



LEEDS
BECKETT
UNIVERSITY

Citation:

Grogan, S and Walker, L and McChesney, G and Gee, I and Gough, B and Cordero, MI (2020) How has COVID-19 lockdown impacted smoking? A thematic analysis of written accounts from UK smokers. *Psychology & Health*. pp. 1-17. ISSN 1476-8321 DOI: <https://doi.org/10.1080/08870446.2020.1862110>

Link to Leeds Beckett Repository record:

<https://eprints.leedsbeckett.ac.uk/id/eprint/7355/>

Document Version:

Article (Accepted Version)

This is an Accepted Manuscript of an article published by Taylor & Francis in *Psychology & Health* on 18th December 2020, available online: <http://doi.org/10.1080/08870446.2020.1862110>

The aim of the Leeds Beckett Repository is to provide open access to our research, as required by funder policies and permitted by publishers and copyright law.

The Leeds Beckett repository holds a wide range of publications, each of which has been checked for copyright and the relevant embargo period has been applied by the Research Services team.

We operate on a standard take-down policy. If you are the author or publisher of an output and you would like it removed from the repository, please [contact us](#) and we will investigate on a case-by-case basis.

Each thesis in the repository has been cleared where necessary by the author for third party copyright. If you would like a thesis to be removed from the repository or believe there is an issue with copyright, please contact us on openaccess@leedsbeckett.ac.uk and we will investigate on a case-by-case basis.

**How Has COVID-19 Lockdown Impacted Smoking? A Thematic Analysis of
Written Accounts from UK Smokers**

¹Sarah Grogan, ¹Lucy Walker, ¹Gillian McChesney, ²Ivan Gee, ³Brendan Gough, and
¹Maria I. Cordero

¹ Manchester Metropolitan University, Manchester, UK

² Liverpool John Moores University, Liverpool, UK

³ Leeds Beckett University, Leeds, UK.

RUNNING HEAD: SMOKING AND COVID-19

For Correspondence:

Professor Sarah Grogan

Department of Psychology

Manchester Metropolitan University

Brooks Building

Birley Campus

53 Bonsall Street

Manchester

M15 6GX

Tel: (+44) 0161 247 2504

E-mail: s.grogan@mmu.ac.uk

Word count 8139 words

Abstract

Objective. This study was designed to investigate UK smokers' accounts of impacts of COVID-19 on their smoking, to develop implications for supporting smoking cessation.

Design. One hundred and thirty-two smokers aged 19-52 years (mean age 25 years), recruited through an advert distributed through social media and a dedicated *Twitter* page, completed an anonymous online questionnaire.

Main Outcome Measures. Smokers produced written accounts of how COVID-19 had impacted their smoking. Responses were of unlimited length and completed online 22nd May-22nd June 2020 during UK COVID-19 lockdown.

Results. Inductive thematic analysis generated three themes: i) increased smoking as a coping mechanism to deal with anxiety, boredom, stress, and anger in COVID-19 lockdown; ii) lockdown as enabling quitting through lifting social barriers and enabling a focus on health benefits; and iii) no change, avoiding Government/media COVID-19 information due to disbelief, lack of trust, and perceptions of bias.

Conclusions. Results demonstrate a need for credible public health messaging on COVID-19 risk aimed at smokers. Implications for supporting smoking cessation are discussed, including maintaining quitting in those "social smokers" who quit during lockdown, and support on stress-management and emotion regulation in those who use smoking as a way to cope with stress, anger, and boredom.

Key words: smoking, lockdown, COVID-19, thematic analysis, health threat, stress

How Has COVID-19 Lockdown Impacted Smoking? A Thematic Analysis of Written Accounts from UK Smokers

More than 1.3 billion people worldwide smoke cigarettes, in spite of negative health effects, and the World Health Organisation estimates that more than seven million people die each year as a direct result of tobacco use (WHO, 2020). The recent COVID-19 pandemic and lockdown may have a range of possible effects on smoking behaviour. This study was designed to understand the lived experience of being a smoker during the COVID-19 pandemic from the perspectives of smokers themselves.

Some authors have argued that the COVID-19 pandemic may have sensitised people to the importance of good health and may have enabled people to undertake healthier behaviours. For instance, Lopez-Bueno et al. (2020) conducted an online survey with 2,741 adult Spanish participants during the first three weeks of COVID-19 lockdown and found that health risk behaviours such as smoking reduced as lockdown progressed, suggesting that Spanish adults had adapted to the new context by improving their health-related behaviours. There may be specific risks associated with being a smoker in terms of likelihood of developing severe symptoms (Liu et al., 2020), particularly in relation to respiratory symptoms caused by COVID-19 (Huang et al., 2020). UK Government messaging aimed at smokers has focused on increased threat of severe respiratory disease caused by COVID-19 (Public Health England, 2020), explaining that smokers significantly increase their health risks through continuing to smoke, and most UK media coverage has focused on increased health risks of COVID-19 for smokers in terms of increased likelihood of serious illness (e.g. Williams, 2020). It might therefore be predicted that UK smokers might decide to quit during the COVID-19 pandemic to protect their health.

On the other hand, various authors have suggested that smoking may protect against COVID-19 symptoms, which may encourage people to smoke. Miyara et al. (2020)

concluded that smokers have a lower probability of developing symptomatic or severe COVID-19, and Giannouchos et al. (2020) that smokers were 23% less likely to be diagnosed with COVID-19 compared to non-smokers. These and similar studies were given a high profile in UK media towards the start of lockdown (e.g. Chalmers, 2020; Samuel, 2020) which may have prompted smokers to increase their smoking, or at least to maintain it. In addition, researchers have suggested that the social distancing and quarantine measures associated with the COVID-19 pandemic and lockdown lead to increased substance misuse (Holmes et al., 2020), and psychological difficulties including stress, fear and irritability (Brooks et al., 2020; Mucci et al., 2020; International Committee of the Red Cross, 2020). Increased stress has been linked to increases in smoking (Nichter et al., 2007), and smokers often report that they smoke because smoking reduces their stress levels (Gough et al., 2009). Furthermore, those who at the time of the lockdown were in the process of quitting, or who had successfully quit, could be at risk of relapsing, as high stress has been shown to be associated with failure to quit (Slopen et al., 2013), and to promote smoking recurrence in people who have already quit (Bindu et al., 2011).

The Current Study

In the UK, more than seven million people smoke cigarettes (15% of the population; Office of National Statistics, 2019a). Based on existing mixed evidence, it is unclear whether UK smokers might be expected to increase or decrease (or not change) their smoking as a result of the pandemic. This study sought to focus on UK smokers' accounts of impacts of COVID-19 on their smoking with a view to developing implications for supporting smoking cessation.

Research Question: How do UK smokers describe the impact of the COVID-19 pandemic on their smoking?

Method

Design

Participants responded to an open-ended question online. Online open-ended questionnaires enable exploration of participants' experiences from their own perspectives. They have the advantage, relative to closed-ended questionnaires, of allowing participants to provide completely unexpected responses (Singer & Couper, 2017), and are very useful when researchers are interested in exploring new issues and understanding the lived experiences of participants (Terry & Braun, 2017). The open-ended online format allows space to expand answers, as well as not requiring participants to be face to face with the researcher, which can promote increased disclosure relative to focus groups and interviews (Jowett et al., 2011). People are also able to answer questions in their own time, which can enable more careful reflection than is usually possible within focus groups and interviews (Grogan & Mehan, 2017). Data were collected between 22nd May and 22nd June 2020 during the UK COVID-19 lockdown (which commenced March 23rd 2020). Although UK lockdown restrictions were eased slightly in May and again in June, it was not until July 2020 that significant easing of lockdown took place, with pubs, restaurants, hotels, and hairdressers reopening with social distancing measures in place (Holmes, 2020; Institute for Government, 2020).

Recruitment

To ensure that we accessed the views of a wide range of smokers, participants were invited through an advert distributed through social media and on a dedicated *Twitter* page. The advert was posted by quit smoking support groups as well as local community groups on *Facebook*. On *Twitter*, the post was shared by University staff and members of the public, as well as health psychology and substance use research groups. The advert was also circulated through snowballing of existing contacts of the research group through email. To be included in the sample, smokers had to live in the UK, be 18 years or over and to have smoked tobacco products any time since January 2020. Participants were told that the study had received

ethical approval, and were provided with a weblink for the research attached to the online advert.

Participants

One hundred and thirty-two smokers, average age 25 years (range 19-52 years) completed the open-ended question on the online questionnaire. Seventy-three self-identified as women, 55 as men, and four as non-binary. One hundred and eighteen self-identified as white, seven as Asian/British Asian, and seven as mixed ethnicity. Smoking (in the week before questionnaire completion) varied between 0-219 tobacco products per week, with an average of 45; 18 participants reported no smoking in the week before questionnaire completion.

Materials

Due to the exploratory nature of the research, the key open-ended question was kept broad to allow smokers to share their thoughts and experiences, and smokers were encouraged to add as much detail as possible: *“Please use the space below to tell us how the disease COVID-19 and the related press and government information has impacted your smoking (if at all). Please provide as much detail as you can”*. In addition to the open-ended question, they were first asked to complete closed-ended questions on demographics (age, gender, ethnicity), and tobacco products smoked per week. They also completed the six-item Perceived Coronavirus Threat Questionnaire (Conway et al., 2020), and the 10-item Perceived Stress Scale (Cohen et al., 1983) as part of another study (Authors, in preparation).

Procedure

Ethical approval was first gained through Manchester Metropolitan University ethics committee [reference 23686]. An advert for the study included a weblink which led to a participant information sheet, consent form, and anonymous *Qualtrics* questionnaire. All participants gave their informed consent to taking part in the study, including the use of anonymised quotes in reports. At the end of the questionnaire, participants were given the

contact details for the second author to enable them to follow up if they had any queries or wanted more information about the study. Additionally, participants had the option of creating a unique code in order to be able to request the removal of their data up to two weeks after questionnaire completion.

Data Analysis

Participants' written accounts provided between one word ("none") and 174 words of text (total data set = 5469 words; average per participant = 41 words). Braun and Clarke's (2006) six step thematic analysis approach was employed to identify themes related to smoking during the COVID-19 pandemic, capturing participant understandings, and allowing an in-depth analysis of the data. We used an inductive method of thematic analysis, using accounts to ground our analysis and working at the latent analysis level where "themes are identified within the explicit or surface meanings of the data and the analyst is not looking for anything beyond what a participant has said or what has been written" (Braun & Clark, 2006; p.84).

In this research, we adopted a critical realist perspective. Critical realism involves a recognition that it is possible to acquire an insight into people's experiences through their accounts, but also that we as researchers have a role in constructing knowledge and that our interpretations will likely be influenced by our professional training, views, and experiences (e.g. Madill *et al.* 2000). Willig (2008) describes this approach as "a perspective that combines the realist ambition to gain a better understanding of what is 'really' going on in the world with the acknowledgement that the data the researcher gathers may not provide direct access to this reality" (p.13). We were reflexive throughout the research process following Braun and Clark (2019), as well as working towards a shared interpretation of the dataset. In particular, we tried to be aware of possible impacts of our training in health psychology and public health, as well as our positions as smokers, ex-smokers, and never-smokers on our interpretation of findings.

The first author first familiarised herself with the data by reading responses several times whilst taking notes. Points of interest were noted whilst reading and re-reading the accounts. Following production of an initial set of codes, a set of seven themes was produced and sent to the second author for validation, and minor changes were made. Accounts were then re-read by the first author to ensure that all themes were sufficiently supported by data from a range of participants, and discussed with other members of the team resulting in reducing down to three final themes, two with two sub-themes each. All authors then checked and validated the set of themes, including one theme title revised following peer review.

Results

The analysis generated three key themes which appear below with associated quotes. These themes show that smokers wrote about having been prompted to increase, decrease, and not change their smoking in COVID-19 lockdown. Some smokers described smoking as a coping mechanism, some had been impacted by opportunities to quit in lockdown, and many were distrustful of UK public health messaging. Eight participants did not provide useable responses, as their accounts did not discuss how COVID-19 had impacted their smoking, so their responses were not analysed further. In addition, 15 participants wrote only a few words indicating that their smoking had not changed in lockdown. These brief responses were not analysed further; “no impact” (n = 2), “no change” (n = 2), “not at all” (n = 5), “it hasn’t” (n = 3), “none” (n = 2), N/A (n = 1). Participant information (age, ethnicity, gender, tobacco products smoked in previous week) is provided in parentheses next to each quote to provide additional context, and each participant only features up to once in each theme. Quotes are not adjusted/corrected so appear verbatim. Table 1 shows frequencies and % of total responses represented by each sub-theme.

INSERT TABLE 1 ABOUT HERE

Theme 1: Increased Smoking as a Coping Mechanism

Smoking was described as a time-filler and a way to deal with stress and boredom, driven by external factors such as lack of structured work demands, rather than by internal needs such as desire for the pleasurable aspects of smoking or physiological or psychological addiction to cigarettes. Increase in smoking is described here as a logical, involuntary and necessary coping mechanism; a temporary solution to a major challenge. Participants presented lockdown, and the external threat of COVID-19, as causal in determining increases in their boredom, stress and anxiety, leading to the necessity for smoking to relieve these feelings.

Coping with COVID-19 Stress

Participants reported using smoking as a coping mechanism to reduce perceived stress due to COVID-19. For instance, one 27-year-old white woman smoking 70 tobacco products per week wrote *“I already suffer from depression and anxiety, but it has been exacerbated by the pandemic. I smoke more now, as I feel more anxious”*. Others reported increases in smoking due to anxiety and stress *“I have noticed an increase in smoking due to feelings of stress and anxiety”* (27 year old white man, 150 per week).

Smoking in this context was presented as a logical coping mechanism to deal with a temporary, challenging situation. Participants also reported that threat of COVID-19 and Government information about the pandemic made them anxious, resulting in increased smoking to try to relieve stress. A common pattern was to place any blame for continued and increased smoking onto the Government (for alarming the public by passing on pandemic-related information). For instance, one 38-year old white man smoking seven tobacco products per week wrote *“Government (mis)'information' has increased my stress levels, which always increases my cravings for cigarettes”*.

In the quote below, this participant presents herself as “self-medicating” with cannabis and tobacco to reduce her chronic pain caused by lack of sleep, in turn caused by increases in anxiety and depression linked to the pandemic. As such, use of tobacco products

becomes a logical short-term solution to the stress caused by the pandemic. This is an interesting account as it effectively removes agency from the woman herself; the pandemic itself is given responsibility for increasing her smoking, albeit to only three tobacco products per week:

COVID-19 pandemic has significantly increased my symptoms of anxiety and depression, has affected my sleep, and has therefore also worsened my experience of chronic pain. I have needed to self-medicate more often using cannabis, which I combine with tobacco products to smoke. Therefore, the COVID-19 pandemic has significantly increased my smoking behaviours, including making me smoke more during the week (28 year old white woman, three per week).

Some participants explained that although they were taking steps to quit prior to the pandemic, they had struggled to maintain their quit attempts due to increased stress. Again, this kind of account takes agency away from the participant herself, and places any blame for the failed quit attempt at the door of the pandemic, mediated by stress caused by fear of the virus:

Before March I was cutting down smoking by using an electronic cigarette. I had gotten down to 9 a day at the most sometimes less. Since March I've been smoking more a struggling to smoke less than 12 a day. This will due to extra stress about the virus, about work piling up, about getting no time alone, and due to being stuck in the house most of the day (35 year old white woman, 104 per week).

Four participants smoked more at the start of the pandemic due to stress but had then reduced their smoking or had quit due to health concerns. These accounts were presented as personal success stories. In this description, the pandemic is seen as causal in initially promoting increased smoking, but participants present themselves as resisting COVID-19-related pressures and managing to quit (or cut down) smoking even in the context of the stress

caused by the COVID-19 pandemic. This account of succeeding in quitting against all the odds was also seen in this account below, where reducing smoking is presented in terms of successful coping techniques even though the stress of COVID-19 remained:

I also think I have adjusted slightly and have other ways to occupy myself without smoking as much. I am also sleeping more (usually a symptom of stress for me) which means I am smoking less. So I don't think I am any less worried, but I am dealing with it in other (productive and unproductive) ways than smoking (25 year old, non-binary, white, 70 per week).

Coping with Boredom in Lockdown

This sub-theme related to increased smoking during COVID-19 lockdown, primarily due to self-reported boredom associated with social isolation, working from home plus restrictions on travelling and socialising outside the home. Smoking was described as a time-filler; something to occupy time when there was nothing else of interest to do. For instance, one 19-year old white woman smoking 55 per week said “*The government telling the public to stay at home has increased the amount I am smoking purely due to boredom*”, and one 21 year old, white man smoking 52 per week reported that he had been “*smoking a lot more in the day time out of boredom*”.

Participants suggested that the COVID-19 lockdown had resulted in unfilled time, leaving time and space free which could be filled by smoking. For instance, one 22 year old, white woman smoking 140 per week “*I am furloughed and so am stuck around with very little to do*”. Participants inferred that they felt trapped at home due to Government-imposed lockdown, so smoking was something they “may as well” do:

There just isn't that much to do with myself after so many months in the same 4 walls. I believe many other smokers may be in the same boat of if there's nothing to do I may as well smoke (24 year old white man, 46 per week).

Participants focused on having the time to smoke, inferring that the decision to smoke was at least partly determined by external, structural factors rather than by a physical need, or even the desire for a pleasurable smoking experience. For two participants, lockdown was linked with greater opportunity to smoke cannabis which was mixed with tobacco, increasing tobacco smoking. For instance:

I do not smoke 'straight' tobacco products. Instead, I mix mine with cannabis to make joints. I was happy that by the time the pandemic launched, I no longer smoked cigarettes, but in lockdown - with ample time on my hands and nowhere to go - I have started smoking joints more frequently. As such, my tobacco intake has increased (26 year old mixed ethnicity man, 21 per week).

Theme 2: Lockdown Lifts Barriers to Quitting

Some participants had reduced their smoking or quit in lockdown. Some had quit smoking to protect their health, describing the health risks of continuing to smoke as outweighing the advantages of smoking. Others focused on smoking as a social activity, determined by environment, rather than as an addiction or pleasurable activity, downplaying the importance of smoking in their lives, often stressing that they were “just” social smokers.

Health Concerns

Participants wrote that they had quit smoking or significantly reduced their smoking as a result of lockdown, to protect their health. In some cases, this was linked to the shock of the pandemic which enabled the costs of quitting to be outweighed by the benefits. For instance, one white woman (no age given), smoking no tobacco products per week wrote “*As soon as it struck the U.K. I stopped smoking! I wanted to stop anyway but the pandemic gave me the shock factor I needed!*”. Others wrote that they had quit or reduced smoking as a direct result of concerns about being in good health in case they caught COVID-19. The participant below

has a clear focus on personal health risk and the need to ensure her lungs were healthy ahead of catching the virus:

I last smoked on Monday 16th March, to use up the last cigarettes my partner and I had. Before the pandemic I was smoking socially on weekends, but not through the week. My partner and I have both previously smoked for years, and have both quit and then taken it up again socially for a couple of months. We made an agreement to not smoke anymore due to Coronavirus, as we were aware we need our lungs to be at their best capacity if we were to get pneumonia. This was before lockdown was put into place, but I live with an ICU nurse and understand my risk of contracting COVID-19 are high and I didn't want us to be at any further risk (28 year old white woman, no tobacco products per week).

Four participants had quit in lockdown because of health concerns linked to COVID-19 but had not maintained their quit attempts. Quitting was linked in all cases with health concerns or illness caused by COVID-19. For instance, one 24-year old white woman smoking 26 per week wrote “*I quit because I was worried about getting covid on top what smoking does and therefore putting my health more at risk*”. Restarting smoking was linked with lack of emotional control (stress and anger), such as in this account where the participant had quit when ill with COVID-19 but had since relapsed:

I became ill at the start of March, with breathing issues and Covid symptoms. An ambulance came to the house to access me. With my difficulties breathing I didn't couldn't smoke. I was not working either so I didn't smoke because I normally smoke due to stress. I also wasn't going out Socially situations. As I smoke more in social situations. Because I was ill for 3 weeks I didn't smoke for that period of time. So I thought I would carry on trying not to smoke. I have relapsed a few times due to stress or anger (25 year old white man, two per week).

Breaking the Smoking Habit

In some written accounts, participants reported that lifestyle changes resulting from the COVID-19 lockdown had helped them to break their smoking habit, enabling quitting or reduction in smoking. One of the key contributors to this effect was working from home, which enabled changes in regular routines. This was tied to no longer having to commute (which was seen as promoting smoking), and changes in working and socialising environments (so drinking less and pubs not being open in lockdown).

I only ever smoked when I was at work or on the way to or from work. (And on nights when I'd had a few drinks). Working from home, I don't generally smoke (38 year old white man, seven per week).

This kind of account is also illustrated below, with smoking being seen as habitual “a routine thing” linked with commuting and “going out and drinking”:

I'm not smoking any more than I was before this became a big deal, if anything I'm smoking less because I spend more time at home and for me smoking is something I see as a routine thing (for example, a cigarette on my way to work, however now I'm not going to work). I also smoke less as I am not going out and drinking, which is when I would have previously smoked the most (20 year old white woman, 23 per week).

Several participants described smoking as an associative learned behaviour that could be disrupted and changed with a change in environment. Smoking was seen as a habit associated with specific stimuli (e.g., commuting to/from work, socialising) that just needed a different environment to be broken. Participants minimised smoking as “just” a social activity that they were able to stop when they changed environment. For instance, one 25 year old white man smoking no tobacco products per week wrote “*I quit smoking because I went home from Uni and only smoked socially really*”. This pattern was seen in many of the responses from University students, often because they had returned to parental homes for lockdown and saw

smoking as a University-based activity that they did with their friends. Feeling that they were not addicted to smoking may have made quitting smoking easier, though the importance placed on the social environment for promoting smoking also suggests that returning to previous social environments which are more conducive to smoking may result in recommencing smoking following lockdown. In these kinds of accounts, social reasons for smoking were prioritised over health-related concerns. For instance:

I am a Uni student, and started smoking at uni. While at Uni I did not smoke daily and could easily go without cigarettes. Since I am now at home during lockdown I have been smoking significantly less (out of convenience, so I do not have to hide it from family, and because I am not going out with friends), however I do have the occasional cigarette. I would definitely consider myself a social smoker, so not having much chance to socialise has reduced my smoking more than direct concerns for my health (19 year old Asian woman, nine per week).

Theme 3: Avoidance and Disbelief

Some participants were unconvinced by health-related arguments, and therefore not inclined to change their smoking behaviour. Many had found Government health advice unhelpful, and some suggested that media reports were biased and the likely dangers inflated, misleading people about the health risks for smokers.

Some participants reported that Government advice did not affect their smoking, e.g., “Government advice hasn't impacted my smoking behaviours at all” (22 year old white woman, 52 per week), and some of them expanded on their accounts and mentioned that they actively avoided listening to media messaging on health risks for smokers. For instance, one 22-year old white man smoking 145 per week stated “*No impact. Ignoring press and media*”, and this 32 year old white woman smoking 80 per week wrote “*Not at all. I tend to not watch the news or read the news so not aware if it affects either way*”.

Some reported anger and disbelief at what was perceived to be Government misinformation on COVID-19, stressing that any changes to smoking were unrelated to fears around the COVID-19 virus. These kinds of accounts, such as the one below, distanced the smoker from fears around the virus and its health effects, suggesting lack of trust ('supposed "virus"') and anger:

Anger caused by the blatant deception, conditioning and fear mongering through the securitization of supposed "virus" has probably caused me to drink more alcohol, which in turn generally means I will smoke more. However, I wouldn't say worrying about catching the virus has impacted my smoking (45 year old white woman, 219 per week).

Participants suggested that media were biased and lacking an evidence base. For instance, *"It hasn't affected me at all, I believe the media is biased. I also believe the information is not always founded in science"* (23 year old white man, 45 per week). Some respondents reported that they had not found press or Government information convincing, and did not believe that there was sufficient evidence to understand fully the likely health impacts of smoking on risk from COVID-19:

Not really changed it at all, still have to go to work so am habitually smoking (on breaks etc). The impact of smoking on the effects of coronavirus are not fully understood at best and to be honest if I cared that much about the negative health effects of smoking would I even be smoking, pandemic or not? Can't say the press nor the government has been particularly useful in health advice (no age provided, white man, 70 per week).

Discussion

In this study, we set out to understand more about how UK smokers describe their smoking behaviour in relation to the COVID-19 pandemic. No published study has investigated this

issue to date, and we were particularly interested in how smokers would account for their smoking behaviour within a context where smoking might possibly put them at more risk of serious health complications as a result of catching COVID-19. Results are interesting and showed the complex ways that smokers accounted for their smoking in relation to the pandemic.

Thirty-two respondents reported increasing their smoking as a result of the pandemic. For some, this related to using smoking to deal with the boredom of lockdown. For others, smoking was seen as a way to cope with the increased stress caused by threat of COVID-19 infection. Both sub-themes make sense of smoking as an adaptive and logical solution to problems caused by COVID-19 and associated lockdown, and externalise agency for smoking behaviour. Rather than smoking being seen as something pleasurable, or something smokers needed to do because of psychological or physiological addiction, it was seen as a useful time-filler, and a way to relieve stress, boredom, anxiety, pain (when combined with cannabis) and anger. Results support suggestions from Patwardhan (2020) that boredom, social distancing and social isolation in lockdown added to COVID-19-related stress and uncertainty, are likely to push current smokers to increase their smoking, and ex-smokers to resume smoking. Participants talked about stress itself as a health-risking factor, providing a justification for smoking as a legitimate way to cope with increased stress. Using smoking as a way to cope with stress is well-documented (e.g. Ng & Jeffery, 2003), and justifying smoking as a coping mechanism has been reported by other authors (e.g. Gough et al., 2009; Slopen et al., 2013). It could be argued that describing smoking as a legitimate means for coping with boredom, stress, anxiety, pain and anger means that smokers can make sense of increasing their smoking at a time when quitting to protect health might seem the more logical option.

Thirty-six participants had decreased their smoking or quit smoking. Quitting was linked explicitly to health-related fears; for 14 participants, COVID-19 was seen as a significant and personally relevant health threat because of their smoking. Findings are consistent with Protection Motivation Theory (Maddux & Rogers, 1983) which would suggest that under these circumstances, where both severity and perceived vulnerability were high, smokers would be most likely to appraise this as threatening and undertake protective behaviour change by quitting or reducing smoking. Also, lockdown had enabled 22 participants, all of whom saw smoking as a social- or work/commuting-related activity, to break their smoking habit and quit. Accounts represented smoking as an unhealthy practice for smokers, with the advantages of smoking outweighed by the potential health risks. Those whose accounts represented smoking as tied to particular social environments downplayed the importance of smoking, saying they were “just social smokers”, or only smoked in a University or commuting/work context. These accounts helped to justify quitting or reducing smoking; participants presented their behaviour as a logical response to their concerns about the COVID-19 pandemic. Results support quantitative studies suggesting that people might decide to reduce health risk behaviours, including smoking, during the COVID-19 pandemic due to sensitisation to the importance of good health and an attempt to adopt healthier lifestyles (e.g. Lopez-Bueno et al., 2020). They also support suggestions from Caponnetto et al. (2020) that it is the lack of opportunity to continue to smoke when travelling, or in social situations, that helps smokers to break the social habit of smoking. In this respect, the COVID-19 pandemic may constitute an opportunity for quitting smoking within a context likely to promote and support that change; a ‘teachable moment’ (Lawson & Flocke, 2008).

Fifty-six participants (including 15 who gave one-or-two word answers) wrote that they had not changed their smoking behaviour. Forty-one respondents focused on avoidance of, and lack of trust in, COVID-19 health messaging. Participants reported anger and distrust

at confusing and inaccurate Government messaging, and were not sufficiently convinced by the possible threat of COVID-19 to change their smoking behaviour. These participants presented accounts where they distrusted Government information, with the media also perceived as biased in their reporting of health threats to smokers and exaggerating the risks.

Government and media were not seen as credible sources of COVID-19 health-related information, supporting suggestions from Rutter (2020) in the UK and Friedman and Plumer (2020) in the USA. Source credibility is key for messages designed to promote behaviour change (Pornpitakpan, 2004) and low source credibility may decrease trust and agreement with smoking-related messages (Schmidt et al., 2016), so it is not surprising these participants had opted not to change their smoking behaviour. The content of messaging was also criticised as not being evidence-based. Many suggested that COVID-19 health risks to smokers were exaggerated, and with some even construing the pandemic as a hoax. Data support Romer and Jamieson (2020) who suggest, based on a large-scale US survey, that belief in COVID-19-related conspiracy theories relates to low perceived risk of the pandemic, as well as low probability of taking preventative measures. They propose that public health authorities counter conspiracy theories by presenting believable, evidence-based information using mainstream and alternative media.

Implications for Smoking Cessation

Smokers who were able to quit smoking, or significantly reduce their smoking, tended to report that they believed smokers were at risk of serious illness resulting from COVID-19. This stresses the importance of credible public health messaging. People who decided not to quit or reduce their smoking reported avoiding engagement with media and Government health messaging. Many suggested that the risk to the general population, including non-smokers, had been exaggerated by media and Government whose messaging was not perceived to be underpinned by scientific evidence. This shows the need for evidence-based

messaging provided by scientists and health professionals directly rather than by Government and media, which were seen as self-interested and unreliable sources. Messaging content should be tailored where possible (see Proctor et al., 2020) to be relevant to different ages and long-term conditions, recognising that smokers may use tobacco to deal with pain, anxiety, stress and anger. Believable, evidence-based fear appeals (Tannenbaum, 2015) would possibly persuade smokers who are unconvinced about risks to see COVID-19 as a realistic and self-relevant threat. Protection Motivation Theory (Maddux & Rogers, 1983) would predict that this would be an effective way to support these smokers in quitting smoking in lockdown should they wish to quit.

Thirty-two smokers had increased their smoking as they saw smoking as a way to cope with increased stress and boredom caused by the COVID-19 pandemic. Four had initially increased their smoking due to stress but had found ways of coping with stress and subsequently reduced their smoking. Interventions focusing on alternative ways to deal with stress, and effective emotion regulation to deal with anger, anxiety, pain, and boredom, as well as querying the effectiveness of smoking as a way to reduce stress and boredom, would be useful. As suggested by Patwardhan (2020), clear messages need to be communicated to smokers and healthcare advisors that smoking is not a viable solution to reducing stress caused by the pandemic. Methods designed to reduce stress and regulate emotions such as boredom, anxiety, and anger, and dealing with pain such as mindfulness training (Sharma & Rush, 2014) may be effective in enabling more effective coping without the perceived need to smoke.

Lockdown isolation and reduced opportunity to smoke enabled some smokers to break their smoking habit and quit or reduce their smoking, though lockdown had also led to self-reports of boredom, and increased smoking in others. This shows the importance of social context for smoking, supporting other studies (e.g. Caponnetto et al., 2020; Dimoff &

Sayette, 2016; Gough et al., 2009; Mucci et al., 2020). A focus on smoking as an associative learned, situation-specific habit, rather than a psychological or physiological addiction, could be used positively to encourage smokers to quit through focusing on the opportunities to quit smoking presented by changes in social context. Caponnetto et al. (2020) argue that the chance for smokers to break smoking habits conferred by COVID-19 lockdown is an important public health opportunity. Examples such as the success stories cited above may be useful in encouraging smokers to use lockdown, and being away from their usual smoking triggers, as a quitting opportunity. This is potentially a chance to provide this group of social smokers with interventions to reinforce smoking cessation, and prevent relapse after lockdown when they return to (something like) their normal lives. Innovative, tailored, smoking cessation techniques such as age-appearance facial morphing (Grogan et al., 2011) for instance, could be used to reinforce and encourage maintenance of quitting in those who have managed to quit in lockdown.

Strengths and Limitations

The study benefitted from a good-sized sample of smokers, and most participants wrote in full about their experiences. The anonymity afforded by the online questionnaire format seemed to enable participants to present responses that may not have been seen as socially desirable. There was a good gender balance in the sample (55% women) and a range of smoking (0-219 tobacco products per week). The team includes academics from psychology and public health, some of whom are smokers, ex-smokers and never-smokers, so the analysis we have produced is informed by a good range of different and complementary approaches to research, smoking, and health promotion.

There were also limitations in the study design. Participants were a convenience sample, and all based in the UK. Future work could investigate whether their experiences generalise to other geographical areas with quite different forms of lockdown and

Government health messaging. The open-ended question was completed in the context of closed-ended measures of threat and stress (completed for another study; Authors, in preparation) which may have encouraged participants to focus on stress in their responses. Most of the participants (89%) were white; although the proportion of white respondents is only slightly higher than the population of England and Wales where 86% are white (Office for National Statistics, 2019b); future work might attempt to obtain a more balanced sample in relation to ethnicity. Also, the mean age was only 25 years, so although there was a good range of ages (19-52 years), many were in the lower end of the range so data and conclusions may be more relevant to younger than older smokers. Further work could focus on older participants, distributing adverts through venues and websites attracting older smokers such as community groups, faith groups, websites aimed at parents such as mumsnet.com, and health centres/clinics. Future researchers may also consider recruiting smokers in other areas of the world to determine overlap in findings and any geographical differences in experiences.

Conclusions

Smokers responded in varied ways to the potential threat of COVID-19, writing about increasing, decreasing, and not changing their smoking behaviour. Smoking was described as a way to cope with stress and boredom, and also as a self-relevant health threat, as well as an easy-to-break social/situational habit. Some participants were sufficiently concerned about the health risks associated with COVID-19 to quit or reduce smoking, but more were distrustful of Government and media messaging. Clearly, messaging needs to be provided by a trusted source, as well as being personally-relevant and evidence-based. Future work is now needed to see whether results of the UK study generalise to other areas of the world with different Government responses to reduce spread of COVID-19 and different forms of health messaging.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author Professor Sarah Grogan, upon reasonable request.

References

Authors, in preparation.

Bindu, R., Sharma, M. K., Suman, L. N. & Marimuthu, P. (2011). Stress and coping

behaviors among smokers. *Asian Journal of Psychiatry*, 4(2), 134-138.

<https://doi.org/10.1016/j.ajp.2011.04.008>

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research*

in Psychology, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>

Braun, V. & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative*

Research in Sport, Exercise and Health, 11(4), 589-597.

<https://doi.org/10.1080/2159676X.2019.1628806>

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., &

Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(10227), 912-920.

[https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)

Caponnetto, P., Inguscio, L., Saitta, C., Maglia, M., Benfatto, F., & Polosa, R. (2020).

Smoking behavior and psychological dynamics during COVID-19 social distancing and stay-at-home policies: A survey. *Health Psychology Research*, 8(1), 9124.

<https://doi.org/10.4081/hpr.2020.9124>

Chalmers, V. (2020, 8 June). MORE evidence smokers are at less risk of Covid-19: Study of

90,000 infected patients in Mexico reveals adults addicted to cigarettes are 23% LESS likely to catch the virus. Mail Online. [https://www.dailymail.co.uk/news/article-](https://www.dailymail.co.uk/news/article-8398191/MORE-evidence-smokers-risk-Covid-19-23-likely-catch-virus.html)

[8398191/MORE-evidence-smokers-risk-Covid-19-23-likely-catch-virus.html](https://www.dailymail.co.uk/news/article-8398191/MORE-evidence-smokers-risk-Covid-19-23-likely-catch-virus.html)

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress.

Journal of Health and Social Behavior, 24, 385-396. <https://doi.org/10.2307/2136404>

Conway, L. G., III, Woodard, S. R., & Zubrod, A. (2020, April 7). Social psychological measurements of COVID-19: Coronavirus perceived threat, Government Response, Impacts, and Experiences Questionnaires. <https://doi.org/10.31234/osf.io/z2x9a>

Dimoff, J.D. and Sayette, M.A. (2016) The case for investigating social context in laboratory studies of smoking. *Addiction*, 112(3), 388-395. <https://doi.org/10.1111/add.13503>

Friedman, L. and Plumer, B. (2020, 28 April). Trump's response to virus reflects a long disregard for science. *New York Times*.

<https://www.nytimes.com/2020/04/28/climate/trump-coronavirus->

Giannouchos, T.V., Sussman, R.A., Mier, J.M., Poulas, K., & Farsalinos, K. (2020).

Characteristics and risk factors for COVID-19 diagnosis and adverse outcomes in Mexico: an analysis of 89,756 laboratory–confirmed COVID-19 cases. *European Respiratory Journal*. <http://doi.org/10.1183/13993003.02144-2020>

Gough, B., Fry, G., Grogan, S., & Conner, M. (2009). Why do young adult smokers continue to smoke despite the health risks? A focus group study, *Psychology & Health*, 24, 203-220. <https://doi.org/10.1080/08870440701670570>

Grogan, S., Flett, K., Clark-Carter, D., Conner, M., Davey, R., Richardson, D. & Rajaratnam, G. (2011). A randomized controlled trial of an appearance-related smoking intervention. *Health Psychology*, 6, 805-9. <https://doi.org/10.1037/a0024745>

Grogan, S. & Mehan, J. (2017). Body image after mastectomy: A thematic analysis of younger women's written accounts. *Journal of Health Psychology*, 22(11), 1480-1490. <https://doi.org/10.1177/1359105316630137>

Holmes, F. (2020). *COVID-19 Timeline*. British Foreign Policy Group.

<https://bfpgrp.co.uk/2020/04/covid-19-timeline/>

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., Worthman, C. M., Yardley, L., Cowan, K., Cope, C., Hotopf, M., & Bullmore, E. (2020).

Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, 7(6), 547-560.

[https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., Gu, X., Cheng, Z., Yu, T., Xia, J., Wei, Y., Wu, W., Xie, X., Yin, W., Li, H., Liu, M., Xiao, Y., Gao, H., Guo, L., Xie, J., Wang, G., Jiang, R., Gao, Z., Jin, Q., Wang, J. & Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*, 395(10223), 497-506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)

Institute for Government (2020, July 6). Boris Johnson's plan to ease the coronavirus lockdown. <https://www.instituteforgovernment.org.uk/explainers/boris-johnson-plan-ease-coronavirus-lockdown>

International Committee of the Red Cross (2020, July 6). COVID-19 pandemic may increase stress exponentially. <https://www.icrc.org/en/document/covid19-global-pandemic-may-increase-stress> International Red Cross 2020

Jowett, A., Peel, E., & Shaw, R. (2011). Online interviewing in psychology: Reflections on the process. *Qualitative Research in Psychology*, 8(4), 354-369. <https://doi.org/10.1080/14780887.2010.500352>

- Lawson, P.J.& Flocke, S.A. (2009). Teachable moments for health behavior change: a concept analysis. *Patient Education and Counselling*, 76(1), 25-30.
- Liu, W., Tao, Z.-W., Lei, W., Ming-Li, Y., Kui, L., Ling, Z., Shuang, W., Yan, D., Jing, L., Liu, H.-G., Ming, Y. & Yi, H. (2020). Analysis of factors associated with disease outcomes in hospitalized patients with 2019 novel coronavirus disease. *Chinese Medical Journal*, 133(9):1032-1038. <https://doi.org/10.1097/cm9.0000000000000775>
- López-Bueno, R., Calatayud, J., Casaña, J., Casajús, J.A., Smith, L., Tully, M.A., Andersen, L.L., & López-Sánchez, G.F. (2020). COVID-19 confinement and health risk behaviors in Spain. *Frontiers in Psychology*, 11, 1426. <https://doi.org/10.3389/fpsyg.2020.01426>
- Madill, A., Jordon, A., and Shirley, C. (2000). Objectivity and reliability in qualitative analysis: Realist, contextualist and radical constructionist epistemologies. *British Journal of Psychology*, 91(1), 1-20. <https://doi.org/10.1348/000712600161646>
- Maddux, J. E., & Rogers, R. W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology*, 19(5), 469–479. [https://doi.org/10.1016/0022-1031\(83\)90023-9](https://doi.org/10.1016/0022-1031(83)90023-9)
- Miyara, M., Tubach, F., Pourcher, V., Morelot-Panzini, C., Pernet, J., & Haroche, J. (2020). Low incidence of daily active tobacco smoking in patients with symptomatic COVID-19. *Qeios*. <https://doi.org/10.32388/WPP19W.3>.
- Mucci, F., Mucci, N., & Diolaiuti, F. (2020). Lockdown and isolation: Psychological aspects of COVID-19 pandemic in the general population. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 17(2):63-64. <https://doi.org/10.36131/CN20200205>
- Ng, D. M. & Jeffery, R. W. (2003). Relationships Between Perceived Stress and Health Behaviors in a Sample of Working Adults. *Health Psychology*, 22(6), 638-642. <https://doi.org/10.1037/0278-6133.22.6.638>

Nichter, M., Nichter, M., Carkoglu, A., & Tobacco Etiology Research Network (2007).

Reconsidering stress and smoking: a qualitative study among college students.

Tobacco Control, 16(3), 211–214. <https://doi.org/10.1136/tc.2007.019869>

Office for National Statistics (2019, July 2). Adult smoking habits in the UK: 2018.

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2018>

Office for National Statistics (2019b, May 14). Population of England and Wales.

<https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/population-of-england-and-wales/latest#by-ethnicity>

Patwardhan, P. (2020). COVID-19: Risk of increase in smoking rates among England's 6 million smokers and relapse among England's 11 million ex-smokers. *British Journal of General Practice Open*, 4(2). <https://doi.org/10.3399/bjgpopen20X101067>

Pornpitakpan, C. (2004). The persuasiveness of source credibility: a critical review of five decades' evidence. *Journal of Applied Social Psychology*, 34(2), 243–281.

<https://doi.org/10.1111/j.1559-1816.2004.tb02547.x>

Proctor, J., Naughton, F., Sloan, M., Hopewell, S., Brimicombe, J., Prevost, A. T., Wilson, E., Coleman, T., & Sutton, S. (2020). Assessment of the effectiveness and cost-effectiveness of tailored web- and text-based smoking cessation support in primary care (iQuit in Practice II): Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, 9(7), e17160. <https://doi.org/10.2196/17160>

Public Health England. (2020, April 3) Smokers at greater risk of severe respiratory disease from COVID-19. <https://www.gov.uk/government/news/smokers-at-greater-risk-of-severe-respiratory-disease-from-COVID-19>

- Romer, D & Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the U.S. *Social Science & Medicine*, 263, 113356.
<https://doi.org/10.1016/j.socscimed.2020.113356>.
- Rutter, J. (2020, April 20). The government has overreacted to a weekend of bad coronavirus press. Institute for Government.
<https://www.instituteforgovernment.org.uk/blog/government-has-overreacted-weekend-bad-coronavirus-press>.
- Samuel, H. (2020, 23 April). Smokers 'four times less likely' to contract Covid-19, prompting nicotine patch trials on patients. *The Telegraph*.
<https://www.telegraph.co.uk/news/2020/04/23/smokers-four-times-less-likely-contract-covid-19-prompting-nicotine/>
- Schmidt, A. M., Ranney, L. M., Pepper, J. K., & Goldstein, A. O. (2016). Source credibility in tobacco control messaging. *Tobacco Regulatory Science*, 2(1), 31–37.
<https://doi.org/10.18001/TRS.2.1.3>
- Sharma, M. & Rush, S.E. (2014). Mindfulness based stress reduction as a stress management intervention for healthy individuals: A systematic review. *Journal of Evidence-Based Complementary & Alternative Medicine*, 19(4), 271-286.
<https://doi.org/10.1177/2156587214543143>
- Singer, E. & Couper, M.P. (2017). Some methodological uses of responses to open questions and other verbatim comments in quantitative surveys. *Methods, Data, Analyses*, 11(2), 115-134. <https://doi.org/10.12758/mda.2017.01>.
- Slopen, N., Kontos, E. Z., Ryff, C. D., Ayanian, J. Z., Albert, M. A., & Williams, D. R. (2013). Psychosocial stress and cigarette smoking persistence, cessation, and relapse over 9-10 years: a prospective study of middle-aged adults in the United States.

Cancer Causes and Control, 24(10), 1849–1863. <https://doi.org/10.1007/s10552-013-0262-5>

Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K. & Albarracin, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories.' *Psychological Bulletin*, 141(6), 1178-1204.

Terry, G., & Braun, V. (2017). Qualitative survey methods. In V. Braun, V. Clarke & D. Gray (eds.). *Collecting qualitative data: A practical guide to textual, media and virtual techniques* (15-44). Cambridge: Cambridge University Press.
<https://doi.org/10.1017/9781107295094>

Williams, T-A. (2020). STUB IT OUT. Smoking DOES increase risk of catching Covid-19, new study finds. The Sun. <https://www.thesun.co.uk/news/health-news/11577894/smoking-increase-risk-covid-19/>

Willig, C. (2008). *Introducing qualitative research in psychology (2nd ed.)*. Open University Press.

World Health Organisation (2020, May 27). Tobacco. <https://www.who.int/news-room/factsheets/detail/tobacco>

Table 1.
Summary of themes and sub-themes

Theme	Sub-theme	Number of Participants	% of Participants
Increased Smoking as a Coping Mechanism	Coping with COVID-19 Stress	16	12%
	Coping with Boredom in Lockdown	16	12%
Lockdown Lifts	Health Concerns	14	11%
Barriers to Quitting	Breaking the Smoking Habit	22	17%
Avoidance and Disbelief		41	31%
No Change with No Explanation (e.g. “No Change”/”No Impact”)		15	11%
Response Did Not Address Question		8	6%