



Online health discourse: How does the calorie-tracking app 'MyFitnessPal' present food and the act of eating?

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Introduction

Technology is ingrained in modern living; the study of digital items as 'sociocultural products located within pre-established circuits of discourse and meaning' (Lupton 2015: 441) is therefore a valuable pursuit. MyFitnessPal is a calorie-tracking app where users input foods they eat and are provided with nutritional information logged in a 'diary'. Users set calorie goals, winning medals and sharing progress with other app users. With more than 50 million downloads from the Google Play store, the app and subsequently calorie-tracking more broadly is very popular. Global concerns regarding obesity are also increasing, with calorie-tracking apps seen as potential weight-loss tools (Toner, Allen-Collinson and Jones 2021). This study aims to analyse how MyFitnessPal presents and encourages a certain view of food and the consumption of it. The app is not neutral despite the implication of neutrality from both appearance and its statistical focus; it encourages a medicalised view of eating, based in removing wider contexts of food. This simplification can support limiting views on the body's value, and, though gently, propagate self-monitoring as necessity.

Background

Online health discourses impact perceptions of bodies. The data-based version of oneself formed via self-monitoring is what Ruckenstein (2014) calls a 'data double'. Ruckenstein had participants wear devices that tracked their heart rates, and argues that by making bodily processes 'visible' through data doubles, 'self-optimization' through reflection is possible (68-69). Nevertheless, the data double can only be a limited representation of the self, based on the specific focus of the data recorded. Whitson (2013)'s insightful comment about how her exercise watch 'collects data about me (or at least the running me)' (170) encapsulates how digital doubles are a simplified version of one iteration of the self. If digital doubles are to function as self-improvement tools, criticisms of the double become criticisms applied to the non-digital self, which exists in wider contexts not considered in the formation of those criticisms. This discrepancy illuminates a potential risk of self-tracking behaviours' impact on perceptions of selves and bodies. The fact participants felt the data their tracking devices provided was more credible than their bodily intuitions emphasises this risk (77). Data is valued over feeling (Toner et al. 2021).

The changing perceptions of bodies brought about with e-health's development is also accompanied by changes to how bodies are assigned value. This 'body capital' (Toll and Norman 2021: 60) is based on unwritten rules of the digital environment bodies are existing in. Toll and Norman outline some rules that govern women's body capital on Instagram, and although there is some vagueness in what counts as 'active Instagram users' (64) for their participants selection, they offer insight regarding culture's place in viewing the

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body. One participant interviewed identified as a Muslim woman, and when posting would consider her body capital for the context of the digital platform whilst also accounting for modesty considerations of her culture. Toll and Norman argue that because Instagram was not made with the participant's culture in mind, a compromise of cultural beliefs becomes inevitable in attempts to gain body capital. Hence, like in Ruckenstein's work, viewing the self through the narrow lens presented by a digital environment can mean sacrificing other ways of comprehending one's body and its processes.

There is a debate over whether tracking health, and online health discourse more generally, is empowering for users, or if technology exerts control over us. Tracking oneself can convert exercise into labour (Till 2014: 446), an example of how data can change relationships to the measured activity (Ruckenstein 2014: 77). The labour Till refers to is also labour in a capitalist sense, because companies can sell the data provided for financial gain (454). It takes labour to gain body capital on Instagram too, which can also be converted to economic capital (Toll and Newman 2021: 62); Till's take, specifying that a company and not the user is gaining that capital, is more negative. On the other hand, gaining information about your health – whether that be through online health resources in wider senses or information provided by apps from tracking data – can be empowering because of a sense of control (Lupton 2014: 607). Tracking watches and apps' use of 'nudge' techniques to encourage behavioural change provides useful insight into this debate.

Toner et al. (2021) examined how participants felt about being nudged by tracking watches. Nudges are signals from technology to suggest different behaviour, like the push notifications from an app telling users to stand up periodically. These 'nudges... inform the user where they stand in relation to some idealised version of health' (2) and supposedly allow autonomy, but guide users to the 'right' choice based on an 'ideal', likely separate from reality. Indeed, many participants ignored nudges because they did not consider real context. However, regardless, participants were constantly being reminded of their physical bodies, and a longer-term habit analysis could provide insights into what this increased 'visibility', to use Ruckenstein's term, would do to perception of self and health. The researchers knew the participants before the study, which could decrease the findings' validity, since participants may wish to present as more autonomous.

Another way tracking apps and technology may subtly exert influence over users is through gamification. Gamification is when features of a game, such as receiving a medal for completing a task, get utilised in non-game scenarios to encourage behaviours (Whitson 2013: 166). Tracking apps including MyFitnessPal employ these features to encourage participation (Till 2014: 454). Whitson argues these features are inextricably linked to surveillance and self-quantification (163) and 'soften' instructions for behaviour modification (164). Toner et al.'s participants did not care about gamification features like rewards and badges (8), but this perhaps is because they were active people before using tracking technology, and so could already have high self/other motivation. Whereas they reported finding nudges annoying (9-10), Whitson argues gamification is enjoyable and works by 'pleasure' not 'fear' (167). There may be pleasure in gamified features, nevertheless if there is something to win then there can also be fear of losing. Like in Toll and Norman's work on body capital, success in a digital environment (in this case the game) can feel conflated with

worth. Therefore, gamification in tracking apps may be impacting views of self and behaviour, as like with nudges, one competes with a contextless ideal.

Relationships to food are also under the influence of cultural developments. 'Medicalisation' means viewing things through the lens of health (Conrad 1992: 209) and has so comprehensively shaped living (Rose 2007) that its extension to food was inevitable. Calorie-tracking apps reducing food to data is a form of 'nutritionism', a term that Scrinis (2008) coined before the development of such apps but is certainly applicable to them. I argue seeing food as at its core, nutrition based, is to see it in relation to physical health and is therefore a form of medicalisation. This attitude ignores wider contexts of what eating means, 'other ways of understanding the relationship between food and the body', and its 'embedded sensual, cultural, or ecological qualities' (Scrinis 2008: 40). So, nutritionism can mean natural hunger cues get ignored, the joy and spontaneity of eating is not prioritised, and neither is the cultural and social importance of food. Scrinis points out the contrast of 'the nutritional gaze' – is one 'empowered' by food knowledge, or dependent on external information? (46) As with the 'data double', a tool supposedly for self-improvement is constructed by information trusted over physical experience. Often it is difficult to find verification of the nutritional data provided by apps (Lupton 2014: 616), highlighting the sense of trusting an unverified authority.

Reducing food to nutritional value is both directly and culturally taught from youth. Welch, McMahon and Wright (2012) studied Australian school children's attitudes to food, and found the nutritional gaze was the most prominent 'meaning...of food' children internalised (713). Food was linked to 'guilt' and 'self-surveillance' (713). Additionally, in interviews the children conflated 'healthy' and 'good', demonstrating the sense of health's moral dimension (720), which has also been a force encourage uptake of tracking behaviours (Ruckenstein 2014: 73). Nevertheless these feelings were not accompanied by scientific understandings of what healthy eating meant. Although the study was not longitudinal so cannot comment on long-term effects of the nutritional gaze with nutritional knowledge absent, other work has linked disordered eating with calorie-tracking apps.

One study found 78/105 participants already diagnosed with an eating disorder used MyFitnessPal, 57 of whom claimed it contributed to their illness (Levinson, Fewell and Brosol 2017: 15). Linardon and Messer (2019) studied men not diagnosed with eating disorders and found that people who used the app showed more signs of disordered eating. An interesting marker they used for disordered eating is viewing food in dichotomies like 'good'/'bad' (14). The Australian school children often glorified or demonised certain foods too, although not all food items were treated so (Welch et al. 2012: 720). This link implies harmful attitudes towards food internalised in youth and propagated in tracking apps can have negative consequences. Both studies admit their findings only establish correlation, and it cannot be assumed MyFitnessPal is causing food struggles. Nevertheless, the articles advocate, based on their research, for eating disorder information and avenues for help to be advertised on calorie-tracking apps. Currently, this feature is rare (Ferrara, Kim, Lin, Hua and Seto 2019). The correlation proves that MyFitnessPal does not exist outside of cultural perceptions of food and food-related behaviour, and through analysis of its features, this study seeks to define the ways in which it reproduces frames of eating.

Methodology

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My data is the food-tracking elements of the app MyFitnessPal. I chose to analyse a calorie-tracking app because apps are salient in many people's daily routines and therefore involved in social discourses, yet rarely analysed. I chose the app by putting the terms 'calorie tracker', 'calorie counter', 'calorie logger' and 'food diary' into the Google Play store. These searches proved that MyFitnessPal is the most downloaded app with calorie tracking as its focus. It has more than 50 million downloads and is free, making it the best app for my analysis since it statistically impacts the most people. MyFitnessPal is available on the App Store and the Google Play store. Screenshots from the app demonstrating the features I will discuss can be found in the text and appendix. Any tracking data used for demonstration purposes is mine. I in no way claim ownership over the app itself.

For the scope of this study I focus on the app's features directly linked to eating and the logging of eating, so I am not analysing the 'Recipes' tab nor MyFitnessPal's exercise-related features. I will take a thematic approach to sampling data. Firstly I will analyse the ways users are encouraged to track eating through push notifications and gamification. One of the main ways apps differ from many forms of online health is that engagement with the technology can be initiated by the app itself. Therefore, if choosing to study an app, the distinguishing feature of push notifications is valuable to analyse. Secondly, I will analyse how users are encouraged to share their tracking through the app's social media elements. Thirdly, I will analyse representations of tracked data. I will approach these themes from the perspective of what they communicate about food and eating.

Previous studies of apps have focused on functionality (Ferrara et al. 2019, Chung, Griffin, Selezneva and Gotz 2018), but their different aims render their methodologies unapplicable. Lupton (2014, 2015)'s 'sociomaterial' approach has value but she is not transparent in how she conducted app analysis. A more robust methodology for approaching apps would be a valuable development in the field, and I recognise that adapting methodologies not designed for an app will have flaws. MyFitnessPal exists in discourses of health, but its contributions to that discourse are not all language based. Subsequently, I will employ multimodal critical discourse analysis to examine linguistic and visual data, to determine what ideologies the app perpetuates or presents about the meaning of food. Machin (2013) outlines this approach and argues that other modes can imply ideology in ways language cannot (350), and therefore it is important to consider the app's non-linguistic elements. In fact, Machin argues, the way social ideas exist in non-linguistic discourses demonstrate how those ideas have been 'legitimise[d] and naturalise[d]' (351).

Analysis

MyFitnessPal produces two types of push notifications. One type are reminders to log meals (Figure 1). Rather than an imperative command, the 'nudge' takes the form of a question.

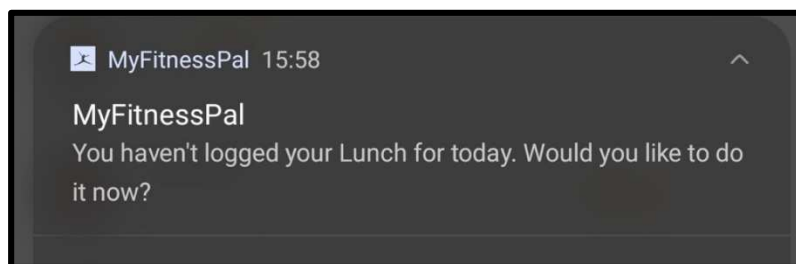


Figure 1, a push notification

The modality of 'would you like' decreases threat to face, and when coupled with the friendliness of the app's name has the impact of gently guiding users into tracking behaviour. The app assumes the position of well-

meaning friend, simulating closeness with direct address. A question implies power is with the user, nevertheless the form of push notifications means they appear on users' home-screens without initiation. Hence, the suggestion is that the encouraged behaviour is the 'right' one (Toner et al. 2021), even if politeness decreases overt imposition. There is a pressure in direct address; the comment feels targeted, and the regularity of the push notifications means users are not allowed to forget the nutritional gaze but are instead nudged into habits of self-surveillance.

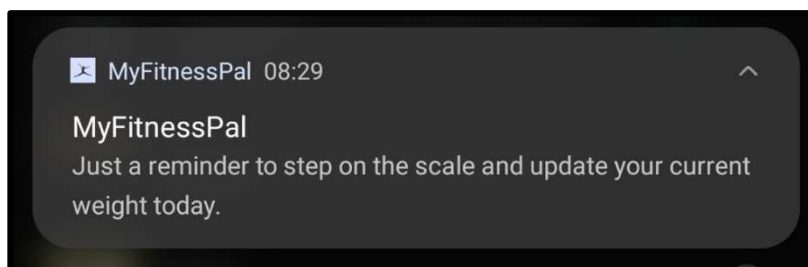


Figure 2, a push notification

The second push notification encourages users to weigh themselves (Figure 2). The temporal marker 'today' features again, so although the message's tone is unurgent, there is



Figure 3, a tracking streak

encouragement of imminent action. The modifier 'just' minimises imposition of the 'reminder', which is a word choice distanced from instruction and with connotations of helpfulness. The absence of 'weigh' as a verb may serve to distance the request from negative connotations of the act. (This is what Machin defines as 'substitution' (353)). Perhaps this choice is to benefit users, or an attempt to minimise what the app asks. 'Update your weight' is a technological framing of body weight. An absence of the emotional aspect weighing oneself can have divorces it from social context, hence self-tracking is presented as a discrete, harmless act. However, despite the neutrality of the language, the nature of nudges creates the implication tracking is a good thing. The visibility of push notifications insist on the visibility of bodies, encouraging self-surveillance habits in subtle, unimposing manners.

Beneath key profile information is a usage 'streak', an example of gamification (Figure 3). Success in the 'game' is dependent on continual tracking. In this way, gamification is intertwined with self-surveillance (Whitson, 2013). To remove nutritional gaze and not track is to lose. The positioning of the streak-statistic with core profile information marks it as important, encouraging maintenance. As a cumulative streak, the longer one tracks for, investment in doing so increases.

When users complete their daily diary, posts are generated to the app's social media section (Figure 4). This automation positions tracking as worth sharing; getting under your calorie goal is even more valuable news. The option of a 'like' button means social approval is



Figure 4, 'My Posts' tab

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available and assumes both that external approval is desirable, and that tracking deserves approval; it is the avenue for body capital.

The language used to encourage social engagement utilises statistics, continuing the prevalence of quantification in the app (Figure 5). The substitution of 'succeed' rather than specifying the act makes a value judgement on losing weight. Hence, there is a contradiction between the supposed neutrality/non-subjectivity of statistics and language use, that by equating weight-change behaviour with 'success', conflates it with worth.

When a diary is completed, the app offers a pop-up projection (Figure 6). The disclaimer at the bottom, in grey, smaller font – desiring less attention – demonstrates how the app tries to distance itself from subjectivity, and subsequently produces data ignorant of context. For an app brimming with data, there is a startling lack of information on what factors would cause result variation. The conditional creates a sense of what 'should' happen, and if it does not, there is the risk users feel personal failure.

The app simplifies calories into an equation, positioned at the top of the page indicating priority (Figure 7). Users are immediately confronted with a medicalised simplification of consumed food, and the body as machine with distinct inputs and outputs. The conception of food binaries that Linardon and Messer (2019) associated with disordered eating is propagated by the equation – users are either under or over calorie thresholds.

Graphical breakdowns of food are produced (Figure 8 & 9). In Ruckenstein (2014)'s heartrate tracker study, coaching was provided on reading graphs. MyFitnessPal does not offer guidance,

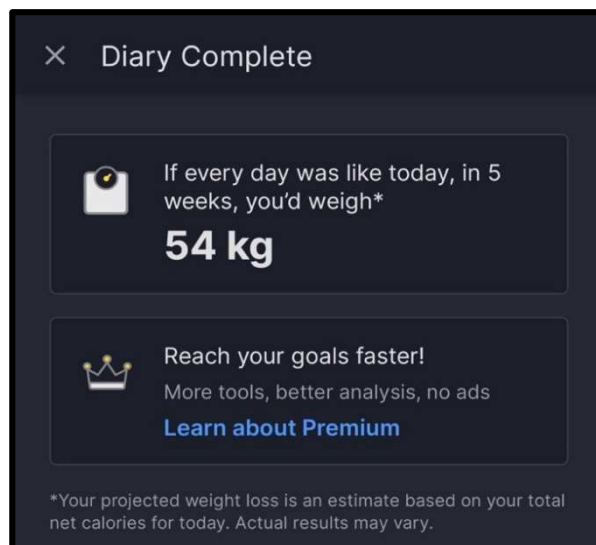


Figure 5, 'My Info' tab

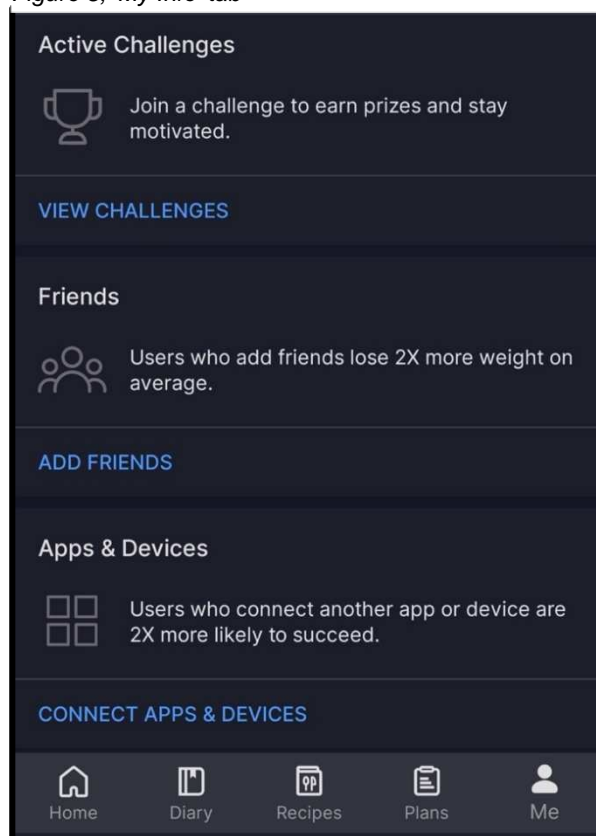


Figure 6, 'Diary Complete' pop-up

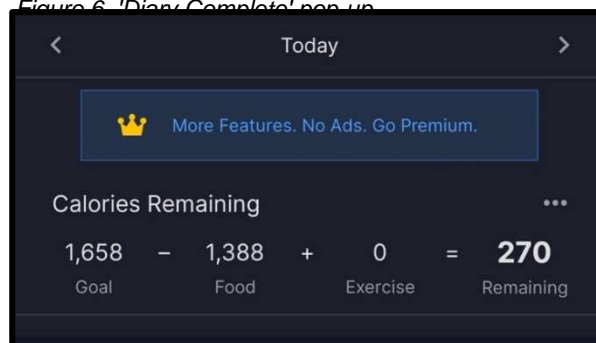


Figure 7, a calories equation.



Figure 8, a daily macros pie chart.

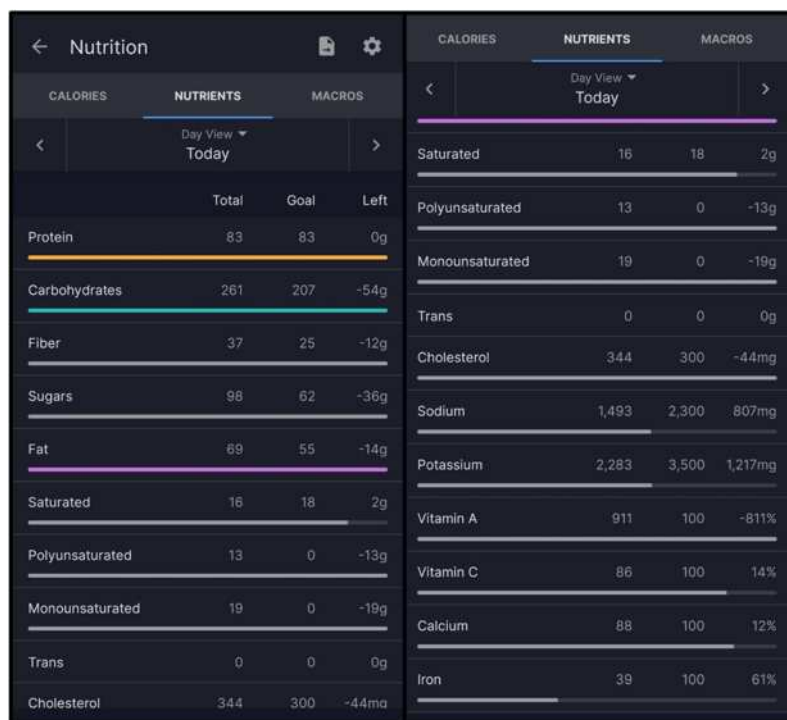


Figure 9, a nutrients breakdown.

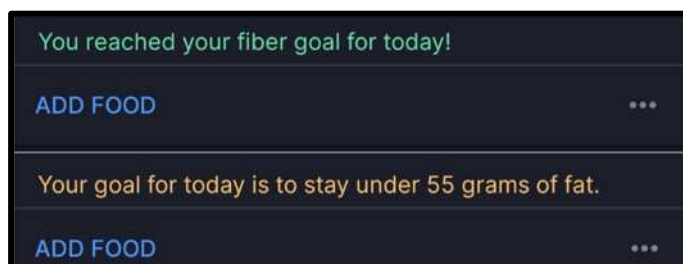


Figure 10, app messages.

which means users can accept simplification of what is complex information. Also in relation to Ruckenstein (2014), there is the concept of what would not be visible (calories in food) being made so, supposedly for the purpose of self-improvement. The colours in the chart are bright and do not assign any value to different macronutrients, which perhaps avoids the demonisation of 'bad' foods. However, colour symbolism can be observed in other tracking elements.

When 'successful', 'you' are the agent, but when 'unsuccessful' the blame, in language at least, is shifted (Figure 10). This fact could be helpful in reducing the conflation of self-worth to how your digital double measures up against ideal targets. Through colours though, green connotes

success and yellow, warning, a precarious state. The colour acts like a 'nudge' – there is no direct condemnation in the language, but the tacit sense of disapproval pushes users into what is deemed more desirable behaviour.

Discussion

MyFitnessPal's presentation of food and eating looks, and is in tone, neutral, but simultaneously encourages a nutritionalist viewing of food that links to value judgements on real bodies and behaviours, without contextual considerations. It subtly engages users in self-tracking through gamification and push

notifications, that 'softens' the instruction (Whitson 2013). Non-pressuring language choices add to this effect and are reminiscent of Lupton's work on exertions of power in online health discourses. The plethora of data available can seem like a valuable self-improvement tool,

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but although encouraging the creation of Ruckenstein's digital doubles, the app does not offer advice on how to healthily engage with it. Instead, eating is simplified into calories either under or over a static, contextless ideal. The nutritional gaze Scrinis conceptualises is encouraged by features of the app such as positioning of the equation, and the ways in which users are encouraged to adopt long-term tracking behaviours, but often this gaze adjustment is implicit, through rhetoric of empowerment and colour symbolism. The social media aspects of tracking link self-quantifications to worth based in public approval, and the app gives users its implicit approval that associates eating behaviours with success/failure rhetoric.

One limitation of my study is that interactions with the app were not studied. Ruckenstein (2014) elucidates the importance of studying real engagement with technology, to see physical impact of theoretical themes (69). Further research could examine how participants' perceptions of eating altered after using calorie-tracking apps that promote nutritionist, and reductionist, views on food, and user awareness of that attitude. Long term studies would be especially beneficial to examine internalisation processes from constant reminders to track. Additionally, an area my study did not address that could benefit from research is the app's position as a capitalist product, promising more data if you subscribe for a premium account, and how this position affects framing of food. A neoliberalism approach would be insightful to see overlaps between optimisation rhetoric and creations of digital doubles.

I recognise the inherent subjectivity in the data sampling for analysis; comprehensive methodologies to analyse salient app features would be a useful further research avenue. However, my methodology has strengths in considering the visual app aspects and also the app specific aspects, such as the way it can initiate contact with users, and the regularity of engagement.

Some implications of this work are based in how useful it is for users to be aware of subtle ways calorie-tracking apps present food, despite the overlay of neutrality. Thought could be given to changing app guidelines to make them less contextless, to help deter users unknowingly internalising discourses that impact the value they assign their bodies. This work could encourage the reframing of calorie-tracking apps as not just ways to fight the supposed 'obesity epidemic', but as cultural items that embody biases and propagate hegemonic and sometimes harmful ideas.

Conclusion

This study employed multimodal critical discourse analysis to examine how the tracking app MyFitnessPal presents food and eating. The app frames food only in the context of nutrition, thereby medicalising eating. However, it does so in subtle codes of behaviour modification and implied judgement, despite a sense of neutrality. Subsequently, removing other frames of understanding eating may seem to lead to unbiased, data-based truths, but is a simplification still presenting an angle on eating linked to social discourses on weight-loss. Hence, the app as a cultural product should not be considered neutral but as a contributor to online health discourse that encourages valuing bodies and food in a particular, often unrealistic, manner.

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Appendices

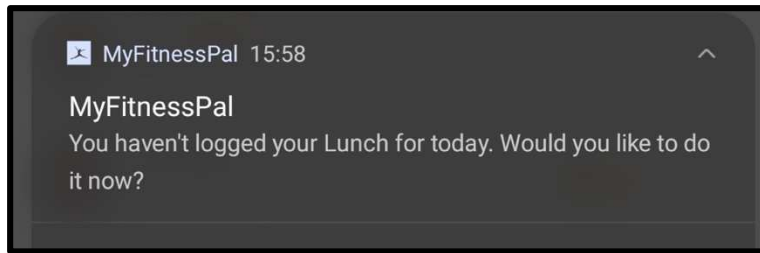


Figure 1, Screenshot taken on: 13/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

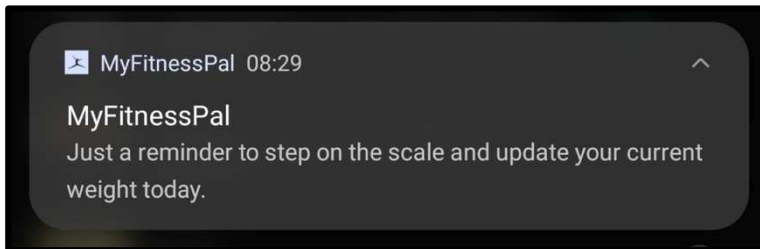


Figure 2, Screenshot taken on: 20/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

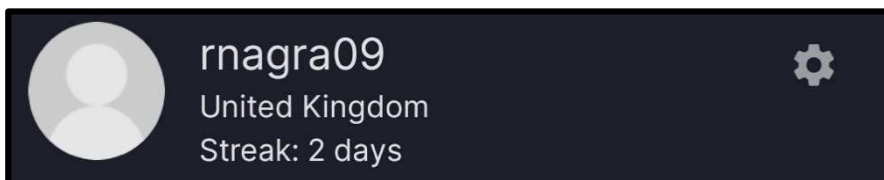


Figure 3, Screenshot taken on: 02/01/22. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.



Figure 4, Screenshot taken on: 29/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

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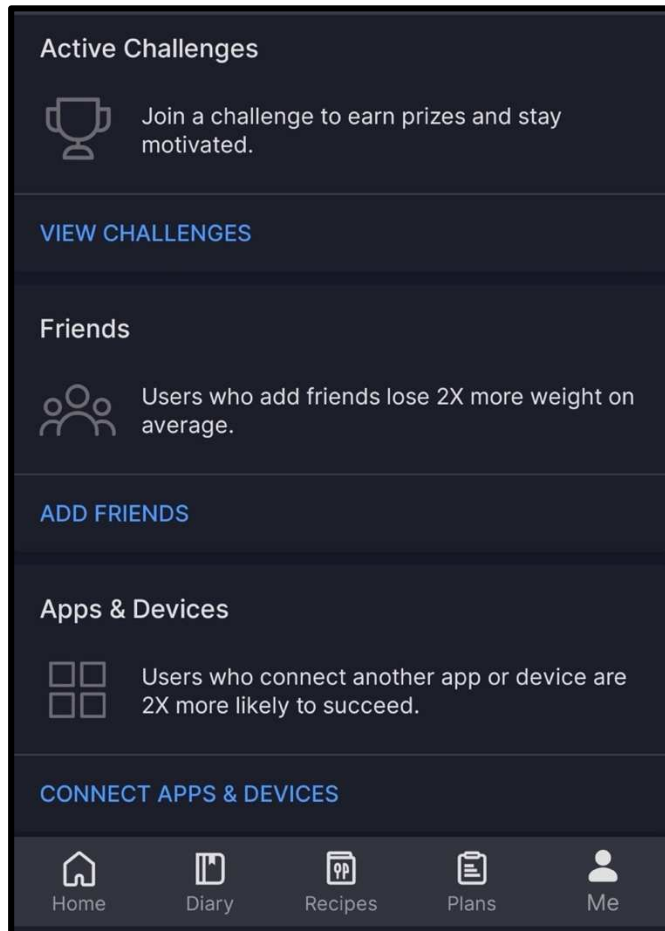


Figure 5, Screenshot taken on: 02/01/22. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

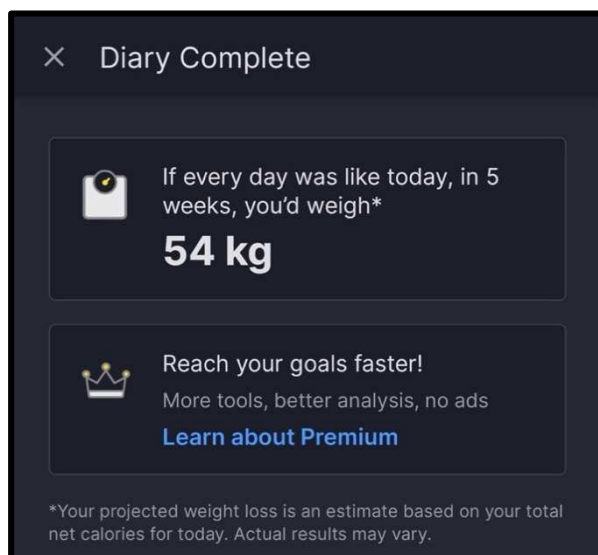


Figure 6, Screenshot taken on: 29/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

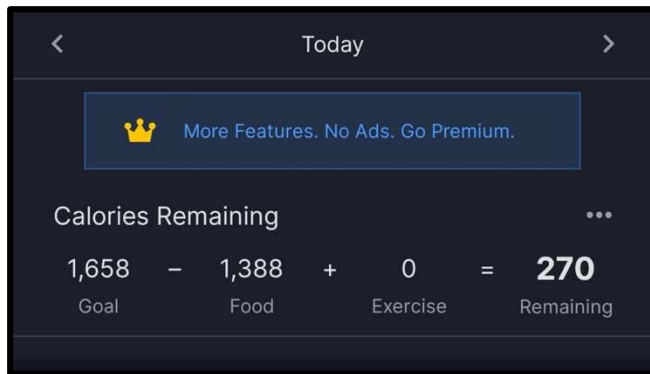


Figure 7, Screenshot taken on: 28/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.



Figure 8, Screenshot taken on: 02/01/22. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.

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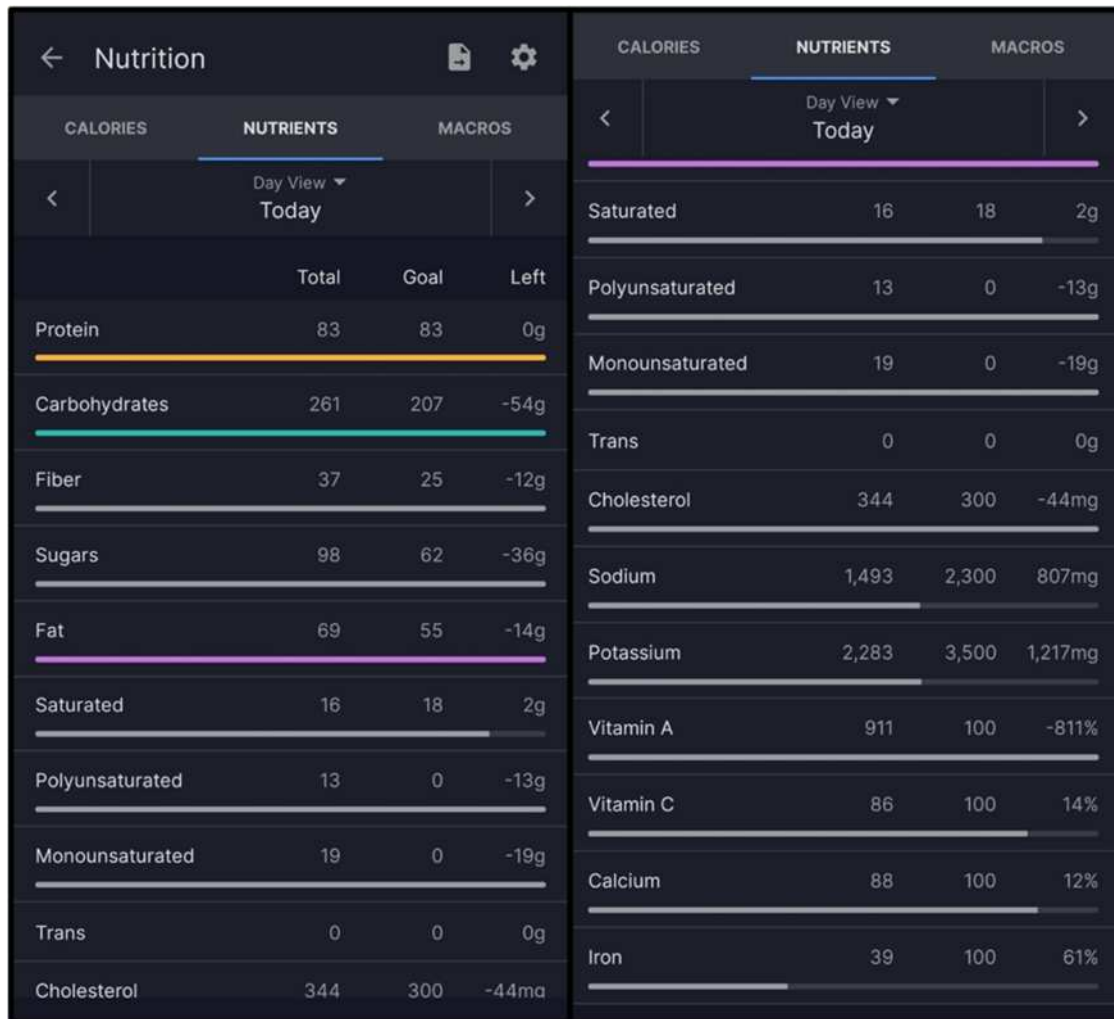


Figure 9, Two screenshots combined, taken on: 28/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.



Figure 10, Two screenshots combined, taken on: 28/12/21. MyFitnessPal, Version 21.25.0-21348. Copyright 2022, MyFitnessPal, Inc.