calories converts food and drink offerings into numerical form, into an inscription that is mobile, stable and combinable. It is the clarity of the number that enables normalizing judgements to be made, comparing menu options against each other (in terms of number of calories) and against the recommended daily calorie intake norm (2000 kcal). Through numbers, the consumer is taught to be self-disciplining in their food selection choices. A calculative practice creates a mode of subjectification that teaches the consumer how to eat healthily. In a similar vein, restaurateurs engage with the calculative practice of calorie counting as they reformulate their menu offerings to meet the demands for calorie reduction. In this manner therefore, a form of *calorie accounting* has emerged which encourages consumers and restaurateurs to be good bio-citizens, to be entrepreneurial and responsible selves.

Consequently, this paper's first contribution is to identify the role of accounting as a *technology of biopedagogy* in contemporary neoliberal society. By claiming this role for accounting, the paper builds on the concept of *technologies of government* (Miller & Rose, 1990; Rose & Miller, 1992) and reframes it in the context of the more recent work on biopedagogy (Harewood, 2009; Wright,

<sup>3</sup> This is therefore a simpler form of calorie labelling than the colour coded labelling currently used on pre-packaged foods sold in grocery outlets, which in addition to providing the calorie content of a serving of the product, uses a traffic light system indicating the high, medium and low levels of fats, sugars and salt within a serving. Pre-packaged food labelling also displays the percentage that the product serving makes to recommended daily intake levels of fat, salt and sugar.

<sup>4</sup> For the Action Plan, see <https://www.gov.scot/publications/diet-and-healthy-weight-out-of-home-action-plan>, accessed 10 September 2021. The consultation exercise was launched in April 2022 – see <https://www.gov.scot/publications/consultation-mandatory-calorie-labelling-out-home-sector-scotland/>, accessed April 2022.

2009).

A second contribution of this paper is to contribute to the recent interest in counter-conduct within governmentality research in accounting (Ahrens et al., 2020; Boomsma & O'Dwyer, 2019; Crevlin & Becker, 2020). This research draws on Foucault's (2007) work on counter-conduct, a form of conduct motivated by a desire to be governed differently. Accounting research has typically recounted the role of calculative practices as successful technologies of government, but recent scholarship has addressed how accounting is also implicated in the process of resistance to governmental ambitions and in shaping alternative ways of governing (Ahrens et al., 2020; Boomsma & O'Dwyer, 2019; Crevlin & Becker, 2020). In this study, we find evidence of resistance to the biopedagogy of calorie accounting by consumers and restaurateurs alike. In particular, we suggest that the biopedagogy of calorie accounting neglects to recognize the power of emotional responses to food consumption and how pleasure may trump the power of self-discipline, particularly when considering the occasional 'treat' of a dining out experience. In this scenario, the numbers (calories) fail to have the desired biopedagogical effect. Both citizen and restaurateur reject 'rationality' and pursue strategies counter to the public health messaging. But this moment of resistance may be temporary in nature. The subject has internalized calorie accounting such that they constantly recalibrate their calorie consumption, shifting easily between the context of the food establishment and the home and modifying their eating habits accordingly. A moment of pleasurable resistance may be offset by periods of healthy eating. Consequently, we witness the role of calorie accounting in enabling a form of counter-conduct that coexists with conformity to governmental ambitions.

The paper draws upon three main data sources. First, a documentary analysis was conducted of 44 reports, policy documents and impact assessments produced by government and other relevant bodies on the issues of obesity, calorie reduction and healthy eating. Such government health policy pronouncements can be viewed as part of the apparatus of biopedagogy that seeks to govern the 'obese' citizen. A second data set comprised of the 112 responses to a public consultation exercise on improving the 'out of home' food environment, a component of which addressed the issue of calorie labelling. Finally, 20 interviews were conducted with a range of relevant actors from public health and food establishments.

The remainder of the paper is structured as follows. Section 2 provides an overview of the obesity 'crisis' discourse that has emerged in recent years with its truth claims supported by a form of *obesity accounting*. The theoretical framing for the paper is set out in sections 3 and 4. Section 3 outlines the concepts of biopower (Foucault, 2008) and biopedagogy, the theoretical framework for the paper's first contribution, while section 4 provides a discussion of Foucault's (2007) work on counter-conduct, the theoretical basis for the paper's second contribution. Section 5 outlines the methods used in the study. Sections 6–10 present the study's findings setting out how obesity has become problematized (section 6), the various governmental programmes designed to solve the 'problem' (section 7), the emergence of calorie accounting as a technology of biopedagogy which acts on both the citizen and the food establishment (sections 8–9), and counter-conduct to the biopedagogy of calorie accounting (section 10). Some concluding comments are made in the final section.

## 2. The obesity 'Crisis'

Since the 1970s, there has been increasing attention to public health in Western societies (Lupton, 1995). This has manifested itself in an interest in the health of the population, and through

expert knowledge, introduced interventions at the level of the individual (Petersen & Lupton, 1996). A major focus of this “health society” (Kickbusch, 2007, p. 90) has been the size of the body. From the late 1990s, the ‘problem’ of obesity emerged as a popular public discourse and a consistent target of government public health agendas (Beausoleil, 2009; Wright, 2009). The idea of an obesity ‘crisis’ or ‘epidemic’ became prevalent (Lupton, 2018). Childhood obesity, in particular, emerged as a dominant theme within this anti-obesity discourse (Boero, 2009; Lupton, 2018; Wann, 2009; Wright, 2009). This sense of ‘crisis’ has in turn prompted an urgent intervention logic targeted at both the level of the individual and the population (Fullagar, 2009). There is even a missionary zeal about the anti-obesity movement which is aptly captured by Basham et al. (2006, p.13) in the term “obesity crusaders”.

Numerous actors are enmeshed in the promulgation of this obesity ‘crisis’ (Wann, 2009). Medicine and public health are two particularly influential bodies in the discourse; as Evans and Colls (2009, p. 1060) have remarked, science is a powerful producer of “obesity truths”. Beyond the scientists and public health officials, other “obesity epidemic entrepreneurs” comprise anti-obesity organisations and weight loss consultants (Monaghan et al., 2010, p. 38). The media too is a powerful player in creating the sense of ‘crisis’ by devoting much attention to the issue of obesity in popular media fora (Boero, 2007; Lupton, 2018).

Calculative measures have been used to socially construct the notion of an obesity ‘crisis’ (Lupton, 2018). Indeed, one can argue that the anti-obesity faction has engaged proactively in *obesity accounting*. Through the recording of levels of fatness, these campaigners have sought to make visible the obesity of the population. The Body Mass Index (BMI), for example, is the commonly used measure of obesity and has been a key instrument in shaping anti-obesity government policies and practices (Evans & Colls, 2009; Halse, 2009; Wann, 2009). As a scientific measure of body mass, its mathematical formula helps to bestow it with objectivity and factual truth (Halse, 2009; Lupton, 2018). It is an unproblematized approach to fatness, viewing those over a certain criterion of body measurement as a health risk (Lupton, 2018). In this way, bodies are ordered and classified between ‘normal’ and ‘obese’ and interventions are made accordingly (Colls & Evans, 2009). As a form of *obesity accounting*, it serves as an effective measure to make visible the ‘deviant’ and legitimate the sense of ‘crisis’.

A strong seam of morality underlies the anti-obesity discourse (Lupton, 2016; Petersen and Lupton (1996). The ‘ideal’ body is lean and “tightly contained” (Lupton, 2016, p. 52). By contrast, the fat body is associated with laziness, self-indulgence and irresponsibility (Colls & Evans, 2009; Halse, 2009; Wright, 2009). This moral message is communicated both in official public health pronouncements and myriad forms of popular media (Evans & Colls, 2009; Halse, 2009).

The notion of an obesity ‘epidemic’ has been challenged by several sociologists and cultural theorists in recent years who have accused medical and public health experts of exaggerated and alarmist strategies (Halse, 2009; Solovay & Rothblum, 2009; Wann, 2009). These “obesity sceptics” seek to unpack the concept of obesity (Gard, 2009, p. 32), disputing the idea that humans are naturally thin (Guthman, 2009), highlighting the simplistic moral undertones of an anti-obesity discourse which presents fat bodies as irresponsible (Evans & Colls, 2009), and questioning the unquestionable truth propagated by the science of obesity (Colls & Evans, 2009). They prefer to use the term ‘fat’ rather than ‘obese’ (Lupton, 2018), the term ‘obese’ being viewed as a way of medicalizing fatness in a non-neutral manner and framing it as a problem in need of a cure (Wann, 2009). Their research therefore comes under the label of ‘fat studies’ or ‘critical weight studies’ (Colls & Evans, 2009).

A particular feature of the critical weight studies argument is that the reported obesity ‘crisis’ is a social construction rather than an unproblematic scientifically based health problem (Evans & Colls, 2009; Monaghan et al., 2010). For example, critical weight scholars argue that there is an arbitrary nature to the cut-off points which separate the obese from the normal in BMI measures and consequently reject the notion of a ‘normal’ body weight (Lupton, 2018; Solovay & Rothblum, 2009; Wann, 2009). By contrast, they argue that it is social and cultural factors that are influential in determining body weight and health and that these factors need to be considered in any debate on obesity (Colls & Evans, 2009; Lupton, 2018). They are therefore critical of the unproblematic assumptions that the poor or working class are simply ignorant in terms of diet and nutrition or have less time to exercise (Ernsberger, 2009). They also accuse the anti-obesity crusade of being colour blind (Azzarito, 2009; Boero, 2007; Kirkland, 2011) by neglecting the significance of ethnic diets and failing to appreciate how fatness and body shape are valued in non-white cultures (Sanders, 2019).

Many of the critical weight scholars adopt a Foucauldian approach to challenge the obesity ‘crisis’ discourse. In particular, they draw on Foucault’s work on governmentality and biopower to interpret the recent government initiatives to address obesity in contemporary Western societies (Harewood, 2009). An outline of this theoretical framing is provided in the next section.

### 3. Biopower and biopedagogy

#### 3.1. Biopower

Foucault’s work on biopower first appears in his *History of Sexuality Volume One* (Foucault, 1978) and subsequently in his lectures on *The Birth of Biopolitics* at the Collège de France in 1978–1979 (Foucault, 2008). Biopower views the human body as a site of power and recognizes a positive relationship between power and life (Harewood, 2009). In contrast to the sovereign power to impose death, biopower is the power to protect and preserve life (Lemm & Vatter, 2014). It encompasses a focus on both the individual and how they maintain their body, as well as monitoring the welfare of the population (Wright, 2009). Hence biopower is concerned with the governance and control of individuals and populations through practices associated with the body (Harewood, 2009).

In *The Birth of Biopolitics*, Foucault developed the notion of biopower into a theory of governmentality (Muhle, 2014). He therefore established a relationship between biopower, biopolitics (the means of exerting biopower) and governmentality (Lemm & Vatter, 2014). Foucault viewed neoliberal society as a form of governmentality (McNay, 2009) and the framework within which biopolitics operates (Lemm & Vatter, 2014). Modern governmental reason, Foucault argued, is an exemplar of an indirect form of control, the “conduct of conduct” (Gordon, 1991, p. 48). A central feature of neoliberal government therefore is the notion of the self as enterprise, in other words, the individual as an entrepreneur of their own life (McNay, 2009). Foucault referred to this subject of neo-liberalism as ‘homo economicus’, a human who consistently applies economic thinking to all aspects of their life (Crawshaw, 2012).

Governmentality relies on the two poles or sides to biopower: disciplinary power and regularizing power (Foucault, 1978). Disciplinary power is the anatomopolitics of the human body. It focuses on individualization and the body as machine (Gastaido, 1997). Regularizing power is the biopolitics of the population, it uses regulatory controls to manage the population (Harewood, 2009). These two techniques of governance work in union to discipline the individual and regulate the population as a whole; consequently,



biopower is both individualizing and massifying (Evans & Colls, 2009).

Foucault's work on biopower has encouraged a 'biopolitical turn' across a broad range of disciplines (Campbell & Sitze, 2013). One such discipline that is pertinent to this study is the work of critical obesity scholars who have drawn on Foucault's notion of biopower to introduce the concept of biopedagogy.

### 3.2. Biopedagogy

Critical obesity scholars argue that the anxieties engendered around obesity and how it has been problematized as an 'epidemic' can be understood in terms of Foucauldian biopolitics (Gard & Wright, 2005; Guthman, 2009). They view practices of health promotion around obesity as exercises of biopower and a form of 'health governance' (Crawshaw, 2012; Fullagar, 2009). It is perhaps not surprising that Foucault's work on biopower has been drawn upon by critical obesity scholars (Fullagar, 2009). The combination of disciplinary and regulatory power that characterises biopower is particularly prominent in health related interventions with medical knowledge having an impact on both the individual body and the population (Foucault, 2003 [1997]). Indeed, it has been argued that medicine is a device of biopower (Adorno, 2014; Gastaldo, 1997).

Specifically, critical obesity scholars argue that the various health initiatives and educational policies that have been launched by government and other parties to address the obesity 'crisis' can be viewed as a form of *biopedagogy* (Harewood, 2009; Wright, 2009). Biopedagogies encompass the myriad range of practices aimed at regulating the body (Wright, 2009). They are practices which both construct the sense of an obesity 'crisis', by establishing obesity 'truths' (Gastaldo, 1997), and also propose the strategies to solve the 'crisis' through instruction in health related issues (Wright, 2009). Government intervention to combat obesity therefore is viewed as a biopolitical strategy that exercises power through a process of normalization that treats fatness as an abnormality (Evans & Colls, 2009; Gard & Wright, 2005; Harewood, 2009). Biopedagogical practices are evident in schools, the media, the internet and indeed any site that has the power to teach and engage learners (Wright, 2009).

Biopedagogies act to both regularize the population and to discipline the individual (Harewood, 2009). The anti-obesity discourse, for example, operates at the level of the population when it identifies those who are 'obese' and therefore 'at risk' (Harewood, 2009). Meanwhile, at the level of the individual, instructions on what to eat and what not to eat discipline daily rituals and encourage self-monitoring behaviour (Wright, 2009). A network of health related actors (encompassing government, community groups and private organisations) is seen to be actively involved in this process, using scientific knowledge as a rationale for intervention (Gastaldo, 1997; Petersen, 1997; Rich et al., 2011). In this manner, health experts are viewed by critical weight scholars to play a significant role in enabling self-governance by creating and circulating guidance on 'healthy' choices (Petersen & Lupton, 1996).

Biopedagogies influence modes of subjectification in that they teach us how to eat healthily, monitor our weight and be active and responsible citizens (Harewood, 2009). The assumption of the public health discourse on obesity is that the citizen will exercise self-discipline in food consumption (Guthman, 2009; Lupton, 2018). In this manner, the notion of the bio-citizen has emerged in response to the obesity 'crisis' (Halse, 2009). A feature of the neoliberal agenda is the health entrepreneur, the individual who internalizes health advice and is responsible for their own health and wellbeing (Crawshaw, 2012; Lupton, 2018; Petersen, 1997; Petersen & Lupton, 1996). Managing one's body and taking care of

the self (Foucault, 1988) is seen as the road to responsible and productive citizenship. Indeed, the bio-citizen takes responsibility not only for their own body weight but also for their family's level of fatness (Halse, 2009). The family have become a firm focus of biopedagogies; this is evident in the numerous resources and mediums that target healthy eating in the home (Burrows, 2009; Fullagar, 2009). The mother, in particular, is held responsible for regulating the body weight of her children and feeding them healthy food (Boero, 2009; Lupton, 2018). The 'good' bio-citizen even has a duty of care beyond the home and takes preventive action to ward against the economic and societal cost of obesity related ill health (Halse, 2009). Hence, maintaining good health in neoliberal society is about shifting the responsibility from the welfare state to the individual (Kent, 2020; Lemke, 2001).

The state does not intervene in a repressive way in this process, but rather encourages self-regulation through providing norms against which the individual can measure and monitor themselves (Petersen & Lupton, 1996). Consequently, biopower is a subtle form of power with an emphasis on self-regulation rather than direct coercion, a means of governing "from the inside" rather than a power of suppression from the outside (Muhle, 2014, p. 79). The self as enterprise is therefore both autonomous and self-regulating, simultaneously disciplined and free (McNay, 2009).

Biopedagogy has increasingly taken on a digital form in recent years in the shape of apps (e.g. MyFitnessPal) and wearable devices (e.g. Fitbit) that regularly measure and trains bodies in acceptable modes of self-care (Ajana, 2017; Crawford et al., 2015; Didziokaitė et al., 2018; Fotopoulou & O'Riordan, 2017; Neff & Nafus, 2016; Rich & Miah, 2014). The idea of quantifying the self is not new,<sup>5</sup> but the advent of digital technology has fueled the trend into a more popular activity (Gilmore, 2016; Sharon & Zandbergen, 2017) and has facilitated the creation of a calculative infrastructure of the body, or as Vormbusch (2022, p. 99) refers to it, new "taxonomies of the self".

The recent requirement for mandatory calorie labelling on menus is arguably a further example of a new biopedagogy at work in contemporary life.

## 4. Resistance and counter-conduct

Of course, biopedagogy may not always be successful in delivering desired outcomes. The citizen may resist attempts to be taught practices of bodily self-care. Rather than becoming the subjective citizen, they may embrace the self as agential and pursue alternative forms of subjectivity. This section considers some of the forms of resistance to the anti-obesity biopedagogy and suggests that Foucault's concept of counter-conduct (Foucault, 2007) may prove a useful theoretical frame through which to view such resistance.

### 4.1. Resistance to the anti-obesity biopedagogy

Citizens may resist or contest the directives on healthy eating for various reasons. For example, the public health discourse on healthy eating may not resonate with some members of the population, such as economically disadvantaged citizens (Fullagar, 2009; Lupton, 2016) or ethnic groups with particular food preferences (Boero, 2007; Kirkland, 2011; Lupton, 2016).

Resistance may be due to a feeling of resentment and anger on the part of the individual that everything is out of their control with

<sup>5</sup> The Quantified Self (QS) movement emerged in the 1990s with the goal of improving one's lifestyle by engaging in 'self-knowledge through number - see <https://quantifiedself.com/>.

the exception of these small acts of resistance (Lupton, 1995). Or it may reflect a form of 'release' from the controls and discipline of work and other everyday concerns (Lupton, 1995). It may also be a product of a desire to differentiate oneself and express cultural capital through food (Bourdieu, 1984).

Equally it may be the case that the pleasure the individual derives from alternative practices of the self (such as eating 'unhealthy' foods, for example) trumps the dictates of public health (Lupton, 1995). Resistance may be fueled by a hedonistic pleasure from eating food that it is nominally prohibited. As Lupton (1996, p. 152) remarks: "Our 'rational' knowledge that they are 'bad' constructs our sensual and emotional experience of them as 'good'." Fullagar (2009) argues that there has been little attention to the significance of pleasure from food consumption choices within the governmentality literature. Public health initiatives have effectively ignored the tension between the pursuit of pleasure and the achievement of the disciplined healthy lifestyle (Fullagar, 2009). Emotion, more generally, can offer an alternative frame for understanding the body as a site of subjectification (Fullagar, 2009). For example, the emotions of shame and depression from eating 'bad' food can lead to eating more or encourage practices of 'disordered eating' (Beausoleil, 2009). The assumption of the rational citizen who follows expert advice to improve their health is therefore questionable. Monaghan et al. (2010) note the "irrationalities associated with efforts to rationalize bodies" (p.41). Arguably, individualization of responsibility fails in emotional scenarios. Bodies are not only material, but also emotional.

Understanding the local context of the individual is also central to understanding patterns of resistance. It is in the practices of everyday life that resistance is often expressed because health related practices are only one of the myriad practices engaged in at this site (Lupton, 1995). As Rich and Miah (2014, p. 308) argue "an individual's engagement with their body occurs dialogically in relation to family, gender and socio-cultural and local contexts". In a similar vein, Walkerdine (2009, p. 202) suggests that the relationship between regulation and subjectivity within biopower is too simplistic and that the effect of regulatory discourses on the body cannot be easily predicted using a "standard governmentality framework". Rather she argues that modes of individual bodily regulation operate in complex ways that are inherently related to family and community (Walkerdine, 2009).

In summary, the citizen's response to the anti-obesity discourse is complex. What is deemed as the appropriate level of calorie intake may be contested and resonate differently with each individual. Calorie reduction represents only one agenda among an array of alternatives. There are competing discourses at play that may sway behaviour. One way of theoretically framing the possible resistance of both consumers and restaurateurs to the new biopedagogy of calorie labelling is to draw on Foucault's (2007) work on counter-conduct.

#### 4.2. Counter-conduct

A recent strand of governmentality research has focused attention on the role of accounting technologies in the process of resistance to governmental ambitions and programmes; in other words, how the 'governed' react to programmes of government and how accounting is implicated in alternative ways of governing (Ahrens et al., 2020; Boomsma & O'Dwyer, 2019; Crevlin & Becker, 2020). These scholars draw on Foucault's (2007) work on counter-conduct, a form of conduct motivated by a desire to be governed differently. Counter-conduct is not a vehement form of opposition, but rather encapsulates more "diffuse and subdued forms of resistance" by those who are the subject of government (Foucault, 2007, p. 200). So government is not directly challenged but rather

alternative ways of conduct are taken. Consequently, Foucault (2007) views counter-conduct as a productive power – it does not simply resist but rather seeks to shape conduct itself, albeit in an alternative way to the programme it opposes.

There has been relatively little research on the role of accounting in counter-conduct or resistance more generally. An early exception is Neu and Heincke's (2004) study of the governance of indigenous peoples and how the Chiapas and Oka resisted subjugation. This absence of counter-conduct in accounting governmentality studies, Ahrens et al. (2020) observe, is all the more remarkable given the fragility of programmes and the perpetually failing nature of technologies of government (Rose & Miller, 1992). A convincing rationale for such neglect, they argue, is that accounting scholars typically concentrate on illustrating the role of accounting as successful technologies of governing rather than examining failures of government. In a similar vein, Boomsma and O'Dwyer (2019) argue that the interrelationship between resistance and rule, what Foucault (2007, p. 196) refers to as the "correlation between conduct and counter-conduct" is a correlation often neglected in analyses of governmentality. By contrast, these authors argue that resistance and counter-conduct have a much more constitutive role in governmentality. Indeed, counter conduct, they suggest, can be seen as both reinforcing and challenging governmentality at the same time.

Consequently, recent scholarship has sought to move beyond showcasing the role of accounting as a successful technology of government, and instead highlight how accounting is implicated in the process of counter-conduct and in turn the reshaping of programmes. For example, Ahrens et al. (2020) examine how Newcastle City Council used accounting technologies as a form of counter-conduct against the UK central government's programme of austerity (particularly the funding cuts to local councils). Boomsma and O'Dwyer's (2019) study of Dutch government funded NGOs indicated how counter-conduct was constitutive of governmentality by showing how accountability mechanisms and programmes of government were mutually fashioned in the interactions between the NGOs and the governmental funder. Meanwhile, Crevlin and Becker (2020) further enhanced our understanding of how accounting is implicated in alternative ways of governing by drawing on both governmentality and De Certeau's (1984) work on everyday life. This theoretical combination allowed the authors to provide an insightful example of how resistance can take the shape of an everyday practice, in this case how family farmers in Nepal delivered a form of resistance to a North American NGO through local processes of agency. In this manner, accounting became locally reprogrammed by the governed. Crevlin and Becker (2020) therefore call for more attention to the mundane practices of everyday life when attempting to understand the role of accounting in deflecting domination.

This paper seeks to contribute to this recent body of work by examining the resistance of consumers and restaurateurs to the biopedagogy of mandatory calorie labelling. We will highlight how the subject internalizes calorie accounting such that they constantly recalibrate their calorie consumption, shifting between temporary moments of resistance to the programmatic of calorie reduction and periods of conformity with the public health messaging. Therefore we seek to illustrate the role of accounting in enabling a form of counter-conduct that coexists with governmental goals.

#### 5. Methodology

The paper draws on three sources of data: (1) government policy documents and public body guidance on healthy eating, calorie reduction and calorie labelling, (2) public responses to a

government consultation exercise on the issue of calorie labelling, and (3) interviews with a range of relevant parties. Consequently, a multi-stage approach to data collection and analysis was adopted (Langley, 1999). Each of these data sets and the methods used to collect and analyse them is outlined below.

### 5.1. Government and public body documents

Similar to other governmentality studies (Graham, 2010, Kurunmäki and Miller, 2010; Jeacle, 2016, Boomsma & O'Dwyer, 2019), a documentary analysis was undertaken to understand how the process of problematization and intervention unfolded. In this case, a review of policy documents and reports produced by government and public health bodies revealed how the issue of obesity has become problematized within the UK and how the biopedagogy of calorie labelling has emerged as one solution to the 'crisis'. The documents were published throughout the 2010s and were all concerned with some aspect of diet and obesity. In total, 44 reports were analysed. Appendix 1 contains a listing of these reports.

The level of analysis undertaken varied according to the nature of the reports. A small number of the reports (such as those relating to a drinks levy and salt and fat reduction initiatives) were not directly relevant to the research theme of calorie labelling. The analysis of these documents was about identifying what was pertinent information and what was less relevant (Corbin & Strauss, 2008). A more detailed level of analysis was undertaken on the remaining documents with successive readings to generate themes and subthemes. This facilitated an understanding of the process of problematization around diet and calorie control. In particular, the analysis focused on the discursive character of problematization and the language and discourse that problematized the issue of obesity and unhealthy eating. Finally, the analysis was influenced by Prior's (2008) argument that documents are not simply passive containers of information but also active actors in a network of interests. From this perspective, the array of documents produced on the issue of diet and calorie reduction actively helped to shape the network of government and public health bodies that labelling over the national obesity 'crisis'.

### 5.2. Public responses to a consultation process on calorie labelling

A further source of data comprised the responses to a public consultation process initiated by the Scottish government in late 2018. This consultation was broad in scope, seeking views on improving the 'out of home' food environment more generally, with mandatory calorie labelling being one of the issues raised. The consultative exercise was led by Food Standards Scotland and was conducted via an online survey which opened on the 22nd November 2018 and closed on the 28th February 2019.<sup>6</sup> The responses from the consultation process were made publicly available to view on the website of Food Standards Scotland.<sup>7</sup>

The 112 published responses to the Scottish consultation comprised of two broad categories: respondents who were representing their organisation (public health related bodies, business related associations, and local councils) and respondents who were completing the consultation exercise as individuals (generally

anonymously), although many of this latter grouping appeared to be owners of small food businesses. The number of responses from both categories was roughly equal. The consultation exercise produced a result overwhelmingly in favour of the introduction of mandatory calorie labelling on menus: of the 112 published responses, 84 were in favour of proposals to introduce calorie labelling on menus and 28 were against.

These public responses were an important data set for providing a rich insight into the arguments for and against calorie labelling on menus. Respondents voiced their views in a variety of ways. The responses from organisations, councils and public bodies tended to be official in nature, the language used was formal and there was often reference to research and statistics on public health issues. By contrast, many of the responses from individuals were emotive in nature, either greeting the proposals with enthusiastic delight or complete outrage. In analysing these diverse viewpoints, McInerney's (2008) approach to studying the role of accounts proved very helpful: the cases made for or against calorie labelling on menus typically either challenged or justified the government proposals.

The analysis of the public responses consisted of successive readings to generate themes and subthemes. In governmentality terms, the analysis proved particularly helpful for providing an understanding of how the practice of calorie counting would be operationalized by food establishments. It also yielded insights into the self-regulating aspect of the biopedagogy of calorie labelling, from both the perspective of the consumer and food business. Equally there was evidence of resistance with respondents challenging the biopedagogy of calorie labelling. Consequently, an abductive research approach was followed that was both informed by theory but also guided by the data, moving between both in an iterative process throughout the data analysis phase (Dubois & Gadde, 2002).

### 5.3. Interviews

Interviews were conducted with a variety of stakeholders concerned with the issues of diet, obesity and calorie labelling. For example, interviews were conducted with owners/managers of both small and large food establishments, officials in the field of public health, food standards, obesity action groups, and members of local councils. Appendix 2 provides the complete list of interviewees. A total of 20 interviews were conducted and theoretical saturation was reached by the final stages of the interviewing process (Bowen, 2008).

Interview data was collected over a 17 month period, commencing from early 2019. Interviewees were identified in a number of ways. Obvious stakeholders were the public health bodies that had produced the reports into obesity and calorie reduction. These interviews took place early on in the research process and proved helpful in gaining a fuller understanding of the official government position regarding the introduction of calorie labelling. They provided more contextual depth than contained in the official public health reports and hence facilitated a more nuanced understanding of the process of problematization of obesity and the proposed programme of government to solve the 'crisis'. A further interviewee source comprised the submissions to the Scottish public consultation exercise which published the names of representatives from local councils and obesity related organisations. Well known food establishments, particularly the larger restaurant and takeaway chains, who had been vocal in the press with regard to calorie labelling were approached. Finally

<sup>6</sup> The online survey was hosted at: <https://consult.foodstandards.gov.scot/nutrition-science-and-policy/proposals-to-improve-the-out-of-home-environment-i/>.

<sup>7</sup> [https://consult.foodstandards.gov.scot/nutrition-science-and-policy/proposals-to-improve-the-out-of-home-environment-i/consultation/published\\_select\\_respondent](https://consult.foodstandards.gov.scot/nutrition-science-and-policy/proposals-to-improve-the-out-of-home-environment-i/consultation/published_select_respondent).



interviews with small food businesses were conducted. Interviews lasted an average of 30–45 min<sup>8</sup> and were semi-structured and very interactive in nature. A conscientious attempt was made during the interview process to avoid the imposition of personal preconceptions of the sensemaking processes of interviewees (Gioia et al., 2013). The interview protocol was informed by the initial understanding of the obesity 'problem' and the proposed legislation to introduce calorie labelling.

The analysis of the data consisted of successive readings of the responses to generate themes and subthemes. Data analysis took place iteratively over the data collection period. As with the analysis of the public responses to the consultation exercises, the analysis of interview data was subject to an abductive approach that recognized the significance of both data and theory. From a governmentality perspective, interview data yielded a further understanding of the biopedagogy of calorie labelling. For example, interviews with public health representatives revealed the problematization of obesity and the need for intervention while interviews with food establishments shed light on the practical procedures that had been or would be put in place to become self-regulating.

## 6. Obesity accounting: constructing the 'problem' of obesity within the UK

Obesity has become a matter of public health concern in the UK with the 'problem' increasingly publicised in a host of statistics on obesity levels, health risk factors, and cost estimates for NHS treatment (Department of Health and Social Care, 2018a; NHS Digital, 2020; Public Health England, 2018; 2020). The 'problem' is particularly evident in the public health pronouncements on the increasing levels of obesity in children, with over 25% of English children classified as obese at primary school level (NHS Digital, 2021) and 29% of Scottish children classified as overweight, half of whom are obese (Scottish Government, 2017a). Children of obese parents are viewed as being more likely to be obese themselves (NHS Digital, 2018) and childhood obesity is seen as a precursor to obesity in adulthood (Singh et al., 2008). In addition, obesity in children is framed as contributing to socioeconomic inequalities with studies showing that children from deprived homes are more likely to consume fast food and have a higher incidence of obesity than children from higher income groups (Public Health England, 2017a).

One of the main contributors to the 'problem' of obesity, as suggested by government and public health bodies, is over eating, or specifically consuming more calories than expending. As the Department of Health and Social Care have stated:

If you eat or drink more calories than your body uses, the rest will be stored as fat. If this happens repeatedly, you may gain weight. (Department of Health and Social Care, 2018d, p.4)

The most recent guidelines set by the UK's Scientific Advisory Committee on Nutrition established a daily cap of 2500 kcals for men and 2000 kcals for women (Public Health England, 2016a). However, research indicates that on average adults are consuming 200–300 excess calories a day, with obese children consuming an excess 140–500 calories per day (Public Health England, 2018a, p.5). Eating out and/or consuming takeaway food, an increasingly common habit in British society, has been identified as a particular cause of over eating (Food Standards Agency, 2010; 2014, 2017;

Nguyen & Powell, 2014).

How are we to interpret all the above statistics and public health pronouncements? From a governmentality perspective, such extensive research and statistics on obesity comprise the inscriptions that make the population and the problem knowable. Through quantification, measurement, and benchmarking a form of *obesity accounting* is taking place in which the phenomenon of obesity is rendered into a form of information that can be debated and acted upon. It becomes problematized (Rose & Miller, 1992, p. 185) and, in this manner, provides the rationality for government intervention. Obesity accounting therefore both reveals the 'problem' and legitimates the 'solution'.

## 7. The biopedagogies of the anti-obesity lobby

Over recent years a range of policies have been implemented and guidance published to tackle the UK's obesity 'problem' with the aim of reducing "the prevalence of unhealthy influences by reshaping our food environment" (Department of Health and Social Care, 2018c, p.3).

For example, there has been the Eatwell Guide (Public Health England, 2016b), Calorie Reduction: The Scope and Ambition for Action plan (Public Health England, 2018a), and salt and saturated fat reduction regimes (Public Health England, 2017b; Scientific Advisory Committee on Nutrition, 2018). The drive to tackle childhood obesity is evident in numerous initiatives such as Childhood Obesity: A Plan for Action (Department of Health and Social Care, 2016; 2018b).

Not surprisingly, the potential links between Covid-19 complications and obesity have produced a further flurry of initiatives designed to address the obesity 'problem'. For example, there has been the Better Health Campaign launched by Public Health England,<sup>9</sup> a policy paper on Tackling Obesity: Empowering Adults and Children to Live Healthier Lives (Department of Health and Social Care, 2020b), and a National Food Strategy, one of the strategic objectives of which is to escape the 'junk food cycle' in order to protect the NHS (National Food Strategy: The Plan, 2021).

Public health initiatives are also taking place at the level of devolved government. For example, the Scottish government have published A Healthier Future – Scotland's Diet & Healthy Weight Delivery Plan (Scottish Government, 2018a). The Northern Ireland assembly launched A Fitter Future for All: Framework for Preventing and Addressing Overweight and Obesity in Northern Ireland 2012–2022 (Department of Health (NI), 2012) while in Wales, the Healthy Weight: Healthy Wales set out the Welsh government's long term strategy for tackling obesity (Welsh Government, 2019).

All of the above initiatives reveal how the UK population has become the focus of government intervention to address the 'problem' of obesity. Schemes have been set in motion for its solution; programmes of government have been elaborated (Rose & Miller, 1992, p. 181). We can argue that these strategies are a form of biopedagogy (Harewood, 2009; Wright, 2009). They are modes of subjectification that regulate the body by teaching us how to eat healthily and monitor our weight (Harewood, 2009). They treat the body as a "political space" (Wright, 2009, p. 7). We see how the body of the child in particular, has become a focus of public health initiatives and how the family is a target of biopedagogical practices centred upon healthy eating (Burrows, 2009; Fullagar, 2009; Halse, 2009).

Critical obesity scholars have observed how a network or

<sup>8</sup> Due to the outbreak of corona virus, the final few interviews had to be conducted by phone and skype rather than face to face.

<sup>9</sup> See for example, <https://www.gov.uk/government/news/major-new-campaign-encourages-millions-to-lose-weight-and-cut-covid-19-risk>.



assemblage of actors comes together in the pursuit of health governance (Petersen, 1997; Rich et al., 2011). We see this here in the policies and initiatives for solving the ‘problem’ of obesity. The Department of Health and Social Care, Public Health England, the NHS, the Scientific Advisory Committee on Nutrition, as well as a host of devolved government bodies (such as Food Standards Scotland) are all pursuing strategies to improve the nation’s diet. In this manner, an affiliated network of shared interests emerges.

We also witness the key role of experts and expert knowledge in this process, imparting diet and nutritional advice to inform ‘healthy’ choices (Petersen & Lupton, 1996) and hence providing an indirect form of persuasion which operates on the citizen (Miller & Rose, 1990). As one Scottish government policy document observes:

... from midwives, health visitors and other healthcare professionals, to youth workers, early years and school practitioners, teachers and catering staff – have the knowledge and skills to support parents to make healthier choices for themselves and their children. (Scottish Government, 2018a, pp.11-12)

## 8. Calorie accounting: the biopedagogy of mandatory calorie labelling

The particular biopedagogy that is the focus of this paper is the introduction of mandatory calorie labelling. In Autumn 2018, two public consultative exercises (one in England and one in Scotland) were undertaken to gather opinions from interested stakeholders on the issue of making calorie labelling compulsory for all food and drink sold in the ‘out of home sector’ (i.e. restaurants, cafes, take-aways, pubs) (Department of Health and Social Care, 2018d; Food Standards Scotland, 2018a). The results of both consultation exercises indicated strong support for the introduction of mandatory calorie labelling (Department of Health and Social Care, 2020a; Food Standards Scotland, 2019a). As a result of this support, and also due to the increasing awareness of the link between obesity and Covid-19, both governments moved to legislate accordingly.

In April 2022 legislation came into force in England mandating calorie labelling for large ‘out of home’ food businesses (businesses with 250+ employees) (Department of Health and Social Care, 2020a). It requires that these food establishments display the number of kilocalories (in the form of kcal) associated with each meal option on their menu together with the recommended number of calories to be consumed per person per day (2000 kcal) (Department of Health and Social Care, 2020a). This is a much simpler form of calorie labelling than the colour coded labelling currently used on pre-packaged foods sold in grocery outlets which displays the calorie content of a serving of the product together with coloured indicators of the fat, sugar and salt content of a serving.

In Scotland, a recommendation was made by Food Standards Scotland to make calorie labelling mandatory in the ‘out of home’ sector’ (Food Standards Scotland, 2019b). The Scottish government subsequently (September 2021) announced an Out of Home Action Plan, a component of which was to publicly consult on the issue of mandatory calorie labelling with a view to legislate on the issue<sup>10</sup>.

<sup>10</sup> For the Action Plan, see <https://www.gov.scot/publications/diet-and-healthy-weight-out-of-home-action-plan>, accessed 10 September 2021. The consultation exercise was launched in April 2022 – see <https://www.gov.scot/publications/consultation-mandatory-calorie-labelling-out-home-sector-scotland/>, accessed April 2022.

Both the English and Scottish governments therefore promote the idea that mandatory calorie labelling of restaurant and take-away food will provide the public with the information they need to choose less calorific options and hence help solve the ‘problem’ of obesity. In governmentality inspired language, their stated “rationale for intervention” (Department of Health and Social Care, 2018a, p.10) is seen in the following pronouncements:

The aim of the policy is to ensure that consumers have access to clear and accurate information about the calorie content of the food and drink that they and their families are purchasing and consuming. Making this information available can help people to make informed and healthy choices for themselves and their families and regulate their energy intake and that of their children effectively (Department of Health and Social Care, 2020a, p.6)

In the same way that price information is clearly visible, calorie labelling at the point of choice should be available to help us make informed decisions about the food and drink we purchase when eating out (Food Standards Scotland, 2018a)

In particular, by providing parents with the calorie content of menu options, the government hopes that calorie labelling will influence children’s eating habits and hence address childhood obesity (Interviewee 19). As one government report states:

Adjusting the consumption patterns of children through providing calorie labels and raising awareness of the calorie content of meals therefore offers substantial benefits in the long term. (Department of Health and Social Care, 2018a, p.12).

It is interesting to note the highly moral tone of many of the official pronouncements on calorie labelling:

... some consumers may lack self-control when choosing a meal and fail to take into account the health impact of excess calorie consumption, which often occurs later in life. Labelling and calorie information can provide a mechanism for more self-control (Department of Health and Social Care, 2018a, p.11).

Critical obesity scholars have commented on the moral assumptions implicit in the anti-obesity discourse which casts aspersions at the obese body, depicting it as a product of laziness and self-indulgence (Colls & Evans, 2009; Halse, 2009; Wright, 2009). The public health rhetoric of calorie labelling similarly manifests such moral overtones, accusing the ‘obese’ as lacking in self-control with regard to calorie consumption. The mandatory display of numerical calorific information is simultaneously offered as the means of addressing this moral deficit and enacting self-discipline.

In addition to governing the behaviour of the consumer, both governments believe that the transparency created by calorie labelling will encourage food businesses to reformulate their existing menu choices to reduce calorie content. So the biopedagogical influence is seen to extend beyond the ‘obese’ consumer to encompass also the food provider. For example, the Scottish government argue that “calorie labelling can be a driver for businesses to change their recipes to reduce calories in their dishes” (Food Standards Scotland, 2018a) while the Department of Health and Social Care observe:

... transparency about the calorie content of meals may encourage businesses to reduce the calorie content of their meals and create dishes that are less calorific (Department of Health and Social Care, 2018d, p.6).

The introduction of calorie labelling is also supported by a number of impact assessments which articulate the overall benefits to the economy of the policy (Department of Health and Social Care, 2018e; Department of Health and Social Care, 2020c). We are reminded here of [Mennicken and Salais' \(2022, p.10\)](#) reflections on the utopian agenda of policy driven quantification and how it is "implicated in the promise and dream of creating an infrastructure that can facilitate the making of a new (better) order." The calculations produced in the impact assessments on calorie labelling promise a net financial benefit to the economy: calorie labelling is heralded therefore as not only as a means of improving the health of citizens but also of producing economic benefits to society as a whole.

As noted earlier, experts play a central role in enacting governmentality. This is particularly the case in health governance where public health professionals are seen to play an active role in deploying knowledge about the 'normal' body and providing guidance on 'healthy' choices ([Gastaido, 1997](#); [Petersen & Lupton, 1996](#)). We can see this alliance clearly in how Food Standards Scotland seeks to educate consumers in how to interpret and act upon calorie labelling information:

To support people to better understand nutrition labelling, FSS will in 2019/20: (i) conduct research among consumers with a view to running a consumer education marketing campaign on nutrition labelling; and (ii) engage with health and education networks to support relevant professionals to encourage consumers to use nutrition labels to make healthier choices. (Scottish Government, 2018a, p.19)

Similarly, the Food Standards Agency (NI) have run a Check the Label campaign to educate the public in recommended calorie intake norms and to encourage consumers to consult calorie labelling information.<sup>11</sup> In addressing the problem of obesity therefore, the government have restricted their own domain of interference by relying on a range of networks and assemblages that are a feature of health governance ([Petersen, 1997](#); [Rich et al., 2011](#)).

Consequently, similar to other public health initiatives to solve the 'problem' of obesity, calorie labelling bears all the characteristics of biopedagogy ([Harewood, 2009](#); [Wright, 2009](#)). It is concerned with the governance and control of individuals and populations through practices associated with the body ([Harewood, 2009](#)). As an exercise of biopower ([Adorno, 2014](#); [Evans & Colls, 2009](#)), it acts on the obese population on the one hand while becoming embedded in disciplining the dietary routines of everyday life on the other hand. As a biopedagogical project, it therefore allows the government to intervene in the diet choices of the nation through influencing the private sphere of the citizen.

But this biopedagogy of calorie labelling relies on a calculative apparatus. A process of commensuration ([Espeland & Stevens, 1998](#)) takes place such that the varied qualitative features of a meal are converted into quantitative measures (calories). The display of the number of calories (kcal) associated with each menu option readily indicates the high versus low calorie menu options while the display of the recommended daily calorie intake of 2000 calories puts these options into context. Through these two numbers, the biopedagogy of calorie labelling seeks to educate the consumer and restaurateur on healthy eating and prompts and guides both parties to act upon the calorific information (now

clearly printed on menus) in the pursuit of healthier choices.

Calories themselves can be regarded as a form of inscription "which renders reality into a calculable form" ([Rose & Miller, 1992](#), p. 185). They are readily mobile, stable and combinable, exhibiting the qualities of inscriptions ([Latour, 1987](#), pp. 219-232). For example, calories make meals calculable; they are a numerical record that allows easy mobility. Calories are also stable, they have a recognized meaning indicating "the stability of relation between the inscription and the context to which it refers" ([Robson, 1992](#), p. 695). Finally, calories exhibit the property of combinability ([Robson, 1992](#), p. 697): calories for different menu choices can be combined to enable easy comparison between meal options.

Consequently, calorie labelling can be regarded as a form of *calorie accounting* that operates as a *technology of biopedagogy*. Counting calories creates a mode of subjectification that educates the consumer in healthily dietary choices. The numbers operate on the body in seeking to teach and educate dietary choices. Similarly, the practice of calorie accounting underpins the work of restaurateurs as they reformulate their menu options. In this manner, through numbers, both the consumer and restaurateur are taught to be self-disciplining.

This idea of accounting as a technology of biopedagogy draws together the classic governmentality work of [Miller and Rose \(1990\)](#) and [Rose and Miller \(1992\)](#) (on technologies of government) with the more recent contributions on biopedagogy by [Harewood \(2009\)](#) and [Wright \(2009\)](#). But what new insights does this theoretical combination reveal? Technologies of government, we know, are the devices that allow government to intervene, to act on the schemes of government and make them operable in reality. They are the "humble and mundane mechanisms" ([Miller & Rose, 1990](#), p. 8) that operate at the technical level of operational government. They are the assemblages that are deployed to shape conduct and achieve government at a distance ([Miller & Rose, 2008](#)). But the concept of technologies of government does not explicitly address the concept of biopower (although arguably a technology of government may act on the body). So viewing calorie accounting as a technology of government alone fails to fully appreciate the governance of individuals and populations through practices associated with the body. By contrast the concept of biopedagogy highlights the pedagogic dimension of biopower. Biopedagogies are "the loose collection of moralized information, advice, and instruction about bodies, minds, and health that works to control people by using praise and shame alongside 'expert knowledge' to urge conformity to mental norms" ([Rice et al., 2018](#), p. 667). However applying the concept of biopedagogy alone to explain calorie accounting does not fully capture the importance of calculative devices in rendering this particular practice of biopedagogy into reality. But this is where the concept of technologies of government can help, as while technologies of government are heterogeneous in nature, inscription and calculation are noted characteristics ([Rose & Miller, 1992](#), p. 187). Therefore, by bringing together the concepts of technologies of government and biopedagogy to create the theoretical construct of a *technology of biopedagogy*, we see how calorie accounting is a biopedagogy that seeks to control the diet of the body (the individual and the population) but also how it is made operable through the calculation and counting of calories. We derive a focused theoretical concept that helps us to explain the specific governmental interventions on the body that are fundamentally underpinned by a calculative infrastructure.

<sup>11</sup> <https://www.food.gov.uk/safety-hygiene/check-the-label>, accessed February 2020.

## 9. Constructing the calorie counting bio-citizen and the self-regulating restaurateur

### 9.1. The calorie counting bio-citizen

Calorie accounting, as a technology of biopedagogy, works to align the actions of the autonomous, neoliberal citizen with governmental ambitions regarding healthy eating by nudging consumers to choose lower calorie options. This self-regulating aspect of calorie accounting is clear from the official documentation:

It is important that families are supported to navigate an increasingly complex food environment and make healthier choices for themselves with clear food labelling having an important role to play (Department of Health and Social Care, 2020a, p.3).

Such statements reflect the political language of neoliberalism. This is the framework after all within which biopolitics operates (Lemm & Vatter, 2014). As one public health official remarked: “We are absolutely not telling people what they should or shouldn't eat but we are providing them with more information” (Interviewee 14). In this manner, “the healthier choice becomes the default choice for people to make” (Public Health England, 2018a, p.10) and the conditions are created such that healthy choices become the easiest choices (Department of Health and Social Care, 2018a, p.12; Public Health Wales, 2019).

Of course, healthy eating is frequently not the ‘easy’ choice and it is not simply the case that families are confused by the “complex food environment” or in need of “more information”. As noted in a previous section, poor and working class communities are often the target of healthy eating campaigns based on the assumption that they are ignorant of what constitutes a healthy diet (Burrows, 2009). Arguably though, it is not a lack of knowledge that impacts these groups but a lack of access to resources (Colls & Evans, 2009). Public health pronouncements on healthy eating (such as in the above quotes) therefore fail to acknowledge the socioeconomic conditions of cheap and available fast food together with the time paucity of working mothers (Lupton, 2018). Nor do they have regard for the addictive nature of the content of fast food.<sup>12</sup>

Instead, we witness in public health pronouncements on healthy eating, one of Foucault's defining characteristics of neoliberal government: the notion of the self as enterprise, the individual as an entrepreneur of their own life (McNay, 2009). Specifically, we see the construction of the ‘health entrepreneur’ who is responsible for their own health and wellbeing (Crawshaw, 2012). Calorie accounting, as a technology of biopedagogy, elicits modes of subjectification in that it teaches us how to control our own calorie intake and become self-disciplining in our eating habits. Minimizing calorie consumption becomes associated with taking personal responsibility of one's self and is an expression of responsible citizenship. Similar to how accounting practices helped to create the efficient retiree in Canada's retirement income system (Graham, 2010) or the efficient US factory worker (Miller & O'Leary, 1987), calorie accounting constructs the bio-citizen (Halse, 2009) who exhibits a duty of care to themselves, their family and even society more generally. Through such indirect mechanisms of rule are the individual dietary choices of citizens influenced and

regulated from afar. In this manner, biopower manifests as a subtle form of power that simultaneously allows the citizen to be autonomous and self-regulating (Muhle, 2014) or as Rose and Miller (1992, p. 201) observe “individuals can be governed through their freedom to choose”.

Accounting technologies lie at the heart of the biopedagogy of calorie accounting and the creation of the bio-citizen. Hence calorie accounting is a technology of biopedagogy. It relies on a calculative infrastructure to enact biopedagogy. It teaches the consumer to compare and contrast the numbers (calories) when making menu choices. How many calories for this meal as opposed to another? As one food standards executive explains:

We would like people to use that information to sort of stop and think about what they're buying. So if you have someone who every day is going to buy a really high calorie sandwich or roll and they don't know really what they're actually consuming, 700 or 800 calories, and suddenly that information goes up. You will get people who don't care; that's what I want and that's what I'm going to have. But you will get others who think, well perhaps I won't have that every day. There's one there that's 500 calories or 400 calories. I could try that one ... You can see people starting to make more sensible choices. (Interviewee 5).

Even if a consumer is ignorant about how many calories they should consume, the display of calorie information enables easy comparisons across menu items. As one obesity expert commented:

If everything on the menu has calorie labelling on it, the benefit of it is that even if you don't know how many calories you should be eating, how many calories you may have already eaten that day, at least you will be able to judge menu items against each other. You will be able to see on the menu as a whole, which are the lower calorie and which are the higher calorie [items]. (Interviewee 11)

Evidence of the influence of calorie information on consumers is suggested in the results from a voluntary scheme to introduce calorie labelling in food businesses in Northern Ireland. The addition of the number (calories) made healthy options even more attractive to consumers. “Yes, the lighter bites were successful, but they were more successful with numbers attached to them. It gives it credibility and people buy into that a bit more” (Interviewee 5). Consequently, the clear numerical signage associated with calories imparts a strong message to the consumer. Calorie accounting therefore is a technology of biopedagogy that showcases the power of numbers, or what Miller (2001, p. 382) would refer to as the “elegance of the single figure”. That single figure distils “substantively different kinds or classes of things” (Mennicken & Miller, 2012, p. 7). Different food options are made instantly comparable through numbers and these numbers are powerfully persuasive to consumers.

Responses to the Scottish public consultation process on calorie labelling also provide an insight into how consumers may react to the new numerical information. For example:

One of the places I eat has added calorie counts etc and it has definitely encouraged me to change my choices as the calories in some menu items are ridiculously high (Respondent number 599595722, Scottish consultation).

On a recent visit to [café chain] I noticed the carrot cake was labelled calories per slice a whopping 757 Kcals!! That certainly

<sup>12</sup> See for example, the study of junk food by investigative reporter Michael Moss: <https://www.nytimes.com/2013/02/24/magazine/the-extraordinary-science-of-junk-food.html>, accessed September 2022. I am grateful to one of the Reviewers for this link.

put me off choosing that as a mid morning snack. (Respondent number 705879804, Scottish consultation).

These quotes capture the discursive nature of calculative practices, how they become invested with meaning and significance (Miller & Napier, 1993). Through language and vocabulary, calories are attributed with 'good' or 'bad' connotations. And once these numbers have become fixed in the public consciousness and equated with certain meanings, they are difficult to ignore. As one interviewee observed: "you are hardwired with that information then and you can't really forget it ... next time you might think twice" (Interviewee 4). We are reminded here of Mennicken and Espeland's (2019, p.238) argument that once numbers are created "they become enrolled and translated by different users and built into institutions in ways that may make them difficult to change or abandon".

The new legislation for calorie labelling not only requires that the calorie content of meals be counted and displayed on menus, it also requires that the recommended daily calorie intake level (2000 calories) be displayed so that consumers can evaluate meal options against this dietary norm (Department of Health and Social Care (2020a, p.18)).<sup>13</sup> In this manner, numerical inscriptions construct norms which form the basis of comparison and evaluation. We witness the technological dimension to the biopedagogy of calorie accounting. As one respondent to the public consultation exercise on calorie labelling observed: "numbers of calories mean very little if not put in contrast to something else such as e.g. daily recommendations" (Respondent 556514520, Scottish Consultation). Similarly, a food standards official observes:

... if you don't know that you should be aiming for around 2000 calories a day as a woman, then you're never going to know really. You need to know that target to know how everything contributes to that ... knowing that your lunch is 400 calories doesn't mean anything unless you know what you're aiming for that day. So the two things go hand in hand. (Interviewee 5).

We are reminded here of how disciplinary technologies such as calorie accounting "textualize social situations, producing numericized environments by the simultaneous diffusion of numbers and the means for reading them as signs" (Vollmer, 2007, p. 581). Calorie accounting diffuses calorific numbers throughout the 'out of home' food environment while also providing the norm (2000 kcal) against which these numbers can be read and interpreted.

Defining the 'normal' body and promoting interventions to achieve it is of course a distinctive feature of biopedagogy (Lupton, 2018). In the display of the recommended daily intake of 2000 calories, we witness what critical obesity scholars would label as a biopolitical exercise of power through a process of normalization (Evans & Colls, 2009; Harewood, 2009). Hence calorie accounting as a technology of biopedagogy prompts the citizen to "calibrate themselves in relation to 'where they should be' and devise ways of getting from one state to the other" (Rose & Miller, 1992, p. 187).

## 9.2. The self-regulating restaurateur

In addition to creating the calorie counting bio-citizen, calorie accounting is a technology of biopedagogy that also initiates the self-governing capacity of restaurateurs and other food business by prompting them to reformulate their menu offerings to be less

calorific in content. As one obesity expert observed:

We think it will encourage behaviour change from the food industry because they are not going to want to have very high calorie labels on their menus. We're hoping it might encourage them to consider reformulating lower calorie options on their menu. (Interviewee 11)

This 'regulated restaurateur' in turn is seen as supporting the calorie counting bio-citizen because if foods are reformulated to contain less calories, then the citizen may achieve calorie reduction without much deviation from their usual menu choices. We see the "inherently political character of technologies of calculation" (Mennicken & Miller, 2012, p. 6) in public health statements that seek to reshape the 'out of home' food environment:

Product reformulation also places the least burden on the public in terms of improving diets as everyday foods are changed so there is no need for individuals to consciously review and sustain changes to what they eat. Indeed many do not notice the changes made, particularly if these are gradual and are made across the food chain. (Public Health England, 2018a, p.4)

Even before the introduction of the new legislation on calorie labelling, some of the large takeaways and restaurant chains had started to display calorie information. For example, McDonalds have been displaying calorie information on their menus since 2011 (Interviewee 3) and Sainsburys café have done so since 2013 (Respondent 358355563, Scottish consultation). No doubt these organisations have the resources to cope with the additional costs of calorie labelling. They also produce and sell food in a more standardised manner such that once the calories associated with a menu option are counted, they remain constant (Interviewee 4). Online food delivery services such as Deliveroo have also been influential in prompting the large food chains to display calorie information.<sup>14</sup>

Many of the large food chains have also responded to the obesity concerns by reformulating their offerings to provide lighter calorie menu choices. For example, in December 2017 McDonalds launched their 'Meals Under' 400 kcal and 600 kcals (Respondent 650510840, Scottish consultation). We see here how calorie accounting operates as a technology of biopedagogy: controlling bodily consumption of calories through the reduction of calorific quantities in food offerings.

Interviews with representatives from large restaurant/café chains who have already adopted calorie labelling indicated that counting and displaying calories are having an impact in what they offer. As the nutritionist from a nationwide café chain explained:

Having that information obviously means that you can therefore see the things that you might do from a practical point of view, how that impacts the calories, it does bring it to light. So it does help you assess what you are actually offering ... it definitely does give us that visibility ... and then we try and act from those [numbers]. (Interviewee 16).

And it appears that the more the consumer is seen to count and respond to calorie information, the more likely the restaurateur is to reformulate menu options and align them with the dietary ambitions of government. As one restaurateur (who has already introduced calorie labelling on menus) observed:

<sup>14</sup> <https://www.telegraph.co.uk/news/2019/01/18/calorie-labels-will-placed-millions-takeaway-menus/>.

<sup>13</sup> This is the recommended calorie intake for women.



If there is burger A and burger B and they are the same price and burger A is twice the calories of burger B, they'll [the food establishment] redevelop burger A. Of course, they will ... there is no doubt, you add another measure [calories] that is visible to the consumer and it will influence what restaurants are putting on sale. (Interviewee 20).

Indeed, some of the larger food establishments are constructing their own norms and standards for the calorie content of their food. As the nutritional manager from a café chain explained:

Internally, we have some standards on calories for doughnuts. A ball doughnut can never be more than X calories and the ring doughnuts can never be more than Y calories. So again, if we develop one of those and it came through to me and when we put it through the final checks a ring doughnut was 20 calories over the calorie limit, we just wouldn't launch that product. It would have to be redeveloped to less than Y. (Interviewee 1).

Consequently, it seems that the larger food establishments have been prompted to evaluate their offerings against not only the 2000 recommended daily calorie norm but also against their own calculative norms. As *Miller and Napier (1993, p. 645)* have aptly argued, accounting is a "profoundly normalizing activity". Indeed, one pizza chain founder believed that calorie accounting would become so normalized that it would soon lead to the creation of a calorie norm for a complete restaurant meal:

I mean very quickly you will get industry norms coming out such as this is what the average calories of a meal going out is, and therefore people will try and work towards those numbers. They'll become acceptable levels. (Interviewee 20)

In this manner, the ambitions of central policy makers with regard to health and diet appear to be having the required self-regulating outcome across the nationwide restaurant chains. Calorie accounting, as a technology of biopedagogy, seems to be working, educating and guiding restaurateurs in the practice of calorie reduction through reformulation of their food offerings. Like consumers, they too are being taught to be responsible bio-citizens.

In contrast, smaller food businesses have generally not been as proactive in displaying calorie information on menus. Only one of the small businesses interviewed had already adopted calorie labelling. For them it has been a hugely successful initiative. Ironically, this establishment is a takeaway: a food business not commonly associated with healthy eating. Yet the owner had introduced a fish and chip takeaway for under 300 calories which has proved extremely popular (Interviewee 15). However, interviews with smaller businesses typically revealed a large degree of concern and criticism of the calorie labelling proposals. Central to this concern appears to be the challenge in actually calculating the calorie content of dishes. As one restaurateur remarked:

So you'd have to break down every single recipe. And obviously work out for every single ingredient. To give you an example ... because it's me in the kitchen all the time, I wouldn't necessarily have a recipe written out, you know, for a specific dish. I think it would be a very difficult one to actually sit and work out ... it really would be quite a laborious job. (Interviewee 7).

Consequently a key challenge that smaller food businesses face from mandatory calorie labelling is the extra work from implementing the initiative. Additional costs would arise from having to train staff to count calories (Interviewees 6 and 12) and reprint all

the menus (Interviewee 7). These concerns have been highlighted in the English consultation on the issue with 65% of respondents indicating that calorie labelling would create a practical burden for businesses (Department of Health and Social Care, 2020a, p.8).

The challenge of calorie accounting for smaller businesses may also be exacerbated by the fact that different chefs produce the same dish to very different calorie counts (Interviewee 8). Additionally, calorie accounting in an environment where seasonal ingredients are used, or daily specials offered, poses a challenging calculative task. In these scenarios, small businesses would be forced to recalculate calories and redesign menus every time they modify a meal. As the following restaurateur explained:

We are buying from farmers, we're buying from local suppliers. We literally have a new special on every day and I don't have a mission of being able to work out the calorie count of the special every day (Interviewee 6).

Consequently, while counting calories might seem a simple and straightforward process, it is clearly challenging in the context of a constantly changing set of ingredients.<sup>15</sup> Arguably the effort to constantly count and recount calories may prompt food establishments to take the easier option of offering standardised fare rather than innovative seasonal dishes. As one respondent to the Scottish consultation exercise remarked:

Every time we make soup or scones or tray bakes or salads or quiche, the recipe changes. We use what is seasonal ... If this [calorie labelling] was introduced, we'd just buy in standard pre-packed food that's available all year round so that we only need work out calories once ... It will stifle food innovation in small cafes and restaurants. (Respondent 1015053818, Scottish Consultation).

As *Miller and Rose (1990, p. 11)* have noted, technologies can have unanticipated outcomes, often creating new and unforeseen problems. Calorie accounting, in the context of small business, may stifle the sale of innovative seasonal dishes. These are the "drifts in practice" (*Mennicken & Miller, 2012, p. 19*) that can occur when trying to operationalize programmes of government.

So the practical difficulties of counting calories suggest challenges for the operation of calorie accounting as a technology of biopedagogy in smaller food businesses. In other words, if the technological dimension of the technology of biopedagogy is difficult to deploy, then this limits the effectiveness of the biopedagogy. Recognising this limitation, the newly announced English legislation on calorie labelling currently exempts smaller businesses from the requirements (Department of Health and Social Care, 2020, p.3). However, there is a suggestion in the policy document that smaller businesses [small, medium and micro] may be included in the regulations in future and that in the meantime they should voluntarily calorie label (Department of Health and Social Care, 2020, p.3).

There was certainly an awareness amongst the smaller food business interviewed in this study, that the display of calories on menus could have a significant effect on the choices of some consumers:

<sup>15</sup> The challenge of counting calories accurately was highlighted in the press when the calories listed on the menu of a Glasgow based restaurant were found to be different from those produced by laboratory testing. See: <https://www.thescottishsun.co.uk/news/2830716/glasgow-restaurant-kcal-calorie-count-difference/>, accessed September 2019.

... there will be customers who become so focused on the calories that that will be something that will drive them ... I know for a fact that our highest calorific dish [a pasta dish] ... our customers love it. Now if that's got 1,200 calories allocation on it, people may choose not to eat it. (Interviewee 2)

There are certain people that will definitely be swayed by that [information] being on there. And looking after your health, that's so much more common and prevalent these days than fad diets and things. (Interviewee 12)

Consequently, there was a recognition by these smaller businesses that reformulation of menu choices may ultimately be inevitable if consumer demand changed in response to the calorie information. As one restaurateur remarked "it all comes down to what the customer wants" (Interviewee 7), while another observed:

Would we adapt our menu around calories? ... we can't say we won't change our menu but if the customers are choosing the low calorie options, then it's a very clear [message]. (Interviewee 2).

In addition, smaller restaurateurs revealed that reformulating menu options might occur if the total calories consumed over a whole dining experience seemed too high. So the normalizing influence of the 2000 kcal recommended daily allowance appears to be internalized even by the smaller food establishments. For example, as one restaurateur explained:

We'd maybe [change our menu], if we looked at it and 90% of the menu was too high [in calories] or if you added everything up, a starter, a main, a side dish and actually you were going over your daily intake. Then maybe in that scenario ... We would probably do that [reformulate menu options]. (Interviewee 12)

As with the calorie counting bio-citizen, experts also play a role in enabling the self-regulating character of the restaurateur, educating them such that their actions become aligned with socio-political objectives. In particular, Local Authorities are expected to play a role in encouraging and supporting food businesses in the implementation of calorie labelling (Department of Health and Social Care, 2020a; (Interviewee 10).

In summary, calorie accounting appears to have been successfully deployed in the case of the larger restaurant/takeaway chains. By contrast, smaller restaurants and cafes appear to be struggling with the potential challenge of counting and recounting the calorie content of their meals. Calorie accounting, as a technology of biopedagogy, seems to be limiting rather than enabling public health goals for this grouping. Nonetheless the market demands of the newly created calorie counting bio-citizen may ultimately prompt them to align with governmental ambitions.

## 10. Resistance and counter-conduct to calorie accounting

Of course, there is always the possibility that embodied practices of measurement, such as calorie accounting, may engender resistance. As discussed in an earlier section, critical obesity scholars have noted that citizens may contest the biopedagogy of healthy eating for many different reasons. With regard to calorie accounting, consumers may choose to make menu choices that are counter to the public health messaging implicit in the numerical display of calories. In other words, despite the numbers (calories) saying one thing, consumers may actively choose to be 'deviant'

and not conform to recommended dietary norms. As [Rose and Miller \(1992, p. 190\)](#) have argued "government is a congenitally failing operation". Autonomous actors are not automatically malleable, they can refuse to be nudged in the direction of government logic. Such resistance to the interference of the state into the private realm of the individual was evident in responses to the public consultation process on calorie labelling.

The state has no place in dictating what people can eat or drink ... The decisions that an individual makes about eating "outside the home" are down to that individual. The state should keep it's nose out of private lives. (Respondent 815248553, Scottish Consultation).

We don't live in a totalitarian state. Personal responsibility is required, not a national nanny. (Respondent 96572803, Scottish Consultation).

The recent accounting research on counter-conduct ([Ahrens et al., 2020](#); [Boomsma & O'Dwyer, 2019](#); [Crevlin & Becker, 2020](#)) may be insightful here. As noted in an earlier section, accounting scholars have started to draw on [Foucault's \(2007\)](#) work on counter-conduct, a form of conduct motivated by a desire to be governed differently, and to examine how accounting is implicated in alternative ways of governing. The local context can be central to understanding such acts of resistance. For example, [Ahrens et al. \(2020\)](#) examine the counter-conduct of a UK local authority (Newcastle City Council) to central government austerity programmes in the wake of the 2007/8 financial crisis. One of the ways in which the local authority engaged in counter-conduct was to claim (via the use of heat maps and budgets) that central government ignored local, regional differences in inequality. So localism was the reaction to centralism. Equally, [Crevlin and Becker \(2020\)](#) argue that resistance can take the shape of an everyday practice and call for more attention to the mundane practices of everyday life when attempting to understand the role of accounting in counter-conduct.

In a similar vein, biopedagogy cannot be easily disembedded from everyday concerns and local contexts. As critical obesity scholars have argued, bodily regulation is bound up with issues relating to family, gender, race and the socio-cultural context ([Lupton, 1995](#); [Rich & Miah, 2014](#)). So the governance of the body and the relationship between regulation and subjectivity may operate in more complex ways than that suggested within biopower ([Walkerline, 2009](#)). The local everyday context is arguably a key factor in how a consumer engages with food establishments. For example, is the consumer looking for value for money or is unconcerned by cost? Interviews with obesity experts in this study indicated that consumers may not choose the 'healthy' options if they do not seem like good value for money (Interviewee 4). In this scenario, the "unintended consequence [of calorie labelling] is that people might want to make sure that they are getting the highest calorie meals for the lowest price" (Interviewee 11). This is a form of resistance where a 'calorie binge' takes place, with the objective of maximizing calories for a minimum price.

Practices of resistance to calorie accounting may also be common in the scenario of a rare dining out treat – when the consumer steps outside the local everyday context. The celebratory nature of such occasions may mean that the consumer feels justified in ignoring (temporarily at least) 'good' dietary advice. This form of resistance was evident in some of the responses to the public consultation process on calorie labelling. For example:

From my own perspective, if I am eating out, I'm doing so for the experience, the taste, the atmosphere, and I'm not doing it every

single day. So I don't have any interest in how many calories are in my meal. Eating out should not be a regular thing. Even diet regimes, e.g. weightwatchers, allow cheat days. Eating out should be cheat days. (Respondent 815248553, Scottish Consultation).

The idea of the 'cheat day' in the above quote suggests that the pleasurable consumption of calories by the consumer may simply be a temporary moment of resistance which may be offset by subsequent behaviour in line with governmental objectives. It suggests that calorie accounting has become so internalized that it operates on the subject beyond the confines of the 'out of home' food sector to govern behaviour *in* the home. As one weight management expert observed:

So while having the numbers on the menu might not stop someone eating and enjoying that meal, it might have an influence on their behaviour later on that day. They might decide that they need to eat lighter or they need to go for a run, or something like that. (Interviewee 4).

Interviews with fine dining restaurateurs stressed the importance of the treat aspect of the dining out experience and how consumers are more interested in enjoying a pleasurable gourmet experience than in counting calories:

They [customers] want to come to us for a treat ... And you know, restaurants have to deliver an experience ... and that is where we want our customer journey to be, we want it to be an experience. (Interviewee 2)

If you're going to a fine dining restaurant, you're not going there with the idea of calorie counting. ... people are generally going out for a special occasion or an occasion in their own heads. (Interviewee 6).

As noted in an earlier section, critical obesity scholars have begun to recognize the importance of 'pleasure' in understanding resistance to public health dictates. Advice and guidance on healthy eating and bodily self-discipline, they argue, can clash with the desire to pursue pleasure (Fullgar, 2009). The eating of 'bad' food, for example, may deliver a hedonistic pleasure that negates the messaging in public health pronouncements (Lupton, 1996). Similar to smoking, the health advice is resisted in favour of a feeling of release and relaxation (Lupton, 1995). More generally, the impact of emotions on eating habits is seen as vital to our understanding of the body as a site of subjectification (Fullagar, 2009). The health entrepreneur is not necessarily 'rational' (Monaghan et al., 2010). Rather the body is also an emotional being who may pursue an alternative path. Consequently, the pleasurable experience of a rare dining out occasion is an illustrative scenario of a failure of calorie accounting as a technology of biopedagogy. The numbers (calories) fail to have the desired biopedagogical effect and the calorie counting bio-citizen fails to become enacted.

But this is not to suggest a scenario of outright resistance to the biopedagogy of calorie accounting. As Boomsma and O'Dwyer's (2019) work has indicated, counter-conduct is not an outright display of disobedience but rather a more subdued form of resistance. One of the forms of counter-conduct identified by these authors involved NGOs "working around core programmatic aims" of the Dutch government (ibid, p.16). In a somewhat similar manner, the calorie counting bio-citizen reframes the programmatic of calorie reduction to their own ends. They 'work around' the dictates of the biopedagogy of calorie accounting, engaging or

disengaging with it according to the dynamics of their local everyday context. They can be 'good' subjects in general while acting in a 'deviant' manner on rare special occasions. They use their freedom to choose differently, "sketching alternative visions with alternative practices in pursuit of alternative ends" (Ahrens et al., 2020, p. 12). We witness here the productive power of counter-conduct (Foucault, 2007) whereby the consumer does not simply resist the biopedagogy of calorie accounting but rather seeks to shape that conduct in an alternative way. But these practices of alterity play out alongside practices of conformity. Moments of pleasurable resistance operate within the broader self-disciplining regime of calorie accounting. And this is made possible by the fact that the subject has internalized calorie accounting such that they can constantly recalibrate their calorie consumption, shifting easily between the context of the 'treat' and the everyday, and modifying their eating accordingly. We witness therefore how calorie accounting can produce a form of counter-conduct that coexists with conformity to the programmatic of government.

## 11. Conclusion: accounting as a technology of biopedagogy

Calorie accounting, as a component of health governmentality, is the latest form of bio-politics, based on the idea of the rational individual who will take responsibility for their own health. It represents a neoliberal mode of health government which seeks to govern 'at a distance' through the inculcation of practices by the entrepreneurial self. Consequently, at the general level, this paper seeks to contribute to our understanding of how calculative practices in neoliberal societies administer *private* realms (the daily food choices of citizens) and shape them according to government's desired outcomes (Miller & Rose, 2008). It therefore seeks to address Mennicken and Miller's (2012, p.5) call to examine "the intrinsic links between calculative infrastructures and modes of governing individuals". Specifically though, this paper makes two contributions.

The first contribution is to identify the role of calorie accounting as a *technology of biopedagogy* in contemporary neoliberal society: a biopedagogical practice that converts government aspirations with regards to a healthier nation into a reality. Calorie accounting converts food and drink into numbers, rendering visible the caloric consequences of different meal options. Calories are the inscriptions that enable evaluations and judgements to be made, allowing the consumer to compare each menu option not only against each other but also against recommended daily calorie consumption norms. In this manner, the self-governing calorie counting bio-citizen is constructed who is entrepreneurial in the management of their own health. Similarly, restaurateurs are prompted to be responsible bio-citizens as they reduce the calorie content of their menu items through the practice of calorie accounting. And this all occurs not through coercive force or direct intervention, but rather through the indirect form of rule that is a defining feature of governmentality. Consequently, this paper builds on the concept of *technologies of government* (Miller & Rose, 1990; Rose & Miller, 1992) and reframes it in the context of the more recent work on biopedagogy (Harewood, 2009; Wright, 2009) by proposing the role of accounting as a *technology of biopedagogy* in contemporary neoliberal democracies. As a result, we are now able to witness how the exercise of biopower is frequently tied to a calculative apparatus. In other words, biopedagogy is often enacted and made operable by calculative technologies. While this paper has focused specifically on the introduction of calorie labelling as a technology of biopedagogy, the theoretical concept of a technology of biopedagogy can be more generally applied to explain how other interventions on the body are deployed by way

of a calculative infrastructure. Recent years have seen the explosion of a plethora of devices and schemes aimed at the control and surveillance of the body, from digital fitness devices to weight loss television shows. Many of these interventions can be viewed as an exercise in biopower which rely on some form of calculable inscription and the concept of a technology of biopedagogy may assist in explaining these practices.

A second contribution of this paper is to contribute to the recent accounting scholarship on counter-conduct (Ahrens et al., 2020; Boomsma & O'Dwyer, 2019; Crevlin & Becker, 2020). Drawing on Foucault's (2007) work on counter-conduct, this prior research has highlighted the role of calculative practices in resisting governmental ambitions and in shaping alternative modes of conduct. This paper seeks to contribute to this new literature by revealing the role of calorie accounting in enabling counter-conduct to the healthy eating goal. The findings indicate that counter-conduct is particularly at work in the 'treat' aspect of the dining out experience where consumers and restaurateurs alike actively embrace the consumption of sumptuously calorific food. The pursuit of *pleasure*, which has traditionally been ignored within the governmentality literature (Fullagar, 2009) trumps the power of persuasion. It challenges the idea that subjectivity is rationally constructed. The numbers (calories) fail to have the desired biopedagogical effect. But this moment of pleasurable resistance may be temporary in nature; the subject may be 'deviant' for the occasional treat but self-disciplining more generally. This seamless shifting is enabled by internalizing calorie accounting into the practices of everyday life. Consequently, the paper indicates that accounting may produce modes of counter-conduct which can coexist with conformity to governmental ambitions.

A limitation of both of these contributions is that the government initiative on calorie labelling is still very new and recent. This limits our ability to witness the potential scale and scope of this new biopedagogy of calorie accounting. The shortness of the timeframe also limits our view of the varied forms of resistance that both consumers and restaurateurs may deploy against the biopedagogy. And indeed, how the government might in turn reshape its governmental ambitions with regard to influencing healthy eating choices accordingly – i.e. how might the biopedagogy of calorie accounting and the counter-conduct to it iteratively shape each other.

More generally, there are tremendous research opportunities in examining how systems of measurement have become a routine part of everyday life in neoliberal society. Such "productive measures" produce and cajole, becoming a defining feature of everyday neoliberalism (Beer, 2015, p. 2). The increasing expansion of quantification into social life has been recently remarked upon by a number of scholars (Mau, 2019; Mennicken & Espeland, 2019; Mennicken & Salais, 2022). We have perhaps seen this most vividly during the 'Covid years' when the R number became a crucial foundation for interventions in everyday life (Miller, 2022). If our goal is to understand "the contemporary calculative infrastructures that shape the world in which we live and the types of persons we are or are expected to become (Mennicken & Miller, 2012, pp. 5-6), then the idea of accounting as a *technology of biopedagogy* may prove a helpful framework for future accounting scholars.

#### Data availability

The data that has been used is confidential.

#### Acknowledgements

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in-Chief Martin Messner.

#### Appendix 1

##### List of Government and Public Policy Reports on Obesity, Diet & Calorie Reduction

Department of Health (NI) (2012). A fitter future for all: framework for preventing and addressing overweight and obesity in Northern Ireland 2012–2022.

Department of Health and Social Care (2016). Childhood obesity: a plan for action.

Department of Health and Social Care (2018a). Impact assessment: mandating energy labelling of food and drink in the out-of-home sector.

Department of Health and Social Care (2018b). Childhood obesity: a plan for action – chapter 2.

Department of Health and Social Care, (2018c). Childhood obesity: a plan for action – chapter 2 (equality assessment).

Department of Health and Social Care (2018d). Consultation on mandating calorie labelling in the out-of-home sector.

Department of Health and Social Care (2018e). Technical consultation document: Department of Health and Social Care (DHSC) Calorie Model.

Department of Health and Social Care (2020a). Mandating calorie labelling in the out-of-home sector: Government response to public consultation.

Department of Health and Social Care (2020b). Tackling obesity: empowering adults and children to live healthier lives.

Department of Health and Social Care (2020c). Impact assessment: Mandating calorie labelling of food and drink in out-of-home settings.

Diabetes UK (2018). Public views on food labelling survey. ComRes report.

Food Safety Authority of Ireland (2012). Calories on menus in Ireland – report on a national consultation.

Food Standards Agency (2010). Food survey and you.

Food Standards Agency (2014). Food survey and you.

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Food Standards Agency (Northern Ireland) (2017). Calorie wise: guidance on voluntary energy (kJ/KCAL) labelling for out of home businesses.

Food Standards Scotland (2017). Informed decisions? Availability of nutritional information for a sample of out-of-home food outlets in Scotland. Ipsos MORI.

Food Standards Scotland, (2018a). Consultation on proposals to improve the out of home food environment in Scotland.

Food Standards Scotland (2018b). An evaluation of a pilot on the use of MenuCal within small and medium Scottish food businesses.

Food Standards Scotland (2019a). Analysis of a Food Standards Scotland public consultation on improving the out of home food environment in Scotland.

Food Standards Scotland (2019b). Diet and nutrition: recommendations for an out of home strategy for Scotland.

HM Treasury (2018). Soft drinks industry levy comes into effect. NatCen Social Research (2017). National diet and nutrition survey years 1–6, 2008/09–2013/14. MRC Elsie Widdowson Laboratory, University College London, Medical School.

National Food Strategy (2021). National food strategy: The plan. NHS Digital (2018). Health survey for England 2017.

NHS Digital (2020). Statistics on obesity, physical activity and diet, England.

NHS Digital (2021). National child measurement programme 2020/21.



Public Health England (2016a). Government dietary recommendations: government recommendations for energy and nutrients for males and females aged 1–18 years and 19+ years.

Public Health England (2016b). The eatwell guide.

Public Health England (2016c). From plate to guide: what, why and how for the eatwell model.

Public Health England (2017a). National child measurement programme: changes in children's body mass index between 2006/07 and 2015/16.

Public Health England (2017b). Salt reduction targets for 2017.

Public Health England (2018a). Calorie reduction: the scope and ambition for action. Public Health England.

Public Health England (2018b). Promoting healthy weight in children, young people and families: a resource to support local authorities.

Public Health England (2019). Food and drinks aimed at infants and young children: evidence and opportunities for action.

Public Health England (2020). Excess weight and Covid-19: insights from new evidence.

Public Health Wales (2019). Obesogenic environments: understanding the evidence for effective action.

Scientific Advisory Committee on Nutrition (2018). Saturated fats and health: a summary.

Scottish Government (2017a). The Scottish health survey 2016, volume 1, main report.

Scottish Government (2017b). A healthier future – actions and ambitions on diet, activity and healthy weight.

Scottish Government (2018a). A healthier future – Scotland's diet & healthy weight delivery plan.

Scottish Government (2018b). A healthier future – actions and ambitions on diet, activity and healthy weight: analysis of consultation responses.

Welsh Government (2010). All Wales obesity pathway.

Welsh Government (2019). Healthy weight: healthy Wales. Our long term strategy to prevent and reduce obesity in Wales.

## Appendix 2

### List of Interviewees

Interviewee number	Interviewee Descriptor
Interviewee 1	Manager nationwide café chain
Interviewee 2	Small & medium size restaurateur
Interviewee 3	Large takeaway chain executive
Interviewee 4	Online weight management service executive
Interviewee 5	Food standards executive
Interviewee 6	Small & medium size restaurateur
Interviewee 7	Micro size restaurateur
Interviewee 8	Small & medium size restaurateur
Interviewee 9	Food standards executive
Interviewee 10	Environmental health manager
Interviewee 11	Spokesperson for an obesity action group
Interviewee 12	Small & medium size restaurateur
Interviewee 13	Takeaway delivery service executive
Interviewee 14	Public health executive
Interviewee 15	Small & medium size takeaway owner
Interviewee 16	Nutritionist for large café chain
Interviewee 17	Public health executive
Interviewee 18	Public health executive
Interviewee 19	Health policy advisor
Interviewee 20	COO of a pizza chain

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