Disruption and adaptation in response to the coronavirus pandemic – Assets as contextual moderators of enactment of health behaviours

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Purpose. During the COVID-19 UK first national lockdown (March–July 2020) enactment of healthy behaviours was fundamentally changed due to social restrictions. This study sought to understand perspectives on health behaviour change, as part of a wider study tracking reported health behaviour change over time.

Methods. A purposive sample was selected. $N = 40$ qualitative interviews were conducted remotely (phone/video) from participants across England and Wales, and transcribed verbatim. Descriptive case studies were shared at regular analysis meetings. Inductive reflexive thematic coding was undertaken and coding was discussed using a team approach to agreeing analytical codes. A multiple lens theoretical perspective was adopted to illuminate the perceived influences and restrictions on participants' reports of health behaviour change.

Results. There was a clear progressive narrative for all participants, through initial responses and reactions to the pandemic, framed as 'disruption', then, as lockdown was acclimatized to, evidence of 'adaptation'. Adaptation was seen in terms of modification, substitution, adoption, discontinuation/cessation, stultification, maintenance and recalibration of health behaviours. An illustrative case study exemplifies the narrative encompassing these features and demonstrating the complex non-linear interactions between context and enacted health behaviours.

Conclusions. Individuals responded to pandemic-related social restrictions in complex ways. Those in contexts with existing social assets, community links and established patterns of healthy behaviours were able to respond positively, adapting by modifying behaviour and using technology to engage in healthy behaviours in new and innovative ways. For those in more vulnerable contexts, enacting (negative) health behaviour change was an expression of frustration at the limitations imposed by social restrictions.

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Statement of contribution

What is already known on this subject?
- Negative health behaviours (smoking, alcohol use, lack of physical activity and poor diet) cluster and are unevenly distributed, reflecting marked health inequalities.
- Social restrictions imposed as a result of the coronavirus pandemic are likely to have had a significant impact on health behaviours at the population and individual level.
- Experience of social restrictions varied considerably and is impacted by individual context.

What does this paper add?
- Individuals responded differently to social restrictions, impacting health behaviours unevenly, therefore widening already existing health inequalities.
- Most people moved through an initial stage of disruption to their health behaviour in response to social restrictions, then adapted in different ways, being fundamentally restricted or facilitated by existing assets and resources available.
- A qualitative approach utilizing narrative case studies is helpful in understanding the unique contexts that have impacted individuals' engagement with health behaviours during the coronavirus pandemic social restrictions.

Background

In response to the COVID-19 pandemic, on the 16th March 2020 the UK Government announced 'now is the time for everyone to stop non-essential contact with others and to stop all unnecessary travel' (*Prime Minister's Statement on Coronavirus (COVID-19)*, 2020). This was unprecedented, with social restrictions imposed in a way not experienced before in recent history. The immediate focus was on infection control and limiting transmission of SARS-CoV-2. The important long-term impacts on changes in health behaviours were secondary on the agenda (*News & Communications*, 2020).

Throughout the pandemic, government messaging has drawn heavily on medical discourse. During the 'first wave', around 90% of the population watched or read about daily live televised updates (*People Watching Government Coronavirus Briefing UK*, 2020), headed by the Prime Minister, the Health Secretary and the Chief Medical Officer for England. There was national preoccupation with the twists and turns of the viral pandemic (*Daily Summary | Coronavirus in the UK*). The medical model in relation to health behaviours crosscuts with public health discourse, where prevention has historically been undervalued. This is despite the clear role that health behaviours play in both viral transmission, and in the development of the global pandemic in non-communicable diseases, such as cancer, diabetes and cardiovascular disease (Geneau et al., 2010; Lozano et al., 2012). The medical approach has historically focused on individual responsibility for behaviour, with a discourse of 'healthy lifestyle' as a choice (Korp, 2010). During the pandemic, messaging has simultaneously drawn on discourse of collective responsibility. This dichotomy of individual responsibility to protect the self, yet also modifying behaviour to protect others, led to unprecedented social distancing measures framed as essential to protect the population – 'stay at home, save lives', 'protect the NHS' (*New TV Advert Urges Public to Stay at Home to Protect the NHS & Save Lives*, 2020). Within this context, there is a fundamental lack of acknowledgement that individual behaviour is constrained not only at the individual level by choice, but perhaps more powerfully, at the social and cultural levels, where there are significant constraints on behaviour that are unevenly distributed. People with no qualifications are more than five times as likely as those with higher education to engage in the 'big four' negative

health behaviours (smoking, alcohol use, low physical activity and poor diet), and unhealthy behaviours cluster (Buck & Frosini, n.d.).

One year later, it was apparent that the impact of lockdown may have enduring consequences for the physical and mental health of the nation (Bann et al., 2021; Bennett, Young, Butler, & Coe, 2021; Calina et al., 2021; Goethals et al., 2020; Meyer et al., 2020; ONS, 2021; Stockwell et al., 2021).

The qualitative analysis in this study on the impact of the COVID-19 pandemic on health behaviours takes a multiple-lens theoretical perspective. Firstly, we propose a constructionist proposition that risk/resilience factors impacting health behaviours are not equal. Secondly, we see health behaviours as active social practices (Bircher & Kuruvilla, 2014). Engagement in health behaviours holds social capital, is more than health behaviour, but also a socially negotiated interaction. In this sense, vulnerability and existing health inequality combine with the experience and performance of health behaviours (Spiers, 2000), severely structurally impacting people with limited resources, but advantaging others who are well placed to respond more positively. Thirdly, we take an asset-based approach (*Head, Hands, & Heart*, 2021) as a wider theoretical framework, with a focus on exploring which existing assets are utilized, which are lacking, and how new assets are created and maintained. The Social ecological model (Bronfenbrenner, 1979) is also utilized as an explanatory framework to consider assets and resources at different levels of access and influence that exacerbate or ameliorate vulnerabilities.

In this study, we explore qualitative data collected following the first UK national lockdown (April–June 2020), as part of the **anonymized link to open access protocol**.

Methods

Aim
To provide contextualized explanations for behavioural and mental health changes and perceived impacts on health outcomes during social distancing and lockdown.

Sampling
The *Covid-19 helaht behavious and wellbeing tracker* study recruited 1,044 participants from across England and Wales to complete daily surveys over the first lockdown, with subsequent follow-up surveys (for a full description, see Naughton et al., 2021). A purposive sample of participants was approached to achieve maximum variation:

We selectively sampled specific groups using the following core sampling characteristics:

1. Key workers (work was considered critical to the COVID-19 response (*Coronavirus & Key Workers in the UK – Office for National Statistics*, 2020))
2. Low socio-economic status (residing in postcode area with Index of Multiple Deprivation decile 1–3)
3. Clinically extremely vulnerable (government instruction to shield)
4. Mental health condition (self-identified)

We additionally sought to ensure a good variation in participant baseline demographics, including sex and age.

Procedure

Participants who consented to be contacted following completion of daily tracker survey data were contacted and asked for additional consent to take part in a one-to-one telephone or video call interview. A total of 40 interviews were conducted by four researchers between 8.10.2020 and 5.01.2021, following participant completion of 6-month follow-up survey data. During this time, England had emerged from the first national lockdown and then entered the second lockdown (see Figure 1). Interview length ranged between 30 and 90 min.

The interview guide was semi-structured (available at **a*non***). To stimulate discussion, we provided participants with a graphical summary of their self-reported health and well-being data using data from the daily surveys (Kwasnicka, Dombrowski, White, & Sniehotta, 2015). The interview probed for depth to contextualize this quantitative data (daily diet, exercise, mental health, substance use), but also incorporated flexibility for participants to discuss wider health behaviours, social identity, contexts and experiences. Interviews were recorded and transcribed verbatim.

Analysis

We undertook inductive thematic analysis of interview data offering participant explanations of quantitative data, utilizing NVivo V12 to support analysis. All coders were experienced qualitative researchers. Firstly, data were descriptively analysed as single case studies. One case study was selected for presentation, as illustrative and informative of the thematic analysis (rather than representative). Secondly, the interviews were analysed drawing on a reflective thematic analysis approach (Braun & Clark, 2021). Four transcripts were independently coded by two researchers. Following initial inductive analysis, we developed and agreed a broad coding frame that four researchers applied to subsequent transcripts, enabling flexibility to add additional inductive codes. The team met weekly to compare codes across cases and explore patterns of health behaviour change and person-based reflections, drawing on frequently occurring
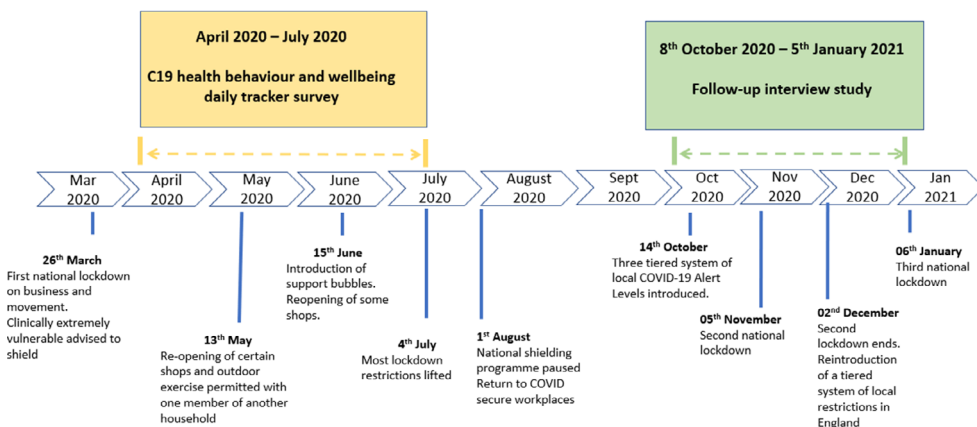
Figure 1. Study Timeline.

contextual factors and considering the wider political and structural context (social restrictions). We attempted to transparently acknowledge the situated reality of individuals, taking self-reported data at face value, as a socially constructed version of 'truth' (critical realist perspective).

Quotations are labelled as 'F' or 'M' to denote participant gender, with an age band given for each participant quoted. The COREQ reporting checklist (Tong, Sainsbury, & Craig, 2007) was adhered to for presenting findings.

Results

Fifty survey respondents were approached and 40 agreed for interview (see Table 1).

Analysis demonstrated a clear progressive narrative through initial responses and reactions to the pandemic, framed as 'disruption', then, as lockdown was acclimatized to, evidence of 'adaptation'. This narrative acted across all health and well-being behaviours which were inextricably linked.

Disruption

Reflecting on the initial COVID-19 'lockdown', participants focused on experiences of environmental disruption that directly impacted health behaviours. For some this was stark, in limiting access to usual exercise facilities. Environmental disruption to workplaces also fundamentally changed the ability to engage in physical activity:

> Before lockdown, I've got arthritis right, so to do anything where there is impact, I can't do it. So I did swimming and I did that maybe once or twice a week. And I walked around the office and it is a big office, ok, and I went from doing that to maybe doing three steps. You know literally within two or three weeks I was starting to lose feelings in my toes because I weren't moving
> (02M 40–49).

At the individual level, patterns and routines of health behaviours shifted from social activities (groups, classes, gym attendance) to more individualized, goal-directed activity, for some, with detrimental impact not only on physical activity, but also sense of well-being:

> That's always been a thing, like whenever I've been injured and not been able to do sport. And yeah, I'm always like quite down in the dumps about it cause especially because that is literally my life basically, things like sports, so I suppose I missed our team, I mean it's not just the training, it's the people. I miss my club and that's what it is really
> (35F <29).

All participants described disruption to social life. Some interpreted guidelines to distance and shield much more stringently than others, with resulting feelings of separation and loneliness permeating health behaviours, such as the social aspects of eating, described here as being 'alone together':

> At dinner times I would like have a little table which I would sit 6 metres away from the dinner table. They [family] would sit at the dinner table and I would sit at my little table and eat you know at quite a distance away
> (02M 40–49).

Table 1. Interview sample characteristics (*N* = 40)

Characteristic (self-defined)	Frequency
Instructed to shield	10 (25%)
No instruction to shield	30 (75%)
Mental health condition[a]	10 (25%)
No mental health condition	30 (75%)
Key worker[b]	11 (27.5%)
Not a key worker	29 (72.5%)
Socio-Economic Status (as defined by postcode-based Index of Multiple Deprivation decile[c])	
Decile 1	9 (22.5%)
Decile 2	6 (15%)
Decile 3	2 (5%)
Deciles 4–10	23 (57.5%)
Age range	19–80 years
Age group (years)	
<29	8 (20%)
30–39	6 (15%)
40–49	7 (17.5%)
50–59	7 (17.5%)
60–69	6 (15%)
>70	6 (15%)
Gender[d]	
Male	15 (37.5%)
Female	25 (62.5%)
Vaper	4 (10%)
Non-vaper	36 (90%)
Smoker	8 (20%)
Ex-smoker or non-smoker	32 (80%)
Disability (physical or mental?)	3 (7.5%)
No disability	37 (92.5%)
Ethnicity	
White	40 (100%)
Non-white	0 (0%)

[a]Mental health – note that the sample includes others with long-standing (or new) mental health issues who did not self-identify under this category in the survey.; [b]Total more than 10 because core selection criteria are not mutually exclusive. A range of key workers were represented, included those working within health care, social care, education, delivery services and supermarket sectors.; [c]Index of multiple deprivation deciles 1–3 defined as low socio-economic status.; [d]Lower proportion of men – partly reflecting survey sample. For example, of a pool of 20 potential interviewees to approach within the 'mental health condition' category, only two were men.

Disruption to usual family practices impacted health behaviours – particularly patterns of eating, where preparing home cooked meals had been a social activity as well as a health-promoting behaviour:

> The main thing that changed was I didn't have my grandchildren. Normally before lockdown, I had my grandchildren every Tuesday every Thursday and every 2nd Friday. So, because I live

alone, I'm not very good at eating really. Mostly eat rubbish or I did mostly eat rubbish, so when the children came then that was my time to eat. If I'm preparing food for them, then I would eat
(06F >70).

Others described disruption to social norms that had a direct impact on health behaviour, for example, this participant talked about using 'treat' food as a way of coping with loneliness, 'self-medicating' her feelings with a short-term 'sugary fix':

I have a lot of friends and I couldn't see any of them. I live on my own. So I did like video calls and zoom chats and things like that, but it's not the same, and after a while you crave that proper human interaction. So there were moments when I knew I was having a lull and feeling quite low, and so then I'd go out and buy chocolate fingers. . .and make myself feel better for a few moments
(20F 30–39).

However, despite widespread socially restrictive measures at the population level, disruption was not a universal experience. Particularly for older participants, minimal disruption to usual activities was noted, and for some pandemic restrictions brought positive benefits:

I managed to keep the diet the same because we've you know we're in the fortunate position of being pensioners and in receipt of quite a good pension from the jobs that we did. So therefore we've not had to alter our lifestyle at all. In fact, in the first three months of the pandemic we saved money because we couldn't go out and spend
(17M >70).

To some extent, for all participants, disruption impacted on identity. This was particularly apparent for those with an existing health condition, suddenly forced to engage with a new, imposed identity:

to be called 'Clinically Extremely Vulnerable' was just horrible. And the wording from the government text messages I sort of got to the point where I thought 'God if I leave my flat I am going to die', which sounds a bit dramatic but. . .the messaging at the time was so severe
(28F <29).

To be labelled as vulnerable was a major challenge to self-identity. This was heavily impacted by political discourse. In this sense, the notion of identity exemplifies the impact of wider social influence on individual perception, that in turn influences enactment of health behaviours and well-being. In contrast, others described identity change in reaction to the severe disruption to patterns and routines within the micro-social context of the household. For parents particularly, working at home or furloughed, focusing on running the home and home-schooling children, there was an immediate loss of employment identity, enforcing adoption of a stigmatized identity that perhaps did not hold the value associated with paid employment:

one of the things I do remember saying though is I felt like a 1950s housewife. And I completely lost my identity as some form of equal, which I don't think even was the case anyway and it was just completely everything was the schooling. It was the housework, it was

> trying to do some work from home. It was, everything fell on to me
> (15F 30–39).

Adaptations

There were a range of emotional and physical reactions preceding adaptation at the individual level in response to disruption. These were mostly negative, such as anxiety and anger, although with some positive immediate reactions, particularly in relation to an internal sense of confidence in being able to cope and adapt.

Modification

Adaptations to the enforced situation of lockdown were described in terms of internalized responses to external controls, frequently expressed through changed enactment of health behaviours. The primary adaptation discussed was modification. One of the clearest examples of this was modifying in-person exercise routines (social events) to online classes, thus modification of individual behaviour in unison with modification of social structures enabling such behaviour, where sociability was engaged in remotely, 'at a distance':

> I usually go, before lockdown, to two classes, one is called Paracise, which is like, Gentle exercise, it's not jumpy, there's no floor work, to music and. So the teacher, and she also does Zumba Gold, which is for older people. . . I found other places like Facebook where Paracise was happening so I started to exist well with Paracise and I started to do zoom Zumba
> (06F >70).

There were also clear modifications to dietary choices in a conscious effort to bolster feelings of well-being and family cohesiveness:

> We had lots of like lasagnes and just really hearty food. We made loads of homemade chips we bought like a sack of potatoes and we never eat like that. . . we had a lot more sort of comfort food in the lockdown, which had a knock on effect on my kind of general health so, but it kept everyone kind of happier to have nice things
> (22F 40–49).

The direct link between food preparation, provision and food choices with mental well-being is made clear in this example, with acknowledgement that modifications may impact physical health, ultimately, but prioritizing mental health.

Patterns of consumption of alcohol were also modified, also with mixed impacts. It was clear that many of our sample used alcohol to cement social bonds and as a way of relaxing and unwinding, or dealing with stress and anxiety. This meant increased and more regular alcohol use:

> I would say drinking more, just socially, we were sitting there every evening, it was social drinking. . .It is amazing how it helps to make a family doesn't it. We would sit there and have music on in the background, just chatting away
> (16M >70).

A key point made by this participant, which resonated with others' reports across the sample, was defiance at sticking to what might be seen as 'the rules' around physical activity, healthy eating and alcohol consumption guidelines:

> I think some of this is belligerence because it was almost like, oh I can swear, fuck you – I'm gonna have a cigarette, fuck you – I'm gonna have another beer and it's just this kind of infantilizes you, I think that's what it was it's like – the government being a parent and actually I was disagreeing with it
> (24F 50–59).

Here, enacting (negative) health behaviour change was an expression of frustration at the limitations imposed by structurally enforced social restrictions.

Substitution

There were many examples of substitution in the data at the individual level, demonstrating the way that participants displayed agency and creativity in adapting. For patterns of eating, directly substituting previous habits with conscious new enactment was a clear example:

> I have always travelled quite a lot and I had holidays cancelled this year.. . . So I guess there were moments in lockdown where I thought 'I am going to recreate something here'. To feel like I am experiencing part of Europe. . . So I got different types of cheese, different types of meat and ordered myself a bottle of wine and tried to recreate something
> (20F 30–39).

For physical activity, many directly substituted previous routines with exercise 'reimagined' through online access:

> I was doing a class and she had to move everything online. So I did some of her videos as well as some other ones I found
> (33F <29).

Substitution seemed, on many levels, a positive response and adaptation to circumstances. However, ability to engage in healthy substitute behaviours was more restricted for some, as, for example, key workers who continued to work throughout lockdown, could not necessarily be afforded the luxury of time to engage in substitute behaviours.

> We were so busy still, we didn't stop. . .I didn't really have time to be Mary Poppins. . .I know other people's days must have dragged but I didn't find we were creating different meals and finding out about different foods, unfortunately. It would have been lovely to have done that. It was just kind of plainer eating really, I think that's how you would describe our lockdown meals most of the time
> (09 F 30–39).

Adoption

For many in the sample, lockdown was a positive opportunity to adopt new health habits. This was particularly apparent with respect to exercise routines, where people were

restricted with outdoor exercise, but responded to public messaging that placed emphasis on keeping physically active by adopting new habits:

> I've always had concerns about getting overweight since being very young. So I exercised at home using a video, not a video something you download on the internet. And that was just 10 minutes a day. We also did the Joe Wicks exercises every morning which I found great fun. . .I was disappointed when I had to go back to work and couldn't do it anymore
> (31F 60–69).

Although there were clear frustrations in outdoor exercise being limited, some people actually found this incentivized them to adopt new habits:

> I found it incentivising actually. Yeah that was perhaps one of the sparks that made me think let's start me running up again. If I had that opportunity to go out once I'd like to use that to go out for a run
> (29M 40–49).

For some people, imposing routine was important, for both physical and mental health:

> I guess we started allocating our time little bit better in terms of exercise. I thought we might go a bit crazy. Just sat in the house all, all day and all night so we did make a conscious effort to get outside more
> (11M 30–39).

Those that described managing to positively take control and build a new routine appeared to suffer less. For these people, imposing their own structure was beneficial, in the absence of previous externalized structures in relation to employment and pre-pandemic daily routines.

Adopting a 'new norm'

Many described how lockdown had externally enforced upon them a need to slow down, which prompted them to *appreciate the simple things*. Some described taking time to walk, see, listen and appreciate nature. For those who struggled with poor mental health, this external 'permission' to take things more slowly had a beneficial impact:

> it felt like the pressure was off a bit. And because I kind of struggle with mental health generally, that really helped me during the first lockdown. It kind of felt like things had slowed down
> (27F <29).

Some had a renewed sense of how lucky they were, in comparison with others. At a micro-social level, there was an appreciation of factors that support resilience that may have previously been taken for granted:

> I do appreciate more. The home you know, being at the home, you know, being our own home. . .makes you more, grateful for what you have got
> (40M 60–69).

Adoption of new patterns of food buying was a positive change, for some:

> I also started getting a veg box as well, it wasn't delivered, I had to go and pick it up. And that's not something I've done before
> (10F 50–59).

However, adoption of new habits was less positive for others, constrained by existing circumstances, or forced to shield at home:

> Pre-lockdown I wouldn't really have alcohol in the house, I'd only drink if I was going out for a meal or in the pub or a special occasion. But I think there was one point when I was having a glass of wine every night, for a month or so
> (28F <29).

In these circumstances, adoption of new patterns of eating was enforced, constrained and may not have resulted in healthier consumption patterns. Similarly, those struggling with anxiety in response to the social restrictions were restricted and forced to adapt to the situation. Here, a participant describes how her anxiety about passing on infection directly impacted her behaviour within the home, causing her to distance from her parents, and this in turn impacted her dietary choices as she avoided family meals and tried to eat alone to limit time exposed to others:

> With being a key worker as well I was just so conscious of working and then coming home and trying to leave as much time as possible away from mum and dad and limit the time I spent downstairs. So I would think just grab a quick slice of toast and go upstairs and keep out the way or grab a bag of crisps or something, I can take that upstairs and eat it and keep out the way
> (03F 40–49).

Discontinuation, cessation

Coding around discontinuing previous habits was primarily negative – discontinuing exercise, patterns of healthier eating, and, of course, discontinuation of usual social activities that may have been combined with physical activity. However, for some, the impact of having experienced COVID-19 illness itself led to positive discontinuation of previous unhealthy behaviours:

> I'd been smoking for a long time and then I got ill and there's absolutely no way I'm ever going to smoke again. . . And that is a really positive thing that has come out of it
> (10F 50–59).

Despite this positive example of change, there were many stories of discontinuation of physical activity due to lockdown causing the leisure industry to shut down. This had immediate impacts, resulting in discontinuation of actual activity, as well as positive feelings. As the physical world grew smaller, so too it seemed did hopes and aspirations:

> Part of my new living after my wife died and moving up to [town] here was going to join one of these resort type places they have here, with swimming pools, I was going to cycle there and back three miles and swim every day, that had been my plan in proper retirement. But of course all that shut down and never really did reopen, so I couldn't do that
> (16M >70).

Others discussed how activity that had previously been a part of everyday living was discontinued:

> I don't think I was ever that great at exercise anyway if I'm honest. But I would fit in walks, sometimes I would fit in a walk to work or from work, you know, with the routine of the day. Also at work, we have two floors. . .so I am constantly up and down stairs. . .and quite active within the day. Whereas here I live in a flat, I wasn't getting that exercise
> (20F 30–39).

It was apparent that those who experienced inequalities, such as living in housing without access to outdoor space, were particularly impacted and forced to discontinue previous physical activity:

> My physical wellbeing really, really struggled because where I've been walking like 4 miles a day and you know keep my lungs going and like you know just my body going, really sort of enjoying being outside and doing things, all of a sudden I was stuck on the sofa. . .we don't have a balcony, we don't have any outside space at all
> (25F 50–59).

Stultification

One striking aspect of discontinuation was 'stultification':

> I think because lockdown seemed to have this stultifying effect in general
> (24F 50–59).

In contrast to those in the sample who adopted new healthier patterns of health behaviour, who modified or substituted behaviours as a primarily positive response, there were those who felt stultified, or expressed a loss of interest. Emotional responses, feeling of hopelessness, anxiety and concern interacted with the individual level ability to engage in and enact more positive health behaviours:

> I kind of felt very hopeless with the whole health and wellbeing thing. It was punctuated during lockdown with fleeting moments of wanting to get back on track but I never, they were nothing except fleeting moments. . .It was just the overpowering monotony and hopelessness of the situation, not knowing if there was going to be an end to it, it just kind of overpowered me really. . .and the impact on my physical wellbeing has been dramatic. The weight has piled on. My healthy eating habits have gone out of the window
> (05F 50–59).

Many participants described how they felt *demotivated*. For some this was a very personal, internalized feeling. For others, the social restrictions and external influences played a large role:

> with the onset of covid that kind of stalled any aspirations I had to join the gym and I could of course have, you know, still done copious amounts of walking and things like that but I just felt the whole covid thing kind of took away any focus or aspirations, kind of removed my framework
> (05F 50–59).

Stultification was experienced as an emotional numbness, an inability to act, a reaction to social constraints that was embodied as a sense of paralysis:

> There's a huge, this great big sort of demotivation too and I want to lose weight but I'm not getting there. Something's not right. Something, there's an inability to do something
> (25F 50–59).

Maintenance
It was particularly notable for those who were retired, or for key workers who continued to work throughout lockdown, that patterns of health behaviour were more stable, that is, 'maintained':

> I was working, I was going out anyway more than once a day to go to work and that. And for my own mental health side I had to keep going out with the dogs. Because it's my way of switching off in the afternoon. It gives me a bit of me time
> (03F 40–49).

Here, the participant makes particular reference to her pet – dogs in particular arose as a frequently occurring theme that enabled people to maintain physical activity, with the added benefit of boosting mental well-being. Warm and pleasant weather was a similar frequently occurring positive theme. Key workers, whilst under considerable stress and strain dependent on their role, were also able to maintain regular patterns and routines of daily activity that meant their lives were perhaps less fundamentally changed for the lockdown period. One man described his work as a delivery driver throughout the pandemic as a protective factor:

> Cause of what I do for living. . .I managed to keep it together. . . there's not much difference, whereas if I had stayed at home I'd be bouncing off the walls. . ..I hate staying at home and not doing stuff
> (18M 40–49).

Some described a sense of inner strength; a belief in their own ability to cope and adapt that seemed to serve as a protective mechanism shielding them from the worst possible reactions:

> I suppose I've always been fairly adaptable. I've always been, you know, quite capable of cooking, quite capable of shopping, quite capable of doing anything
> (17M >70).

This sense of inner resilience reflected a sense of self-belief and high self-efficacy. Some people drew strength from previous experiences, such as overcoming addiction. For others, religion was a source of strength and an internal asset to draw upon:

> My faith helped with all of those moments where I felt really emotional and that things weren't in my control, I was able to accept it was not in my control and believe that whatever was meant for me, as my mum says, won't pass me by. That helped
> (20F 30–39).

Although maintenance was primarily positive, for some more negative health behaviours were maintained:

> I think I probably smoked more in lockdown but I think time of year, when the weather's nice outside. I probably smoke a bit less now, but I think it's about the same. I think I still have like a cigarette every day or every other day. . .But the fact that I didn't give up, it is probably because it is definitely like an emotional crutch
> (23F 40–49).

Recalibration

For better or worse, participants reflected on lockdown and described a sense of recalibration. This typically featured an initial phase of being thrown 'off course' by the pandemic, followed by recognizing and taking active steps to address this. This was often positively framed, but there was also a major process of renewed behaviour change as a response to the easing of social restrictions:

> I'd pre-empted that we need to wear masks and tried to go out at weird times wearing a facemask when I was outside to get myself used to being outside again. That sounds strange saying out loud, but I felt I had to slowly ease myself out of my flat back into, I was going to say the normal world, but the strange world outside {laughs}
> (28F <29).

It was apparent that those expressing insight, and belief in their own sense of agency, were better placed to recalibrate and positively adjust health behaviours that may have been negatively impacted early on in the pandemic:

> I potentially drank slightly more, not in a social capacity, more probably more at home. Again, just from a sort of stress point of view and not really knowing what to do with that kind of stress and that kind of, I suppose like a sort of calming thing. . . there's that temptation to like OK, well I need to, you know it's a hard time so I need to kind of have something to think about and kind of to get through it. And I sort of didn't want alcohol to be that thing. So I kind of, I've tried to actively move away from it
> (27F <29).

This recalibration was a deeply reflective practice, potentially transformative for some:

> In the past few months. I have managed to look after myself a bit more and. Lost a couple of stone which has been really helpful. . ..we would get up early and go for a walk for an hour, an hour and a half, doing that on several mornings which was lovely. . .And that's just come from having the time. That was one thing that everyone had an abundance of was time. and it slowly made me realize that our lives are just ridiculously busy. . .And I should look after myself and I don't, I never look after myself. I'm just a mess, just you know headless chicken type. Holding it all together, doing everything for everyone else. You just can't. It's just not sustainable
> (15F 30–39).

Case study

The deeply contextualized nature of the ways in which health behaviours are enacted is best exemplified through consideration of the individual, within their social context, as revealed by our case study analysis. In Figure 2, 'Meg' demonstrates the narrative unfolding of our thematic analysis presented thus far. This case study was selected as it incorporated many typical themes, the directionality of which could be both positive and negative.

EARLY PHASE (March-May)

Meg, a young woman in her 20s, was living alone in a flat with no garden. With the onset of Covid-19 she received a letter instructing her to shield at home because of her autoimmune disease. She described receiving the letter and being labelled 'clinically extremely vulnerable' as like *"a kick in the teeth",* at odds with her own view of herself as an independent and robust person. It also prompted great anxiety about leaving the flat or the prospect of contracting the virus and coping alone at home [**Disruption**].

At the same time she was furloughed from work in the hospitality industry. Her role had previously entailed a lot of travel, during which she would buy sandwiches or eat out at restaurants. Suddenly being confined to the home meant that she started preparing more food for herself, and researching new recipes **[Cessation, Modification].** She also took up baking **[Adoption]**. Because she was shielding she started receiving government food parcels, which she compared to *"wartime rations"* containing foods which she would not normally buy. She decided to use this as an opportunity and a challenge, to find ways to create new meals with these ingredients. **[Modification, Adoption].** She acquired a 'vulnerable person' slot with a supermarket for online grocery deliveries, and tried to order two weeks' worth of shopping at a time, resulting in having to plan meals in advance **[Modification].** She felt that overall, as a consequence of these changes, she was eating in a more healthy way.

At first, while confined to the house her exercise levels reduced. As a non-driver she had walked regularly prior to lockdown, including a brisk walking commute to her local office **[Cessation].** During April, Meg's group of friends made an informal pact to address unhealthy lifestyle change and '*hold themselves more accountable'*. In response to this, Meg spent time on YouTube looking for different forms of exercise and created a bespoke daily workout plan, incorporating yoga. She enjoyed this and was able to maintain this new routine: *"I think in a weird kind of way if it wasn't for lockdown I probably wouldn't have got into an exercise routine"* **[Adoption, Recalibration].**

Meg found herself drinking more alcohol during this phase of the pandemic. She attributed this to boredom at home as well as helping her cope with stress (for example, after a depressing government announcement), and sometimes because of online social events with friends. Prior to lockdown she never drank at home. **[Adoption]** Finding herself at a point where she was drinking daily, she made an active effort to cut down again **[Modification, Recalibration].**

Prior to lockdown Meg sometimes smoked socially when out drinking with friends. This ceased entirely with the arrival of lockdown. **[Cessation].**

MID-PHASE (lockdown easing and lifted)

In early June 2020, Meg was advised that she no longer needed to shield. This coincided with easing of other lockdown measures, and subsequent lifting of lockdown. At this point Meg tried resuming eating out in restaurants but stopped because she did not enjoy it in the same way, feeling uncomfortable about the queues, the 10pm curfew, and the lack of variety offered on the menus **[Adoption and Cessation].** Meg also started going out of the house again but decided to cycle wherever possible rather than walk, because she was able to maintain a better social distance from others **[Modification].**

LATER PHASE (introduction of second lockdown)

Meg continued to exercise regularly, and felt she benefitted from this new routine, reducing the yoga at home as restrictions eased, and instead focusing on daily walking "*doing it for the longer period of time has definitely flipped something in my brain"*. However, with the changing season and the introduction of a second lockdown this became harder to maintain, partly because the dark and colder days made it less appealing.   She also feels the changes to her eating habits imposed by covid restrictions had a long term beneficial effect: *"I am eating better because I got in such a consistent habit of doing it for a few months".* **[Modification].**

She was no longer furloughed and was back at work but with reduced hours because of the pandemic, although her work demands had increased substantially. She was feeling anxious about the precarious future for the hospitality sector – there had already been redundancies. Her mental health has been impacted, which she firmly attributes to the effects of lockdown. She notes the delayed effects of the earlier period when she was shielding at home: *"I have been struggling lots more with low mood… I think once I had stepped back and processed*

Figure 2. 'Meg' 28F.

Discussion

For participants reflecting on the impact of lockdown, there was a shared experience of widespread initial disruption due to structural level changes (policy and government messaging) – to employment, patterns of daily living, shopping and leisure habits. Disruption immediately impacted ability to enact as social practices health-promoting behaviours, as there were widespread reports of disrupted usual daily physical activity, that in turn disrupted social interactions, that had an impact on well-being. Identity was clearly disrupted, and this was particularly stark for those labelled as clinically vulnerable, demonstrating the impact of medicalized political discourse (Grabovschi, Loignon, & Fortin, 2013). This resonates with sociological formulations of identity as 'work' (Goffman, 1956) seeing changing boundaries of social categories as negotiated through individual interaction with structural level discourse.

Reactions to social restrictions were enacted at the individual level, internalized as anxiety, but also externalized as anger. Reactions were also noted in response to strict social measures, with clear frustration and demotivation expressed. However, some positive reactions were apparent, in adopting new, healthier, routines and in increasing self-confidence in one's own ability to adapt, perhaps bolstered by existing social networks, that enabled some individuals to thrive in adversity.

Adaptations to the ongoing social restrictions were noted in terms of patterns of modification of health behaviours. There was considerable ingenuity and resourcefulness, drawing on available assets, such as access to technology, that bolstered individual attempts to stay well through adapting health behaviours not able to be enacted in the same way as pre-pandemic. Adoption of new patterns of health behaviour was also primarily positive, with many taking up new exercise regimes in particular. However, many also discussed cessation of behaviours, including previous healthy patterns of eating and exercise, as a response to limitations. A minority were able to maintain previous patterns of health behaviour and appeared largely unaffected by structural level restrictions, perhaps bolstered due to their employment roles (e.g. key workers) or, most notably, for those who were in retirement. These people were able to foster existing networks within communities, and sought out social contact in new ways that helped sustain healthy behaviours.

The data analysed clearly suggest a narrative unfolding of behaviours over time, as exemplified by Meg in the case study presentation. Health behaviours could be transitional and marked by situated temporality. Impacting factors can be observed at the individual, intrapersonal, interpersonal, micro- and macro-social levels.

Our study was limited by the lack of ethnic variation in our sample. However, we achieved a spread of characteristics of those with mental health conditions, C19 at risk conditions and key workers. We had good representation of area-based lower socio-economic status, with nearly half (17/40) of those interviewees residing in the three lowest deciles of the IMD index. A limitation of our data is that it was collected following the first national lockdown, and thus data are recollections, constructed during the interview, that may be subject to recall bias and reinterpretation.

Our qualitative data demonstrate the potential for a strong and sustained widening of social and health inequalities, through increased adaptation of those with strong existing assets (community links, pre-existing healthy behaviours, resilience, access to technology facilitating ability to seek out new forms of social contact and healthy behaviours), but also increased vulnerability of the already vulnerable with less available assets. Those who remained in work outside the home (Bevan, 2017) or were retired, seemed less impacted –

maintenance for these people was a stronger theme, but those who were unemployed, younger or on lower income, clinically unwell or told to fully 'shield' were particularly impacted by restrictions. For these people, supportive social factors were 'taken away' or severely restricted, therefore widening health and well-being inequalities (Rimmer, 2020), with long-term implications for health.

By utilizing diverse theoretical approaches, drawing on reflective thematic analysis, the social ecological model to analyse levels of impact and a case study exemplar, this article provides support for undertaking a multiple-lens approach when investigating novel phenomena in order to illuminate a broader spectrum of dimensions of influence on health behaviours. The implications of our findings and this approach suggest that as we work through the 'roadmap to recovery', emphasis needs to be placed on a collaborative, asset-based approach, with a focus on 'what makes us well', as well as drawing attention to the negative impact at an individual level of response to structural level restrictions.

Conclusions

Individuals responded to pandemic-related changes including social restrictions in complex ways. Positive or negative reactions, including anxiety and anger, or a sense of self-efficacy, were enacted as health behaviour change. The health behaviours enacted were constrained by social and cultural circumstances, making responses and subsequent adaptations unevenly experienced. Those with existing social assets, community links and established patterns of healthy behaviours seemed less affected or were able to respond positively and view the restrictions as a chance for positive change, an opportunity to reflect and were able to adapt by modifying health behaviours and using technology to continue to engage in healthy behaviours in new and innovative ways. For those in more vulnerable positions, lacking assets, perhaps restricted socially or stultified by anxiety and depression, responses were more negative. Previously engaged with social health behaviours were limited or ceased, negative patterns of behaviour were adopted, such as increased eating of foods high in sugar or alcohol intake. Over time, patterns of enacted health behaviours shifted and changed, positively suggesting the potential for improved health behaviour given positive assets and social contexts.

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Conflicts of interest

All authors declare no conflict of interest.

Author contribution

Caitlin Notley: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Writing – original draft; Writing – review & editing. **Pippa Belderson:** Conceptualization; Data curation; Formal analysis; Methodology; Validation; Writing –

original draft; Writing – review & editing. **Sarah Hanson:** Conceptualization; Data curation; Formal analysis; Methodology; Validation; Writing – original draft; Writing – review & editing. **Emma Ward:** Conceptualization; Data curation; Formal analysis; Project administration; Writing – original draft; Writing – review & editing. **Tracey J. Brown:** Project administration; Validation; Writing – review & editing. **Felix Naughton:** Conceptualization; Data curation; Funding acquisition; Methodology; Project administration; Resources; Supervision; Writing – original draft; Writing – review & editing.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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