"Paradoxical bio-citizenship: Examining healthy eating from lay and professional perspectives."

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Abstract

In a society saturated with health messages, the concept of an eating disorder based on an obsession with healthy eating involving pathological behaviours and thoughts— "orthorexia nervosa"— presents a paradox, raising questions about extreme healthism and psychiatry's expanding reach into contemporary life. To explore this matter, we re-analysed data from six existing studies, including 56 interviews (individuals preoccupied with healthy eating; bodybuilders practicing extreme healthy eating; health practitioners specialising in eating disorders; fitness instructors) — and anonymous eating disorder support forums —through a bio-citizenship lens (biological rights, civic responsibility, self-care). Themes included food marketing; advantages/challenges of healthy eating; and healthy eating as pathological. For lay participants, healthy eating was tied to moral and practical considerations (medical, personal, professional, ecological) affirming their identity as responsible citizens. Younger participants followed tailored, often calorie-restricted, diets to enhance physical appearance and professionalism, while older participants emphasised healthy diet for illness prevention. Professionals highlighted pervasive health food marketing, and social media's role in the promotion of extreme health behaviours, which clients defended. On support forums, plant-based diets were scrutinised for calorie content, and orthorexia nervosa portrayed as superior to other eating disorders. Findings suggest a paradoxical bio-citizenship where socially approved yet risky pro-health behaviours are pathologised. Efforts to formalise orthorexia nervosa medically must address these paradoxes, along with new ways of expressing biological identity through self-improvement and self-labelling. As early diagnosis is emphasised, psychiatric and non-psychiatric professionals face challenges in identifying and reorienting individuals who may have crossed the blurred boundaries of "healthy" bio-citizenship.

246 words

Introduction

Western society is now awash with messages about healthiness, emanating from both public health sources and self-proclaimed health advocates. Statisticians caution about the significant costs of a food system abounding in processed foods to health and welfare services (FFCC, 2024), with labels such as “plant-based”, “sustainable” and “organic” used to connect with desirable customers seeking ways to “clean up” their diet (Walsh & Baker, 2020). This contemporary preoccupation with health is also selective, with a thriving wellness and fitness industry existing alongside high rates of obesity and chronic ill health, and a continuation of healthcare inequalities along socioeconomic lines.

Simultaneously, psychiatric discourse increasing links mental health to health-related behaviours (Firth et al., 2019). This includes expanding psychiatry’s therapeutic scope to lifestyle interventions like diet and exercise (Noordsy, 2019) and broadening diagnostic categories to include everyday experiences (Paris, 2020). One proposed category, orthorexia nervosa (ON) — an eating disorder (ED) marked by an obsession with healthy eating involving pathological behaviours and thought patterns — has drawn scientific, media, and clinical attention for over two decades (Arguedas, 2020; Costa et al., 2022). Though absent from DSM-V, numerous scholars in medicine and social sciences have examined ON. A new approach to interpreting ON is "paradoxical bio-citizenship”, where “paradoxical” reflects the tension in navigating neoliberal health messages and the potential pathologisation of extreme health behaviours. This raises questions concerning how ON reflects aspirations and vulnerabilities tied to biosocial identity in health-focused societies. To explore this matter, we reanalysed data from six studies on extreme healthy eating through the lens of bio-citizenship, integrating

perspectives from professional, lay, and online sources. We first outline paradoxical bio-citizenship and its relation to ON as a medical phenomenon.

Bio-Citizenship as paradoxical

The concept of bio-citizenship emerged from research in post-Soviet societies, examining how survivors of the Chernobyl disaster made claims for state compensation and recognition for radiation exposure effects (Petryna, 2010). Rose and Novas (2005) extend this to broader political contexts, when in the age of biotechnology and genetics, bio-citizenship places not just rights, but obligations on individuals to manage their health and minimise sickness. Drawing from Foucault's work on "technologies of the self" — whereby subjects adopt a certain set of physical, moral and spiritual self-practices to better themselves (Foucault, 1988) — Rose and Novas (2005) argue that neoliberal bio-citizenship emphasises self-responsibility through practices like exercise, healthy eating and disease prevention. During the Covid pandemic for instance, citizens received self-care instructions on how to prevent disease spread to reduce the strain on health services e.g. stay at home (Mehraeen et al., 2025).

Bio-citizenship reflects both social inclusion and divisions (Reuter, 2016; Rose & Novas). Tensions exist in what Rabinow (1992) calls "bio-sociality", with civic rights and duties shaping identities by including or excluding certain groups based on age, ethnicity, body mass index etcetera, often overlooking their uniqueness (Petryna, 2010; Rose & Novas, 2005). Moreover, medical classifications tied to personal traits carry moral and prejudicial weight. Obesity, for instance, is labelled a "global burden" (Seidell & Halberstadt, 2015), reinforcing stigma (Sikorski et al., 2012) and the inherent blaming of individuals, despite structural health determinants — as in priorities of food industries — playing a considerable role (McCoy et al., 2024). Reuter's (2016) term "paradoxical bio-citizenship" captures such conflicts within bio-

citizenship, citing tensions between responsibility and exclusion in genetic screening decisions for Tay-Sachs within Jewish communities.

Our concept of paradoxical bio-citizenship (PBC) is distinctive, as it draws on individualistic neoliberal self-care practices, social media-driven health trends, and the spread of psychiatric discourse into everyday life (Rose & Novas; Harbusch, 2022; author, 2024). We employ PBC to firstly describe how socially legitimated health pursuits— such as in preoccupation with exercise or "clean eating" — can paradoxically be viewed as pathological; and secondly to highlight bio-citizenship's complexity in the post-truth era, where emotional and belief-driven perspectives challenging accepted health facts prevail in some digital contexts (Leroy et al., 2018; Overbend, 2020). For example, many people are more inclined to search out health and dietary information on social media, aspiring to trends and ideas which resonate with them — such as concerning the consumption of meat (Leroy et al., 2018) — than follow the advice of traditional experts (Overbend, 2020). These notions of what constitutes "good" bio-citizenship are increasingly tied to identity formation and peer approbation, where individuals are encouraged to make excessive efforts to reshape their bodies through restricted diet (Sheppard & Ricciardelli, 2023; author, 2024).

The making of Orthorexia Nervosa

In the 1990s, U.S. physician Steven Bratman, while part of an "alternative" lifestyle community, coined the term *orthorexia nervosa* for a pathological obsession with healthy eating, which he described as a "disease disguised as a virtue" (Bratman & Knight, 1997). The condition involved an excessive focus on food quality, accompanied by a sense of superiority and self-righteousness that overshadows other sources of pleasure (1997, p. 10). According to the author, those affected isolate themselves socially, prioritising meal planning and

preparation over other activities and avoiding social events due to food-related anxiety. Although sharing the traits of extreme self-discipline and perfectionism with anorexia nervosa, orthorexia nervosa lacks the intense fear of weight gain, with the fixation being on quality rather than quantity of food (Dunn & Bratman, 2016).

Despite its exclusion from the revised *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5-TR, APA, 2022), orthorexia nervosa (ON) remains widely discussed in research and by organisations such as US National Eating Disorders Association (Dennis, 2024) and the Association of UK Dietitians (Gipp, 2019). Several ON diagnostic scales have been developed (Dunn & Bratman, 2016; Oberle et al., 2023), with studies linking ON to other eating disorders (Barnes & Caltabiano, 2016; Musolino et al., 2014) and obsessive-compulsive disorder (OCD) (Brytek-Matera, 2012). ON has been associated with yoga, veganism, macrobiotics, and "clean eating" trends (Staudacher & Harer, 2018), as well as aesthetic and endurance sports. Among male sports and dietetics students, ON correlates with muscle dysmorphia (idiom "bigorexia") and the proposed disorder of exercise addiction (Bo et al., 2014; Håman et al., 2017; Friere et al., 2021). However, a systematic review questioned ON's association with elite athletes' traits, noting that its 55.3% prevalence in general exercisers suggests ON scales may capture common behaviours rather than pathology (Hafstad et al., 2023).

The development of ON has also been explored theoretically, some viewing it as a distinct disorder rooted in food purity concerns (Bratman & Knight, 1997), and others as a cultural variant of anorexia nervosa (Bhattacharya et al., 2022; Musolino et al., 2015). ON has been linked to broader societal anxieties around food, distrust in biotechnology (Baker & Rojek, 2020), and the influence of neoliberalism and fitness-driven diet culture, especially online

(Pirie, 2016; Freire et al., 2021; Hangunu-Bresch, 2020). From a social constructionist viewpoint, ON exemplifies how "normal" behaviours such as healthy eating become medicalised, even in non-medical contexts (Arguedas, 2020, Authors, 2020; Harbusch, 2022). It is indicative of the shifting dynamics of medicalisation (Conrad, 2005), where multiple players are involved in shaping new psychiatric labels. New categories have emerged to describe emotional states and behaviours (Larocque et al., 2022), some — like "sex addiction" persisting despite removal from the DSM (Brossard et al., 2023). Meanwhile, health policy's emphasis on early diagnosis (Rowe, 2017) had led professionals to be on the lookout for signs of a potential eating disorder (Authors, 2022; Authors, 2023). Not only are those struggling to maintain a balanced lifestyle seen as needing assistance, but individuals who push themselves too hard to achieve healthy goals (where the definition of excess is difficult to pin down) are also at risk of becoming clinical subjects.

Rose and Novas (2005) note how contemporary citizens increasingly use 'biologically coloured languages' to describe their identities, such as calling oneself "OCD" (p.14). In an era of growing mental health awareness and self-disclosure (Corrigan et al., 2010), the sharing of eating disorder narratives by celebrities (Hanganu-Bresch, 2019) and everyday individuals (Holmes, 2017; Author 2024; Szto & Gray, 2015) is common on social media. These include identity statements, such as users of "pro-eating" disorder forums referring to themselves as "Ana" (idiom for anorexia) (Stapleton et al., 2019; author 2024). Thus, ON functions beyond a psychiatric label, helping individuals articulate experiences, identities and vulnerabilities as "biological citizens." This paper explores healthy eating and ON through the lens of paradoxical bio-citizenship (PBC), considering its societal role as both concept and potential diagnosis.

Conceptual Framework

Our theoretical approach is social constructionist in that we regard what counts as disordered eating or extreme healthy eating as emergent from socioeconomic, clinical and cultural headwinds, which cannot be adequately accounted for by focusing on presumed obsessions or deficits residing within individuals (Busanich et al., 2012). The proposed clinical category of ON exists within a social context where it is widely recognised, with expert assessment and treatment seen as necessary (Brossard et al., 2023; author, 2024). It is through this critical sociological lens that we analyse our data to explore new psychiatric categories and the paradoxes within the global wellness economy.

We have chosen the concept of biological citizenship over "responsible selfhood" (Sharon & Sharon, 2014) because selfhood broadly refers to identity shaped by cultural and psychological influences (Bauman & Raud, 2015). Biological citizenship, by contrast, focuses on how individuals claim rights and resources based on medical status while assuming health-related responsibilities. As defined by Rose and Novas (2005), biological citizenship involves the intersection of health, politics, medicalisation and identity. In this sense, biological citizenship *shapes* contemporary selfhood and identity construction, through the governance of both individual and public health.

Methods

Design

We used triangulation (investigator, method, and data) to capture different perspectives (lay, professional/online), enhance data richness, and align diverse sources of information (Carter et al., 2014). Our goal was to explore meanings ascribed to extreme "healthy" eating and perspectives on orthorexia nervosa (ON), while constructing new theory on this topic. To

examine our research topic, we analysed interview and online data collected over five years from six qualitative studies conducted within the same institution by the same research team. An interpretive secondary analysis (Heaton, 2008) incorporated pre-existing and new data (Chatfield, 2020), with contributions from both original and new researchers (author, 2015). Key researchers (x, y & z) ensured consistent inclusion of healthy eating and ON-related questions across studies, while first author (x) participated in every aspect of the study. Ethics approval for all studies was obtained from the same University Research Ethics Committee.

Participants and recruitment

The data described in this study, as taken from six previously conducted studies, comprised: twenty-five interviews with people who self-identified as 'extremely preoccupied with healthy eating' (HEs); ten interviews with persons who trained in bodybuilding and reported following extreme healthy eating practices (BBs); ten interviews with health practitioners who specialised in EDs and were familiar with orthorexia nervosa (HPs); eleven interviews with qualified fitness instructors who worked in gyms (FIs) (fifty six interviews in total); and people posting anonymous messages about orthorexia on open access ED support forums (Posters).

Interview data were collected between 2018 and 2023. ***Tables 1, 2 and 3*** (*see* ***Appendices)*** contain details of interview cohorts, including country of residence, occupation and interview date. All interviews were semi-structured, one-to-one, and lasted from 30 to 60 minutes. HEs were recruited through poster advertising, social media, snowball sampling and through the platform Prolific. As there is no formal orthorexia diagnosis, inclusion criteria were anyone over 18 years self-reporting an excessive preoccupation with healthy eating. Those with a diagnosed psychiatric disorder or who were having inpatient treatment for an ED were excluded from the study. Otherwise, HEs were mixed in gender and age and came from a

variety of social, cultural, and economic backgrounds. Fifteen HEs were based in the UK, two in the United States, and eight in Greece. We also included bodybuilders (BBs) as a group identified in studies as "at risk" categories for orthorexia nervosa (Håman et al., 2017). BBs were recruited through snowball sampling and volunteer sampling, with the final group all men, aged between twenty and thirty-five years, with six recreational and four competitive body builders. Four of the BBs also worked as personal trainers, indicating some similarities with the FI category. It should be emphasised that since none of the lay participants were selected based on an ED diagnosis, there was some variability amongst participants in terms of extremity of restricted eating (although several lay and professional participants spoke of a previous ED history). While questions to lay participants varied, all HEs and BBs identified as extreme healthy eaters, and all were asked about their chosen eating practices and reasons for pursuing their specific diet.

Recruitment of health practitioners (HPs) was purposive and aimed at those with diverse and in-depth expertise in EDs and specifically ON. All HPs had at least two years' experience of working with EDs, and were qualified as clinical psychologists, registered dietitians or sports therapists. The majority worked in the UK, while two practised in both the UK and the USA. HPs were questioned, among other things, about their experiences of working with child and adult clients with restricted eating practices based around healthy foods, and their views of psychiatric labelling. Fitness instructors (FIs) were recruited through social media and existing contacts. All FIs had qualifications in Fitness Instruction and Personal Training of level 3 or above, or another recognised qualification such as a BTEC. The procedure with all participants post-recruitment was similar in that once initial contact was made, they were emailed a copy of the participant information sheet and consent form and given an opportunity to ask questions

about the study. Interviews were arranged face-to-face or via telephone/video link according to the following participant preferences and Covid rules.

Social media studies

Separate research studies of publicly accessible threads from online ED support forums were conducted, using terms like "orthorexia", "ortho", "healthy eating", and "clean eating". Popular sources of dietary and weight loss information (author, 2024), these forums claim to support those experiencing or recovering from EDs, body dysmorphia, and weight and body image obsession (Bohrer et al., 2020). For this study, we reanalysed social media posts collected over a 6-week period in 2019 and again in 2020. To maximise variability, we selected threads with multiple responses from a variety of sources, each containing between 10 and 68 comments. Following ethical guidelines from Association of Internet Researchers (AOIR, 2019), we used only publicly accessible sources and removed all identifying information.

Analysis

Our interpretive secondary analysis involved combining pre-existing and new data (Chatfield, 2020), while the research topic itself was distinct (Ridge et al., 2015). The first author (AF) participated in all parts of the study, the second author (AC) was involved in four of the original studies, the third author (DR) worked on the final analysis and manuscript drafting and the fourth author (PT) collected data for one study. All parts of the study were approved by the same University Research Ethics Committee.

A constant comparison approach was used to achieve rigour (Dey & Teasdale, 2013). This involved simultaneous comparisons of incidents across categories to gradually refine themes and build theory (Glaser, 1965). A manual coding system was developed and applied across

four interview sets and continued until we were confident that all key themes has been identified. Our coding approach was primarily inductive, thoroughly reading all interview transcripts, and searching for patterns and codes within the data. However, deductive coding was applied in later stages to determine concepts and themes related to the research question. ***Figure 1: Concept map*** provides a summary of the main code sets extracted from different cohorts. The bio-citizenship concept emerged in later drafts and was reviewed by all authors for its relevance. Peer debriefings and revisions continued until co-authors approved the final manuscript.

To retain the conceptual and interpretative focus we have assumed a narrative approach in the writing of our findings. The order is as follows: *Food and fitness marketing*: *Professional perspectives; Food and fitness practices: Lay perspectives; Online accounts of healthy eating; Professionals' perceptions of healthy eating as pathological*.

Findings

Food and fitness marketing: Professional perspectives

The term "orthorexic society" highlights how public obsession with health promotion and purity has become so widespread that it shapes modern food choices (Nicolosi, 2006). While professional participants (HPs and FIs) in our study did not explicitly use this phrase, they expressed strong views on societal attitudes toward food, health and appearance. Registered dietician Anna spoke of 'idiosyncratic irrational ideas about the power of food to affect health and well-being', with health messages concerning the dangers of fats and "carbs" now a constant feature on billboards and social media. Clinical psychologist Nina had encountered whole families (including within the US Latino community) who became obsessed with healthy eating. London-based psychologist Pippa had noted an extreme healthy eating culture

emerging among their gay male clients who frequented London gyms. In relation to gym culture, FIs criticised the hard-hitting health marketing strategies of fitness companies, with some providers more interested in 'selling an image'. FI Jess described the gym environment as intimidating, noting 'health slogans written everywhere', which could put off an overweight or unfit person. Health food products were an important part of this culture. As FI Clive remarked: 'The first thing you see when you go into…most gyms…it's protein bars, protein shakes, stuff that you can…easily get into [you].'

Obsession with healthy eating was seen by both HPs and FIs as fuelled by social media, on which curated images of "clean" and "perfect" diets created unrealistic standards. Clinical psychologist Mia noted; 'It [social media] is very influential on people…especially at an age when they don't really have the capacity to… think for themselves.' Platforms like *Instagram* and *TikTok* were seen as promoting health trends that emphasise extreme dietary restriction, along with idealised bodies, 'without any guilt'. Social media influencers were keen to endorse any health fad or detox tea, 'that may have worked for them as sort of an n=1 type case study!' (FI Liam).

The paradox here is that individuals are socially encouraged or pressured to adopt "healthy" behaviours and lifestyles in the name of responsible citizenship, yet the structures promoting these behaviours often create exclusion and anxiety.

Food and fitness practices: Lay perspectives

HEs and BBs also criticised modern food marketing, however their focus was more on avoiding foods of poor quality or which were harmful to the environment. Instead, participants had educated themselves and actively engaged in what they saw as elevated forms of health

consumerism, such as shopping organically, joining a gym or following a slimming programme, in search of a healthier body and mind. Interest in the ethical and environmental superiority of a more plant-based diet has surged (Phua & Kim 2020). HEs practising veganism were vocal around the 'highly unethical and unhealthy' operations of huge corporations such as the meat and dairy industry: 'It's a massive industry. For instance, a salad costs more than beef. From this you can see the economic incentives and how much society has invested in this industry' (HP Olina). Here, bio-citizenship meant making the right moral and personal choices, ultimately for the benefit of the planet.

'Healthy' eating was viewed by some as a form of medicine, aligned with concerns about biotechnology, e.g., 'It's a preventative measure to eat well... rather than consume herbicides, pesticides, and all that.' Many now viewed the fare served up in childhood (like corned beef hash and fried fish and chips) with distaste, associating these foods with diseases such as cancer. HE Clare was convinced that her new, cleaner diet had significantly improved her health, 'I'm 61, almost 62. My last check-up was great. I feel good, I don't need a lot of medications, and ultimately, the proof is in the pudding.' Controlled eating can also be a spiritual exercise. HE Eirini approached her practice of Greek orthodox fasting pragmatically, seeing it as both worship and weight loss strategy:

> In my mind, I wanted to find a range of reasons that could justify my fasting… to lose weight or that I'll fast and in turn I will have God's love… it helped me to be restrained, to have self-control.

Another key benefit of a healthier lifestyle (especially —but not exclusively— for the younger cohort) was achieving a more attractive body, e.g., 'My appearance…I literally wanted to change myself'. Several female HEs had initially been motivated by weight loss, some having faced criticism or bullying for their weight during young adulthood. Others were keen to avoid the obesity they observed in other family members, e.g., 'I look at my mum and grandma and I say, "I don't want to be like them."' (HE Stella). Several HEs and BBs had forged a career out of their interest in health and fitness. Bodybuilder and wellness coach Ivan told of how initially he had been strongly influenced by well-known figures on *Twitter* and *YouTub*e, but over time had developed his 'own understanding of nutrition'. Becoming a role model was an aspiration for those using social media, and nowadays that could mean gaining bulk rather than losing weight: 'Gaining is scary but I need to be a healthy role model and I need to gain some muscle.'

Bodybuilders and fitness enthusiasts commonly view food as "fuel" for energy production, muscle growth, and to enhance overall performance (Harrison & Smith, 2016). The younger male HEs in the study often approached their food choices strategically, some seeking advice from personal trainers. Others like HE Zac found a step-by-step health plan on social media which fitted their personal goals and aspirations: '" Top 10 things to do to improve your diet" and stuff like that. It went from, you know, making me feel bad about myself to making me feel good, it helped me.'

Careful adherence to healthy lifestyle practices was widely regarded as beneficial, but lay participants also recognised its costs. A healthy lifestyle demands work — time management, organisational skills and self-control. Cooking from scratch could be stressful, especially when tired at the end of the day. Strict regimes were sometimes antisocial and limiting. For the less

confident cooks they could also be boring, especially for BBs, who stuck to a high protein-low carb diet to achieve their muscle tone goals, e.g.— 'Like (in training) a meal for me would potentially be 15 egg whites scrambled up together and then put in salad' (BB Carl). Some of the lay group allowed themselves 'cheat days', but most experienced feelings of self-disapproval or guilt. After having deviated from their diet they might decide to skip the next meal or fast for a day after an indulgence. HE Liam admitted that he felt worse 'mentally' if he did not eat healthily for some time, 'because I feel like I am not developing toward my goals.'

These findings support our concept of PBC, with lay participants influenced by a mixture of traditional ethics and norms and market trends, choosing diets which reflected their personal values and quest— not just for better health — but moral and social legitimacy.

Online accounts of healthy eating

In addition to lay interviews with those who described themselves as highly preoccupied with healthy eating, we also researched ED support forums where members (Posters) anonymously posted and shared experiences. In one thread titled, 'What are some of the things you obsess over?', Posters prioritised activities such as calorie counting, weight loss and maintaining a specific image. As with lay interviewees, Posters had rules around food and eating linked to weight, e.g., 'I only eat healthy foods since you can't get fat from them.' Many online were preoccupied with monitoring their diet, with terms like 'fucked up', 'failure' and 'pathetic' used to describe the sense of personal disgust felt when the Poster transgressed from a self-imposed regime. Several wrote of their struggles in following a clean diet, which they sometimes combined with binging and purging:

> Yesterday was by far THE HARDEST DAY I HAVE EVER EXPERIENCED. In the sense of fighting the urge not to binge/well eat junk - I deffo binged on fruit and veg - and ended on 2350 calories.

Most of the Posters had been diagnosed with an eating disorder (typically anorexia or bulimia) or some other mental disorder. Some tied this in with their pre-occupation with healthy eating, e.g., 'I have OCD and feel like if I don't eat clean I will get sick or someone else will get sick.' On balance, being obsessed with healthy eating was seen as a move in the right direction, e.g., 'I honestly believe being orthorexic isn't that bad . . . I'm eating whole plant foods and not eating donuts, pizza and crap'. There was a celebratory tone in some threads concerning a shared adherence to food purity: 'I must be really demented because I don't see how this is sad. I mean, it's fabulous. Our binges are all about healthy foods. That's a win.'

To sum up, our analysis of ED support forums revealed a strong peer pressure on social media concerning adopting extreme healthy eating behaviours. That being "ortho" was widely discussed and even celebrated indicates the propensity of moral values to attach themselves to psychiatric labels.

Healthy eating as pathological: professional perspectives

While HPs were not strictly against the consumption of healthy foods, they saw the obsessive removal of so-called 'unhealthy' foods (as described on ED forums) as dangerous, especially for child and adolescent clients. Family therapist Harriot has seen how young clients used it to justify calories: 'First, they cut out sugar, and then they cut out everything.' The "trendiness" of healthy eating made it harder to challenge clients' beliefs and behaviours. Sue, a clinical psychologist with decades of experience, described clients (notably vegans and vegetarians)

obsessed with healthy eating as 'murder to treat' due to their antipathy toward 'normal' eaters, which she suspected included herself; 'With vegetarians and vegans you get this added layer and you might ask . . . "do people with orthorexia come and ask for help?" and the answer is, they're exactly the same as people with anorexia.'

The idea that ON represents a search for a paradoxically superior way of eating was echoed by sports therapist Pippa. However, unlike Sue, she considered ON a separate condition from anorexia, which warranted its own category in the DSM:

> 'They [people with ON] are looking for a pathway to eat in a particular way that they believe is evangelist, is superior to everybody else, and it makes them feel better about themselves, at least to start with anyway.'

In contrast, dietitian Wendy believed that not all cases of ON were weight or morality driven; some clients had developed healthy eating obsessions in response to gastric illnesses such as ulcerative colitis or Crohn's disease, where 'stomach pain almost feeds the orthorexic cycle'.

With the fitness industry's competitive environment believed to foster disordered eating behaviours, an obligation is falling on instructors to watch for signs of such behaviours in clients (Håman et al., 2017; Whitehead et al., 2020). Yet, the identification of EDs by those employed in the fitness industry remains a cloudy area, especially with instructors likely to follow and advocate tailored diets themselves. This was evident in our interviews, with FIs like Tish noting that disordered eating is 'not very well spoken about and people [in the fitness industry] aren't very open about it.'

A general lack of training on EDs emerged among FIs, meaning that most lacked confidence about approaching a client concerning their eating behaviours — unless they were visibly losing a lot of weight. Only one FI was familiar with the term "orthorexia nervosa", although most considered (when it was defined) that ON was probably quite prevalent: 'I think that a lot of what you've just described (ON)…is very consistent with… the culture we have nowadays' (FI Ali); 'I think that's [ON] probably quite common in the fitness industry… especially with the heavy emphasis on clean eating' (FI Kit). In common with some health professionals, the FIs pointed to the 'massive uptake in veganism' especially among young girls, with content on social media inciting more extreme forms of diet:

> Like 91% of 16–24-year-olds are on *Instagram* and stuff like that and if you look at those fitness [posts]- you know especially the girls who have joined like veganism, think "these are ways we're gonna eat, this is a healthy way of being" (FI Paul).

Summing up, while HPs differed in their interpretations of the underlying causes of restrictive healthy eating, they collectively perceived ON as a paradoxical pursuit of an idealised form of eating. For FIs, the paradox lay in their acknowledgment of the prevalence of extreme healthy eating, coupled with reluctance to critique it due to its normalisation within fitness culture.

Discussion

Bioscience is rapidly advancing, presenting individuals with new opportunities to improve their health. At the same time, neoliberal capitalism has introduced its own tensions, contradictions and risks (Pirie, 2016; Schrecker, 2016). The way in which people internalise and apply biomedical concepts to their bodies is also shaped by a variety of factors including status, age, gender, education and health and social aspirations (Rose & Novas, 2005). Using a bio-

citizenship framework allowed us to explore and interpret the various psychological, biomedical and sociocultural framings underlying healthy eating discourses, and the complex connections between healthy eating as a moral, professional, and ecological identity and its potential pathologisation. While participants in our study did not use the term "bio-citizenship", there was a shared understanding that modern citizenship entails a personal responsibility to improve one's diet and exercise habits to function as a healthy and productive citizen. In various ways, they expressed the contemporary obligation to conduct oneself in such a way as to minimise sickness, and to place less of a burden on society (Rose, 2010). In other respects, opinions varied widely on issues such as food marketing, plant-based diets, moral identities and the usefulness of orthorexia nervosa (ON) as a diagnostic label.

For the lay group (HEs and BBs), healthy eating served as an identity marker, helping them to make sense of previous experiences, signalling their status as good bio-citizens and outweighing the potential challenges and risks of following a restricted diet. As in other studies (Cinquegrani & Brown, 2018; Valente et al., 2020), the attitudes and behaviours of healthy eaters (HEs) were supported by a host of considerations, including a desire to prevent future illness, protect animals and the environment, practice self-control and lose weight. Consumers today are known to value food provenance, safety, and integrity to help mitigate potential health risks (Nicolosi, 2006). Ecological concerns are also regarded as paramount for present and future generations (Li, 2017). Those who follow careful, even stringent diets may, from this perspective, envisage themselves as "good" bio-citizens in the sense of eating more sustainably being more attuned to the needs of the planet.

With its emphasis on physical fitness, self-discipline and communal engagement, the sport centre/fitness gym has come to symbolise commendable bio-citizenship. Bodybuilding and

fitness training also embody characteristics of entrepreneurism, such as goal setting, risk management, brand building and personal development. For BBs and other young males in our sample, healthy eating was viewed strategically, toward attaining a fitter, more attractive body, enhancing self-confidence and status within the fitness community and wider society. With personal training now one of the fastest growing business sectors (Chekhovska, 2017), more people view setting up a health and fitness business as a route to successful entrepreneurism (Berardi, 2019). Accordingly, career motivation emerged as one of the driving forces among this health-conscious cohort in our study.

In their role as professionals, both health practitioners (HPs) and fitness instructors (FIs) expressed an awareness of the paradoxical nature of extreme pro-heath behaviours, with the pursuit of health widely supported, yet clients pursuing orthorexia-type behaviours regarding themselves as morally superior to others. Studies suggest that the adoption of healthy eating practices can be used to cover up more extreme conditions, such as anorexia nervosa (Bhattacharya et al., 2022; Musolino et al., 2015). Following a biomedical model, HPs in our study saw it as their duty to challenge signs of extreme healthism in clients and reorient them to prevent future damage, while admitting the difficulties of contesting seemingly virtuous health behaviours. FIs found this far more problematic because extreme health behaviours were common practice in their field, and due to a lack of training and discussion on eating disorders in the fitness sector. Hence, while expressing concerns about trends like the rise of veganism among young girls on social media, FIs were hesitant to address eating behaviours in their own clients.

Pro-eating disorder forums are known to be places where individuals seek support from others and engage in ‘suffering monologues’ in what is regarded as a relatively safe space (author,

2024; Walstrom, 2000). The posts we studied on ED forums indicated that strict healthy eating, especially through a plant-based diet, is widely accepted and normalised within these communities. Previous research in ED communities suggests that restrictive eating may be associated with "virtuous bio-citizenship" (Sheppard & Ricciardelli, 2023), serving to boost social status among extreme healthy eaters and creating a 'habitus of healthism' (Mussolini et al., 2015). Within ED peer groups, a hierarchy of ED labels has been detected (Authors, 2023; Mortimer, 2019), with healthy eating seen as lifting members 'above the food chaos' (Cinquegrani & Brown, 2018). While ED clients/patients are notorious for their treatment resistance (Aspen, 2014), the valorising of extreme healthy eating poses a new dilemma for professionals, whose clients may have no wish or motivation to change their behaviours. With veganism now widely endorsed and self-medicalisation gaining social acceptance (Corrigan & Matthews, 2010), being labelled as "ortho" or "ON" might even be regarded as admirable.

The concept of paradoxical bio citizenship (PBC) captures the contradictions and absurdities inherent in many facets of contemporary neoliberalism. Specifically, it reflects the conflicting demands imposed by marketing strategies and self-help narratives, which pressure individuals to embody both the "good consumer" (Han, 2014) and healthy bio-citizen. In the context of ON, PBC illustrates how pursuing dietary purity—a socially endorsed goal — can paradoxically undermine health and necessitate professional intervention. It also underscores the dynamic between bio-citizenship and media in the post-truth era, where online influence shapes health beliefs, and psychiatric diagnosis plays a role in identity construction (Leroy et al., 2018; Walsh & Baker, 2020; Hanganu-Bresch, 2019; author 2024).

Overall, our findings highlight the paradoxical nature of ON, where socially approved yet risky "healthy" behaviours are pathologised. Here, the quest for self-improvement and biological

identity is often confounding and intersects with self-labelling and potential harm. Efforts to legitimise ON medically must address these paradoxes, along with new ways of expressing biological identity through self-improvement and self-labelling. As early diagnosis becomes a focus, psychiatric and non-psychiatric professionals face challenges in identifying and reorienting individuals who may have crossed the blurred boundaries of "healthy" bio-citizenship.

Nevertheless, the expansion of psychiatry into lifestyle categories means that it is increasingly likely that both psychiatric and non-psychiatric professionals will be tasked with identifying individuals who overstep the boundaries of healthy biological citizenship. Psychiatry has always been something of a chimera, adapting its ideas of social deviance to fit the social, political and cultural conditions of the time (Harbusch, 2022). Some suggest that for psychiatry to remain relevant it must adapt to cultural changes (American Psychiatric Association Publishing, 2022; Claudino et al., 2019). Others argue that such expansion largely benefits the pharmaceutical and health industries (Frances, 2013; Paris, 2020). As plant-based diets and specialised diets for sports and bodybuilding purposes become more common, these populations may become over-medicalised and easy targets for a burgeoning ED treatment market. By expanding the number of people who are diagnosed with a potential disorder, more pressure is also placed on public-funded health systems to cope. While creating opportunities for private health markets, over-demand can leave more vulnerable, lower income individuals at risk because of a lack of resourcing.

Conclusion

The case of ON is illustrative of the tensions within the current politics of bodies, governance and medicine (Happe et al., 2018). The drive to medicalise society means that new disorders

— some based on paradoxical forms of bio-citizenship such as an over obsession with food purity — no longer require validation from official psychiatry to become deeply ingrained in the social fabric of wellness—and maladaptation—within the global economy. As people seek to make sense of feelings and behaviours, health extremism may continue to be celebrated within certain wellness and health subcultures, not so much because it aligns with societal values around self-care and health optimisation, but due to aggressive marketing, along with searches for an identity and sense of belonging that members derive from thinking or acting outside the norm. Our concept of PBC suggests caution should be exercised when developing or advocating for new DSM categories relating to eating and life style choices, where there is mixed messaging in society. At the same time, debates regarding the existence or not of a mental disorder should not divert attention away from the need for adequate health support and social welfare for all those in distress. Our research recommends that clinicians and policymakers seek to better understand the societal contexts and motivations of healthy eaters, while appreciating that extreme healthy eating can sometimes be camouflaging deeper pathologies.

Study contributions and limitations

Our study breaks new ground in terms of the sociology of mental health by interpreting extreme and/or disordered eating not only through a psychiatric lens, but through a culture shaped by neoliberal capitalism and its corporate interests. It offers fresh insights into how individuals in professional and personal life navigate the boundaries of normal and pathological eating behaviours. Our article also spotlights significant changes to the medicalisation process, with the creation of new psychiatric categories, such as ON, taking hold in society, despite their absence from orthodox psychiatric texts. Our theories concerning PBC remains under

development but may well prove useful for interpreting other aspects of contemporary life, such as those relating to exercise and beauty care.

This study included participants from diverse backgrounds, sectors, and age groups, providing a comprehensive view of healthy eating. By integrating sociology, psychiatry, and health studies, we examined ON's cultural, medical, and personal dimensions. Insights from this qualitative research can help improve clinical practice, public health initiatives, and policy. One study limitation is the lack of sample specificity. Future studies will focus on specific groups, including gastroenterologists encountering extreme eating behaviours and fitness professionals whose knowledge of EDs needs further exploration. Our data comes mainly from Europe and North America; yet research suggests that health, fitness, and ED markets are rapidly growing in Southeast Asia with cultural variations (Andreasson & Johansson, 2017; InnoScope Insights, 2024). More studies are needed to explore PBC in non-Western contexts.

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Date	**2018-19**	**2018-19**	**2019-20**	**2021-22**	**2021-22**	**2022-23**	**2022-2023**
Method	1-1 Interviews	1-1 Interviews	Internet study	1-1 Interviews	1-1 interviews	1-1 interviews	1-1 interviews
Sample	Healthy, eating identifiers (HEs)	Health Professionals (HPs)	Posts on eating disorder support forums (posters)	Healthy, eating identifiers (HEs)	Health Professionals (HPs)	Body builders (BBs)	Fitness Instructors (FIs)
Number	9	7	n/a	15	3	10	11
Nationality	UK/USA	UK/USA	n/a	UK/ Greece	UK	UK/USA /Netherlands	UK
Gender	Mixed	Mixed	n/a	Mixed	Mixed	Male	Mixed
Interview mode	In person and online	In person and online	Online	Online	Online	Online	Online

Table 1- Summary of interviews with dates

Table 2: Table of lay participant interviews

Cohort	Participant pseudonym	Gender	Area of work/occupation	Country of Residence
HE/A	Jane	F	Student	UK
HE/A	Karen	F	Finance	UK
HE/A	Jake	M	Personal trainer	UK
HE/A	Tim	M	Finance	UK
HE/A	Jo	F	Physiotherapist	UK
HE/A	Edi	F	Homemaker	UK
HE/A	Stella	F	Student	USA
HE/A	Clare	F	Professional	USA
HE/A	Liam	M	Wellness coach	UK
HE/B	Emma	F	Student	UK
HE/B	Anna	F	Healthcare Support Worker	UK
HE/B	Kathryn	F	Accountant	UK
HE/B	Peter	M	Consultant	UK
HE/B	Zac	M	Student	UK
HE/B	Sophie	F	Sales Assistant	UK
HE/B	Laura	F	Charity Worker	UK
HE/B	Charles	M	Student	UK
HE/B	Dimitris	M	Student	Greece
HE/B	Eirini	F	Teacher	Greece
HE/B	Maria	F	Student	Greece
HE/B	Stelios	M	Psychologist	Greece

HE/B	Olina	F	Student	Greece
HE/B	Athena	F	Secretary	Greece
HE/B	Sofia	F	Retired	Greece
HE/B	Niki	F	Lawyer	Greece
BB	Andy	M	Student	UK
BB	Ben	M	Engineer	UK
BB	Carl	M	Personal Trainer	UK
BB	David	M	Unknown	Netherlands
BB	Dylan	M	Police Officer	UK
BB	Edward	M	Office Job	USA
BB	Frank	M	Unemployed	UK
BB	George	M	Personal Trainer	UK
BB	Henry	M	Personal Trainer & Sales	UK
BB	Ivan	M	Personal Trainer	UK

Table 3: Table of professional interviews

Cohort	Participant	Gender	Area of work/occupation	Country of Residence
HP	Sue	F	Cl psych	USA
HP	Tina	F	Cl psych	UK
HP	Anna	F	Registered dietician	USA
HP	Nina	F	Cl psychologist	USA/ UK
HP	Wendy	F	Registered dietician	USA
HP	Pippa	F	Cl psych/ sports therapist	UK
HP	Harriot	F	Family therapist	UK
HP/2	Mia	F	Cl psych	UK
HP/2	Janine	F	Cl psych	UK
HP/2	Beth	F	Cl psych	UK
FI	Ryan	M	Manager/ PT	UK
FI	Bill	M	PT	UK
FI	Ali	M	PT/FI	UK
FI	Paul	M	PT/FI	UK
FI	Kit	F	FI	UK
FI	Tish	F	PT/ Nutritional Therapist	UK
FI	Liam	M	Manager/ PT	UK
FI	Clive	M	PT/FI	UK
FI	Lee	M	PT/FI	UK
FI	Kathy	F	PT/yoga	UK
FI	Jess	F	PT/ dancer	UK

HP =Health Professional
Cl psych= Clinical Psychologist
FI= Fitness Instructor
PT= Personal Trainer

Date	**2018-19**	**2018-19**	**2019-20**	**2021-22**	**2021-22**	**2022-23**	**2022-2023**
Method	1-1 Interviews	1-1 Interviews	Internet study	1-1 Interviews	1-1 interviews	1-1 interviews	1-1 interviews
Sample	Healthy, eating identifiers (HEs)	Health Professionals (HPs)	Posts on eating disorder support forums (posters)	Healthy, eating identifiers (HEs)	Health Professionals (HPs)	Body builders (BBs)	Fitness Instructors (FIs)
Number	9	7	n/a	15	3	10	11
Nationality	UK/USA	UK/USA	n/a	UK/ Greece	UK	UK/USA/ Netherlands	UK
Gender	Mixed	Mixed	n/a	Mixed	Mixed	Male	Mixed
Interview mode	In person and online	In person and online	Online	Online	Online	Online	Online

Figure 1: Concept map summarising code sets extracted from different cohorts

GENERAL
Food marketing/ advertising as manipulative
Health anxieties
Cultural emphasis on fit bodies
Extreme health practices
Social media influence

HEALTHY EATERS (HEs)
Health issues and obesity concerns
Family influence
Avoiding toxins
Food as alternative to biomedicine
Ethical eating/ veganism
Increased energy and confidence

BODY BUILDERs (BBs)
Goal orientation
Food as fuel
Peer influences
Muscular physique
On-line image
Self-entrepreneur
Role model

POSTERS ON ED FORUMS
Body/ weight anxieties
Existing EDs
Tracking calories
Advising others
Ortho/ clean eating as superior

HEALTH PRACTITONERS (HPs)
Cult of healthism
Family influence dysfunction
Rigid ideas over foods
Gradual restriction
Sense of disgust/ superiority
Hierarchy of EDs
Questions over DSM

Highlights paper: “Paradoxical bio-citizenship: Examining tensions in socially validated yet pathologised healthy eating from lay and professional perspectives.”

- Questions psychiatry’s expansion into lifestyle and eating behaviours
- Examines tensions between healthy eating as a value versus medical category
- Uses interviews and online forums to explore disordered eating
- Highlights food marketing and social media’s role in extreme behaviours
- Discusses challenges professionals face in addressing healthy eaters

Ethics statement

All parts of the study received approval from the following body:
College of liberal Arts and Social Sciences Research Ethics Committee, University of Westminster, London UK.