



Compliance with self-isolation and quarantine measures: A literature review



HEALTH AND SOCIAL CARE



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Executive Summary

Introduction

Since the beginning of the Covid-19 pandemic, self-isolation and quarantine measures have represented a key strategy to contain the spread of the virus. Adherence to these measures is complex and a range of factors can impact whether someone is willing and able to comply. This literature review will provide an overview of self-isolation and quarantine regimes both in the UK and internationally, illustrate the factors associated with compliance and examine the approaches that have been deemed effective in influencing it. It will examine literature covering those who test positive, close contacts, and those returning from international travel.

Research questions

The analysis of the literature examined here is based on the following key research questions:

- How does knowledge of Covid-19 and self-isolation/quarantine regulation impact people's compliance?
- What are the financial and practical implications of self-isolation/quarantine regulation?
- Are ethnic and linguistic minorities able to access information and support for self-isolation/quarantine?
- What is the role of the community in promoting adherence to the regulations? And how does sense of belonging to a community affect compliance?
- What is the role played by risk perception and wider attitudes in determining adherence to the guidelines?
- What is the psychological impact of self-isolation/quarantine regimes?
- What are the risks and opportunities of introducing monitoring and enforcement of self-isolation/quarantine rules?

Methods

This literature review is based on analysis of international scholarly research on compliance with self-isolation and quarantine regimes carried out between February 2021 and July 2021. Priority has been given to sources pertaining to the Covid-19 pandemic. However, some work on self-isolation and quarantine regimes adopted during other infectious disease outbreaks has been included.

The body of evidence selected consists of 97 studies. The review is based on sources written in English, with the majority from the UK context.

Key findings

Adherence to isolation regimes in the UK has varied over the course of the pandemic, ranging from very low reported rates of compliance at the very beginning to rather high reported levels in recent months. Low rates of compliance have been

associated with men, younger age groups, key-workers, lower socio-economic status, greater hardship during the pandemic, incorrect identification of symptoms, lack of knowledge of the regulations if one develops symptoms, and the presence of a dependent child in the household.

Knowledge about Covid and self-isolation/quarantine requirements

Data on knowledge about Covid-19, and self-isolation/quarantine rules and guidelines, suggest a need for better communication. A lack of knowledge or an incorrect interpretation of official messages hinders public health efforts and damages the effectiveness of the adopted strategies to tackle Covid-19 even among those who wish to comply.

Focusing on clearer and more effective information campaigns, and on the provision of easier access to reliable sources of information, is fundamental and could also promote confidence in political and health authorities, and trust in official health advice. This is especially true in the era of social media, as it can be challenging for some to identify trustworthy advice given the proliferation of ‘fake news’.

Socio-economic status

Rates of compliance are heavily influenced by financial constraints and depend on income support, job protection and support with accommodation. The economic risks of self-isolating are often perceived as more significant than risks to health, particularly for people from more disadvantaged backgrounds.

Providing financial support and reimbursement of any potential income loss arising from the need to self-isolate or quarantine has been at the core of state interventions in Scotland, across the UK and in a number of countries around the world. There has been a significant effort to align public health responses with people’s lived realities, in the awareness that the ability to comply with the public health measures depends on people having the resources to do so, in particular if they are easy to obtain and provided promptly.

Furthermore, the evidence that working outside the house is related to lower compliance identified a need to improve or enforce guidelines in workplaces and support those who are pressured into returning or continuing to work.

Other types of successful support packages offered by local governments and community based teams include provision and delivery of food and medicines, care for older relatives, dog walking, assistance with self-isolation accommodation, cleaning supplies, and personal protective equipment.

Cultural and language barriers to compliance

The ability to self-isolate tends to be lower in certain minority ethnic groups, possibly due to a combination of socio-economic, linguistic and cultural factors. Terms such as ‘self-isolation’ are not always well understood when translated, as the translated words may not retain the exact meaning as the original.

The importance of providing accessible information in a range of languages and to communities with varying degrees of health literacy plays a vital role in promoting adherence to isolation regimes. Furthermore, it is key to target communication

inequalities by consulting representatives from minority groups, ensuring that the interventions are developed in partnership with the interested population.

Community support for adherence

Adherence to self-isolation/quarantine regulations can be influenced by interpersonal interactions and perception of others within the community, with research showing that people feel encouraged to comply if they see others doing so. Some research has found that compliance is also affected whenever index or contact cases have become a target of stigma in the community. This can create a reluctance to get tested or concerns about the consequences of triggering self-isolation for others.

Looking at ways to link people up with community support mechanisms, for example developing community-based peer education programmes and empowering community stakeholders to contribute to the Covid-19 response, might improve adherence. Furthermore, emphasising the relatively high prevalence of compliers, rather than accentuating the minority of non-compliers with self-isolation and quarantine regulations, might elicit higher feelings of social connectedness and foster adherence based on positive attitudes towards others.

Sense of civic duty and community belonging

Research shows how compliance with rules improves when this is perceived as a contribution to the wellbeing of the community as a whole. Therefore, appealing to a sense of civic duty, community belonging and altruistic motivations has been identified as a successful strategy to promote compliance with self-isolation and quarantine regimes. The literature suggests that any communication that 'we are all in this together' from political leaders determines a sense of collective self-efficacy and hope. Public health officials have also been encouraged to emphasise civic duty in order to increase the perceived benefit that complying will have on public health.

Risk perception

The belief that Covid-19 does not pose a serious risk (especially in the case of asymptomatic disease) and the inability to see self-isolation as beneficial are associated with lower adherence. Risk perception tends to vary according to demographic variables like age and gender, with men and younger people being more permissive and less risk averse than women and older people.

Communications focusing on risk of transmission or the exponential nature of transmission might improve compliance. The positive role played by fear of Covid-19 has also been explored and some research shows how those with higher fear scores are more inclined to be compliant with regulations on isolation. Yet, the adoption of fear messages might have some limitations in some contexts, where prosocial messages could prove more effective. A message that is perceived as too threatening could cause people to engage in defensive avoidance, hence to disregard the message altogether. There is also a possibility that messages associated with negative emotions might produce unnecessary mental health concerns.

Mental health

A link between poorer mental health and non-compliance with self-isolation and quarantine has been observed, with feeling depressed, anxious, lonely or bored indicated as reasons for breaking the rules.

Mitigation measures have included access to emotional support or clinical interventions delivered remotely where possible. Recommendations have also been made for mapping local resources and sources of support from voluntary and community organisations. Promoting virtual social interactions, online social reading activities, classes, or exercise routines have also been suggested.

Given the disproportionate prevalence of mental health difficulties in BAME groups, and the disproportionate impacts on these groups from Covid-19, the governments of all four nations have been invited to engage directly with representatives of BAME communities in order to develop culturally appropriate and readily accessible mental health support.

Monitoring and enforcement of self-isolation/quarantine rules

With an increase in case numbers and the emergence of new strains of the virus over the course of the pandemic, stricter measures have been implemented internationally to reduce transmission. These have included the introduction of the legal duty to self-isolate and of fines, random checks, managed quarantine hotels for international travellers and the closure of various locations, including shops, restaurants, cultural attractions and so on. While institution-based isolation (e.g. in hotels) has proved to be more effective than home-based isolation in increasing compliance, evidence on other kinds of enforcement solutions is mixed and presents a dimension of cultural variation. Enforcement approaches could pose a number of issues, for example discourage testing uptake and honest reporting during contact tracing, or impact more on low-income individuals when it comes to fines. Furthermore, these measures risk focusing on the wrong solutions to low rates of compliance, namely poor knowledge of what is required during self-isolation or lack of adequate financial, practical and social support.

Introduction

Since the beginning of the Covid-19 pandemic, self-isolation and quarantine measures have represented a key strategy to contain the spread of the virus. Adherence to these measures is complex. A range of factors can impact whether someone is willing and able to comply, including socio-economic status, knowledge of rules and guidance, beliefs about the pandemic and levels of formal and informal support available. This literature review will explore self-isolation and quarantine regimes both in the UK and internationally, illustrate the factors associated with compliance and examine the approaches that have been deemed effective in influencing it. It will examine literature covering those who test positive, close contacts, and those returning from international travel.

Self-isolation and quarantine policy in Scotland¹

Prior to 9th August in Scotland, anyone with Covid-19 symptoms and a positive test result had to stay at home and self-isolate immediately for 10 full days. This applied also to their household members and those who had been in close contact with the confirmed case, even if they did not have symptoms or tested negative². Since the 9th August, self-isolation rules have changed for those who are fully vaccinated, but those who test positive or are not fully vaccinated must continue to isolate.

From 19 July 2021, there have been changes to the guidelines for international travellers. These are based on a traffic light system classifying countries according to their level of risk and taking into account number of cases and/or variants. People are no longer asked to self-isolate if they travel to Scotland from an amber list country and they have been fully vaccinated in the UK, in a EU member state, Iceland, Liechtenstein, Norway, Switzerland, Andorra, Monaco, San Marino or Vatican City, or the USA at least 14 days before their arrival. However, just like arrivals from green list countries, they are still required to provide a negative Covid-19 test result taken in the 3 days before departure, complete a passenger locator form with details of their final destination and book a test within 2 days of arriving in Scotland through the CTM Booking Portal. People not fully vaccinated should still isolate at home or in the place they are staying for 10 days, and book two tests to be taken on day 2 and 8 of their isolation. Together with taking a pre-departure test and completing a passenger locator form, those arriving from a country or area on the red list should book a quarantine hotel package, including 2 Covid-19 tests for

¹ The research for this report was conducted between February and July 2021. This section was therefore last updated in August 2021. Rules and guidelines on self-isolation and quarantine have changed in the intervening period and may change further in the future.

² [Coronavirus \(COVID-19\): Test and Protect - gov.scot \(www.gov.scot\)](https://www.gov.scot/coronavirus-test-and-protect)

days 2 and 8 of their quarantine³. This is a four nations approach and applies also to England⁴, Wales⁵ and Northern Ireland⁶.

Financial support has been put in place for those who need to self-isolate. In Scotland, people may be entitled to a one-off payment of £500 through the Self-Isolation Support Grant⁷. Further financial support is available and includes crisis grants, help with benefits and with paying bills.

All index and contact cases in Scotland are offered an initial call from their Local Authority when contact is made by Test and Protect. During this call with the Local Authority support needs are identified and the option of up to two follow-up calls to reassess those needs is given. People self-isolating or in quarantine can also call the National Assistance Helpline, which links callers who cannot get the help they need through family, friends and neighbours to their Local Authority and/or organisations providing support for mental health and wellbeing concerns⁸. Local Authorities can support people with food and medicine delivery, dog walking, befriending services and isolation accommodation if they cannot self-isolate safely at home. Further links to a number of resources are provided by Ready Scotland⁹.

Research questions

This literature review aims to contribute to better understanding the complex range of factors that determine adherence to self-isolation and quarantine regimes, and to identify approaches and lessons learned from a number of settings that may increase compliance rates. The analysis of the literature examined here is based on the following key research questions:

- How does knowledge of Covid-19 and self-isolation/quarantine regulation impact people's compliance?
- What are the financial and practical implications of self-isolation/quarantine regulation?
- Are ethnic and linguistic minorities able to access information and support for self-isolation/quarantine?
- What is the role of the community in promoting adherence to the regulations? And how does sense of belonging to a community affect compliance?
- What is the role played by risk perception and wider attitudes in determining adherence to the guidelines?

³ [Coronavirus \(COVID-19\): international travel and managed isolation \(quarantine\) - gov.scot \(www.gov.scot\)](https://www.gov.scot/topics/health/coronavirus/covid-19/international-travel-and-managed-isolation-quarantine)

⁴ [How to quarantine when you arrive in England - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/how-to-quarantine-when-you-arrive-in-england)

⁵ [How to isolate when you travel to Wales: coronavirus \(COVID-19\) | GOV.WALES](https://www.gov.wales/topics/health/coronavirus/covid-19/how-to-isolate-when-you-travel-to-wales)

⁶ [Coronavirus \(COVID-19\): international travel advice | nidirect](https://www.nidirect.gov.uk/articles/coronavirus-covid-19-international-travel-advice)

⁷ [Coronavirus \(COVID-19\): Test and Protect - gov.scot \(www.gov.scot\)](https://www.gov.scot/topics/health/coronavirus/covid-19/test-and-protect). This payment is available across the UK: in England it is the NHS Test and Trace Support Payment Scheme ([Stay at home: guidance for households with possible or confirmed coronavirus \(COVID-19\) infection - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/stay-at-home-guidance-for-households-with-possible-or-confirmed-coronavirus-covid-19-infection)), in Wales the Self-Isolation Support Scheme ([Self-isolation support scheme | GOV.WALES](https://www.gov.wales/topics/health/coronavirus/covid-19/self-isolation-support-scheme)), and in Northern Ireland the Discretionary Support Self-isolation Grant ([Extra financial support | nidirect](https://www.nidirect.gov.uk/articles/extra-financial-support-self-isolation-grant)).

⁸ [Coronavirus \(COVID-19\): help for people who need additional support - gov.scot \(www.gov.scot\)](https://www.gov.scot/topics/health/coronavirus/covid-19/help-for-people-who-need-additional-support)

⁹ [Stay prepared during the Covid-19 pandemic \(ready.scot\)](https://www.ready.scot/stay-prepared-during-the-covid-19-pandemic)

- What is the psychological impact of self-isolation/quarantine regimes?
- What are the risks and opportunities of introducing monitoring and enforcement of self-isolation/quarantine rules?

Methods

This literature review is based on a process of searching for and assessing material on compliance with self-isolation and quarantine regimes. Searching was carried out between February 2021 and July 2021. A standard literature review has been undertaken, searching for scholarly research from across the globe. A first search was conducted using KandE, a Scottish Government online search engine covering several databases. Subsequently, searching was carried out on Google Scholar, PubMed and ScienceDirect. Search terms included “compliance”, “self-isolation”, “quarantine”, “Covid” and “coronavirus”. Further references have been added by means of the snowballing technique, where references in relevant studies are reviewed for additional evidence.

Priority has been given to sources pertaining to the Covid-19 pandemic. However, some work on self-isolation and quarantine regimes adopted during other infectious disease outbreaks has been included when this offered valuable lessons that can be applied to the current public health emergency.

The majority of the sources examined in this review were published between 2020 and 2021, with the exception of literature on other infectious disease outbreaks dating back to 2003.

The body of evidence selected consists of 97 studies. Many of these use robust research methods, both quantitative (such as surveys) and qualitative (such as interviews and focus groups). It has to be noted that not all the scholarly research presented here has been peer-reviewed: some was in the form of pre-prints at the time of the last search (12th July 2021). Nonetheless, that has been included as the process of formal publication in a scholarly journal can be lengthy and there is a need to see and discuss the available findings immediately, given their potential in helping contain the spread of Covid-19.

The majority of the studies included in this review are based on self-reports of compliance with self-isolation and quarantine regulations. This is a limitation of the evidence base as self-reported evidence is affected both by recall bias (people are likely to overlook their infringement of rules) and social desirability bias (people might not be willing to admit that they have broken the rules). Together with that, there are other risks around self-report: it is likely that less compliant individuals are less knowledgeable about the guidelines and, as a consequence, unable to accurately judge their own compliance; and those who participate in research

studies may also have a greater interest in helping tackle the pandemic than the average citizen, hence higher propensity to comply with guidelines¹⁰.

Although the geographical coverage of the scholarly research material was international, this review was limited to resources in English. This partly justifies the higher number of UK based studies included in this review and reflects the importance of exploring the approaches of the other nations in the UK to self-isolation, given Scotland's context as a 4 nations partner. There is very limited Scotland-specific literature available on self-isolation and quarantine.

Terminology

Technically, self-isolation differs from quarantine as it is the separation of people known to be infected with Covid-19 from those who are not in order to control the spread of the virus. Instead, quarantine is the separation of healthy asymptomatic individuals who have potentially been exposed to a communicable disease with the purpose of monitoring them and seeing whether they develop it. In practice, in the literature the two terms sometimes overlap and may be used in a variety of different ways, making the distinction between them blurred. These ambiguities are evident in the sources examined here, in which the terms 'self-quarantine' and 'confinement' also appear.

In this review, the distinction between the two terms aligns with the definitions adopted in Scotland where the term self-isolation refers to the obligation to stay at home for 10 days for those testing positive for Covid-19 (index cases) and for those who came into contact with them (contact cases) and some international travellers, while quarantine defines the 10-day isolation period spent in a managed hotel observed by other international travellers. The term quarantine is also used for isolation regimes implemented during previous infectious disease outbreaks, as there was no mention of other terms in the related literature.

Key findings

Adherence to isolation regimes in the UK has varied over the course of the pandemic. At the very beginning, rates of compliance were rather low. The CORSAIR study compared a series of 21 cross-sectional nationally representative online surveys conducted in the UK between 2 March and 5 August 2020 to conclude that while intention to adhere to protective measures was high (around 65%), self-reported adherence was low (18.2% amongst those self-isolating). Non-adherence was associated with men, younger age groups, key-workers, lower socio-economic status, greater hardship during the pandemic, incorrect identification of symptoms, lack of knowledge of the regulations if one develops

¹⁰ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](#)

symptoms, and the presence of a dependent child in the household. Self-reported reasons for leaving the house were having to go to the shops for groceries/medicines, one of the symptoms got better and a medical need other than Covid¹¹.

From September 2020 though, Ipsos MORI reported increased levels of willingness to comply with the regulations. The majority of those who took part in their survey of 1,060 UK adults stated that they would stay at home and self-isolate if they tested positive for Covid-19 (84%), or were told by NHS Test and Trace or equivalents across the devolved nations that they had been in contact with someone who had tested positive (77%). Yet, a third of respondents still felt it was acceptable to break self-isolation rules in order to care for friends or family outside of their household¹².

In the winter of 2020, research from England and Wales showed an increase in the number of self-isolating individuals indicating exercise and contact with people outside their household as reasons for non-adherence to self-isolation guidance, possibly due to the difficulties associated with the length, number, and intensity of restrictions^{13 14}. However, in December, data from the Scottish Government commissioned YouGov polling showed that the vast majority of the sampled population would self-isolate and arrange a test through Test and Protect at the first sign of Covid-19 symptoms and be willing to provide details of those they had been in contact with¹⁵.

In July 2021, the Scottish Government published interim findings from a study on compliance with self-isolation, which found that 74% of index and contact cases were 'fully compliant'¹⁶. Similar percentages were recorded in England and Wales this year. In March, research carried out in England among index cases showed that self-reported full compliance with self-isolation requirements was 82%¹⁷. Research on close contacts in Wales reported 78% adherence to self-isolation between November 2020 and January 2021¹⁸, while a survey administered in England indicated 89% being fully compliant throughout the 10-day self-isolation period in March 2021¹⁹.

While monitoring rates of compliance, most of these studies have identified differences in adherence relating to a range of factors, including demographic

¹¹ [S0732 CORSAIR - Adherence to the test trace and isolate system.pdf](https://publishing.service.gov.uk/S0732_CORSAIR_-_Adherence_to_the_test_trace_and_isolate_system.pdf) (publishing.service.gov.uk)

¹² [Test, Trace and Isolate: Behavioural aspects](https://www.parliament.uk/research-and-factsheets/2020-11-17-test-trace-and-isolate-behavioural-aspects) - POST (parliament.uk)

¹³ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](https://www.parliament.uk/research-and-factsheets/2020-11-17-self-isolation-confidence-adherence-and-challenges-behavioural-insights-from-contacts-of-cases-of-covid-19-starting-and-completing-self-isolation-in-wales)

¹⁴ [The government's approach to test and trace in England – interim report](https://www.nao.org.uk/wp-content/uploads/2020/11/The-government-s-approach-to-test-and-trace-in-England-interim-report.pdf) (nao.org.uk)

¹⁵ [Public attitudes to Coronavirus: January update](https://www.gov.scot/publications/public-attitudes-to-coronavirus-january-update-2020/pages/1-1-introduction.aspx) - gov.scot (www.gov.scot)

¹⁶ [COVID-19 support study: index and contact case research findings from May 2021](https://www.gov.scot/publications/covid-19-support-study-index-and-contact-case-research-findings-from-may-2021/pages/1-1-introduction.aspx) - gov.scot (www.gov.scot). Since searching for this review ended the full report on this study has been published: [Coronavirus \(COVID-19\) support study experiences of and compliance with self-isolation: main report](https://www.gov.scot/publications/coronavirus-covid-19-support-study-experiences-of-and-compliance-with-self-isolation-main-report/pages/1-1-introduction.aspx) - gov.scot (www.gov.scot)

¹⁷ [Coronavirus and self-isolation after testing positive in England](https://www.ons.gov.uk/people-and-population/health-and-life-expectancy/articles/coronavirus-and-self-isolation-after-testing-positive-in-england/2020-12-01) - Office for National Statistics (ons.gov.uk)

¹⁸ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](https://www.parliament.uk/research-and-factsheets/2020-11-17-self-isolation-confidence-adherence-and-challenges-behavioural-insights-from-contacts-of-cases-of-covid-19-starting-and-completing-self-isolation-in-wales)

¹⁹ [Coronavirus and self-isolation after being in contact with a positive case in England](https://www.ons.gov.uk/people-and-population/health-and-life-expectancy/articles/coronavirus-and-self-isolation-after-being-in-contact-with-a-positive-case-in-england/2020-12-01) - Office for National Statistics (ons.gov.uk)

variables. The following sections will present research and data on each of these factors, together with some of the lessons learned from across the globe and recommendations made to promote compliance. Although some factors have also been recorded as particularly relevant during a number of other infectious disease outbreaks, like Ebola²⁰ or swine flu²¹, others have only been identified in relation to the current pandemic. These differences will be discussed throughout.

Knowledge about Covid and self-isolation/quarantine requirements

At the beginning of the pandemic, a number of surveys reported limited knowledge of Covid symptoms among respondents. Data from 37 nationally representative surveys in the UK conducted between March 2020 and January 2021 show that only 51% of participants could identify cough, fever and loss of taste and smell as the main symptoms of Covid-19²², with women and the highly educated better at naming them, according to one of these surveys administered in June 2020²³. Statistics for Scotland were more positive in early November and early December 2020, when more than four in five respondents to a population level survey correctly identified the three main symptoms²⁴.

A general confusion about the potential asymptomatic nature of the virus has also been recorded, with many of those who did not comply with self-isolation and quarantine regimes saying they didn't as they believed those measures to be unnecessary in the absence of symptoms²⁵. Some studies highlight how people who have symptoms or test positive for Covid-19 are more likely to isolate than asymptomatic cases or contact cases, again revealing a possible poor understanding of Covid-19 transmission routes. In Norway, self-reported compliance between August and October 2020 was significantly higher among people with symptoms than among those who were asymptomatic²⁶. In the Netherlands, about 95% of the respondents to a survey administered in May and June 2020, indicated that they were willing to self-isolate if they were to receive a positive test result – a percentage that dropped to 84% if a member of their household had tested positive, and 43% in cases where a contact had been diagnosed with Covid-19²⁷.

Research carried out in England in February 2021 found that adherence to self-isolation requirements was statistically significantly higher among those who fully

²⁰ [How to improve adherence with quarantine: rapid review of the evidence – ScienceDirect](#)

²¹ [Factors associated with adherence to self-isolation and lockdown measures in the UK: a cross-sectional survey - ScienceDirect](#)

²² [Adherence to the test, trace, and isolate system in the UK: results from 37 nationally representative surveys | The BMJ](#)

²³ [What are the symptoms of COVID-19? Only 59% of Britons know all three | YouGov](#)

²⁴ [Public attitudes to Coronavirus: January update - gov.scot \(www.gov.scot\)](#)

²⁵ [S0732 CORSAIR - Adherence to the test trace and isolate system.pdf \(publishing.service.gov.uk\)](#)

²⁶ [Public adherence to governmental recommendations regarding quarantine and testing for COVID-19 in two Norwegian cohorts | medRxiv](#)

²⁷ [Research on behavioural rules and well-being: round 3 | RIVM](#)

understood the requirements (87%) compared with those who misunderstood or were unsure of them (83%)²⁸.

All of the above suggests that understanding of the virus and symptoms, and of rules and guidelines, supports better compliance with self-isolation and quarantine.

Lessons learned

Clarity of information about Covid-19, and the benefits of self-isolation and quarantine for society as a whole, is fundamental, if measures are to be perceived as promoting public health rather than simply restricting personal choice and liberties^{29 30}. Focusing on clearer and more effective information campaigns and on the provision of easier access to reliable sources of information could also promote confidence in political and health authorities, and trust in official health advice.

Indeed, the issue of trust is of primary importance and has been indicated as a main predictor of intent to adhere to self-isolation/quarantine regulations. A comparison between 19 European countries suggests that higher levels of trust in political authorities prior to the pandemic resulted in higher rates of compliance³¹. The only two exceptions were Singapore and Norway. In Singapore, a study on compliance found that high levels of public trust in the government and healthcare services led to non-compliance with preventive measures, due to a widespread belief that individual action was not required to manage the risks³².

It has been noted that the association between knowledge about Covid-19 and greater self-reported compliance with preventative measures could be due to the fact that individuals with greater willingness to comply are more likely to seek out information regarding Covid-19 and restrictions³³. Yet, the risk that lack of knowledge and misconceptions about the disease and self-isolation and quarantine regimes could hinder public health efforts remains. An incorrect interpretation of official messages could damage the effectiveness of the adopted strategies to tackle Covid-19 even among those who wish to comply³⁴.

Furthermore, in the era of social media, it can be challenging for some to identify trustworthy advice among the diverse and unverified sources available, with the proliferation of 'conspiracy theories' and 'fake news' potentially affecting the ways in which the general public is able to engage with the Covid-19 health risk³⁵. Research conducted in Poland in April 2020, for example, shows how 'conspiracy theories'

²⁸ [Coronavirus and self-isolation after testing positive in England - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk)

²⁹ [IJERPH | Free Full-Text | Self-Isolation and Quarantine during the UK's First Wave of COVID-19. A Mixed-Methods Study of Non-Adherence \(mdpi.com\)](https://www.mdpi.com/1422-0067/21/12/4111)

³⁰ [Test, trace, and isolate in the UK | The BMJ.](https://www.bmj.com/)

³¹ [Trust and compliance to public health policies in times of COVID-19 - ScienceDirect](https://www.sciencedirect.com/)

³² [Full article: The paradox of trust: perceived risk and public compliance during the COVID-19 pandemic in Singapore \(tandfonline.com\)](https://www.tandfonline.com/)

³³ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](https://www.medrxiv.org/)

³⁴ [Factors Influencing Compliance with Quarantine in Toronto During the 2003 SARS Outbreak | Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science \(liebertpub.com\)](https://www.liebertpub.com/)

³⁵ [PsyArXiv Preprints | Dispositional and situational attribution of COVID-19 risk: A content analysis of response typology \(Version: 1\)](https://www.psychrxiv.org/)

were negatively related to adherence to self-isolation guidelines³⁶. Finally, it has to be kept in mind that while internet services are the main source of information for some, others might lack the financial resources to obtain online services, or lack the ability to navigate online confidently, hence having to depend on fewer resources³⁷. Given the link between trust in information sources, increased knowledge, and compliance, where information is found is of key significance.

Socio-economic status

Intention to adhere to self-isolation and quarantine regimes can be hindered for a number of reasons, with financial constraints and caring responsibilities being two of the most common³⁸. A number of surveys examined in this literature review indicate that rates of compliance are heavily influenced by income support, job protection and support with accommodation. The Liverpool-based pilot evaluation on asymptomatic testing concluded that a major barrier to uptake was the fear of testing positive and not having adequate support to isolate or suffering a loss of income³⁹. In Israel, compliance rates for self-isolation dropped from 94% to less than 57% in February 2020, when monetary compensation for lost wages was removed⁴⁰. This is in line with what has been observed during other outbreaks such as swine flu or Ebola, where practical issues such as running out of supplies or the financial consequences of being out of work were key to levels of adherence⁴¹. Fear of loss of income was the most common reason for non-compliance with self-isolation amongst people in Toronto during the epidemic of SARS in 2003⁴².

Research shows that the possibility of having to self-isolate or quarantine – sometimes more than once – is also related to socio-economic status. People in the lower socio-economic quintiles tend to work in high exposure occupations, live in overcrowded housing, take public transport and be unable to work from home, meaning they are at higher risk of infection^{43 44}.

Those living in six person households are three times more likely than two person households to be infected with Covid-19⁴⁵. Furthermore, larger households are often multigenerational family groups, including older people who are more at risk

³⁶ [Adherence to safety and self-isolation guidelines, conspiracy and paranoia-like beliefs during COVID-19 pandemic in Poland - associations and moderators \(nih.gov\)](#)

³⁷ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

³⁸ [Effective test, trace and isolate needs better communication and support \(kcl.ac.uk\)](#)

³⁹ [Liverpool Covid-SMART Community Testing Pilot. Evaluation report May 2021](#)

⁴⁰ [Income assurances are a crucial factor in determining public compliance with self-isolation regulations during the COVID-19 outbreak – cohort study in Israel | Israel Journal of Health Policy Research | Full Text \(biomedcentral.com\)](#)

⁴¹ [How to improve adherence with quarantine: rapid review of the evidence – ScienceDirect](#)

⁴² [Factors Influencing Compliance with Quarantine in Toronto During the 2003 SARS Outbreak | Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science \(liebertpub.com\)](#)

⁴³ [SocArXiv Papers | Non-compliance with COVID-19-related public health measures among young adults: Insights from a longitudinal cohort study \(osf.io\)](#)

⁴⁴ [Pandemic fatigue? How adherence to covid-19 regulations has been misrepresented and why it matters - The BMJ](#)

⁴⁵ [PHE: Factors contributing to risk of SARS-CoV2 transmission in various settings, 26 November 2020 - GOV.UK \(www.gov.uk\)](#)

of negative outcomes if they contract Covid-19⁴⁶. A survey administered in South Africa between March and April 2020 found that respondents living in informal dwelling settlements were the least prepared for isolation and quarantine, mostly due to existing societal inequalities and lack of spaces to separate the sick from the rest of the family. Preparedness for isolation regimes was also lower in women, suggesting an intersectional connection between socio-economic status and gender. The authors argue that these data may reflect gender-based disparities in terms of resources between male headed households when compared to female headed households⁴⁷.

A number of studies indicate that individuals from more disadvantaged backgrounds might feel forced to choose between financial and physical health. A cross-sectional survey conducted in March 2020 amongst 2,108 UK citizens found that, while self-reported willingness to self-isolate was consistently high across all income and wealth groups, self-reported ability to self-isolate was three times lower in those with incomes less than £20,000 or savings less than £100⁴⁸.

A comparison between Google Covid-19 mobility reports and comprehensive poverty statistics of 9 African and Latin American countries suggests that the decrease in work mobility is smaller in regions with higher poverty rates, demonstrating that the choice faced is often one between taking the risk to get infected/infect others or falling into extreme poverty⁴⁹. In Iran two cross-sectional studies conducted in the spring and summer of 2020 produced similar findings. The first showed that people assessing themselves as of lower socio-economic status were less likely to comply with social isolation measures due to a perceived lack of social support⁵⁰. The second, which was carried out among postgraduate students, identified people's livelihoods and lack of government planning to support low-income groups as major reasons for non-compliance⁵¹.

Qualitative research conducted in Saudi Arabia also revealed how economic risk was often perceived as more significant than risks to health in certain groups⁵², while researchers from South Africa stressed the importance of alleviating any financial burden resulting from self-isolation in a country where the majority of low-income jobs do not offer paid sick leave^{53 54}. Similar trends have been observed during previous pandemics, when those without access to paid sick leave were more likely to work while unwell than other workers⁵⁵. Though paid sick leave is

⁴⁶ [Home versus institutional isolation of mild COVID-19 patients \(nih.gov\)](#)

⁴⁷ [Preparedness for self-isolation or quarantine and lockdown in South Africa: results from a rapid online survey | SpringerLink](#)

⁴⁸ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

⁴⁹ [Poverty and COVID-19 in Africa and Latin America \(nih.gov\)](#)

⁵⁰ [Perceived social support and compliance with stay-at-home orders during the COVID-19 outbreak: evidence from Iran \(nih.gov\)](#)

⁵¹ [Home quarantine is a useful strategy to prevent the coronavirus outbreak: Identifying the reasons for non-compliance in some Iranians - ScienceDirect](#)

⁵² [Risk perceptions of COVID-19 and its impact on precautionary behavior: A qualitative study. - Abstract - Europe PMC](#)

⁵³ [Bioethics and self-isolation: What about low-resource settings? \(scielo.org.za\)](#)

⁵⁴ [COVID-19 and quarantine orders: A practical approach \(scielo.org.za\)](#)

⁵⁵ [Perceptions and behavioural responses of the general public during the COVID-19 pandemic: A cross-sectional survey of UK Adults | medRxiv](#)

common in Scotland, those working within the gig economy and who are self-employed may have limited or no access to this benefit.

Lessons learned

Financial support

Providing financial support and reimbursement of any potential income loss arising from the need to self-isolate or quarantine has been at the core of state interventions in Scotland, across the UK and in a number of countries around the world. There has been a significant effort to align public health responses with people's lived realities, in the awareness that the ability to comply with the public health measures depends on people having the space and resources to do so, without worrying about serious damage to their income or family life. Data from Wales confirm that people who identify sufficient support for self-isolation feel less challenged by the prospect and are more likely to succeed⁵⁶.

Fiscal and monetary policy have been implemented worldwide to reduce structural barriers to self-isolation and quarantine, and minimise the long-term social and economic harm caused by the pandemic. Financial support is sometimes restricted to those who receive government benefits or extended to anyone required to isolate, such as in Singapore, South Korea and Taiwan. It can take the form of a one-off payment (some of the most generous being Australia, the four nations of the UK and South Korea, with an offer of £840, £500 and £270 respectively) or daily payments for each day spent in isolation (for example £25 per day in Taiwan).

The evidence that working outside the house is related to lower compliance also identified a need to improve or enforce guidelines in workplaces and support those who are pressured into returning or continuing to work⁵⁷. In many cases, employment protection has been offered to those required to self-isolate or parents of children who have to self-isolate. In Scotland a fair work statement to guide employers and employees has been issued in an effort to make sure that workers are not financially penalised for following medical advice⁵⁸.

Finally, the literature suggests that not only it is important to provide people with assurances about their household income, but financial help needs to be provided promptly in order to achieve higher adherence with health regulations⁵⁹. Data collected in Israel suggest that financial assistance is most likely to be effective and promote compliance if it ensures that those in the poorest households have no drop in weekly income, it is provided rapidly and is easy to obtain⁶⁰. Other infectious disease outbreaks showed similar patterns. Although financial assistance was

⁵⁶ [New report finds planning ahead key to self-isolation success - Public Health Wales \(nhs.wales\)](#)

⁵⁷ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](#)

⁵⁸ [Coronavirus \(COVID-19\): fair work statement - gov.scot \(www.gov.scot\)](#)

⁵⁹ [Income assurances are a crucial factor in determining public compliance with self-isolation regulations during the COVID-19 outbreak – cohort study in Israel | Israel Journal of Health Policy Research | Full Text \(biomedcentral.com\)](#)

⁶⁰ [S0759_SPI-B_The_impact_of_financial_and_other_targeted_support_on_rates_of_self-isolation_or_quarantine_.pdf \(publishing.service.gov.uk\)](#)

available during the Ebola epidemic in Senegal, this was perceived as coming too late, making sick individuals dependent on their families, potentially creating interpersonal conflicts and further affecting their wellbeing⁶¹.

Practical Support

Together with financial support and employment benefits, a comparative study published in March 2021 identified two other types of successful support packages offered by local governments and community based teams across 20 countries: practical support and comprehensive support services. These include, for example, provision and delivery of food and medicines, care for elderly relatives and alternative accommodation. Practical support has been a key component in the measures implemented in Scotland, where local authorities are offering services such as food/medicine deliveries, dog walking and assistance with self-isolation accommodation. In New York City people with positive results were offered a range of services to help them isolate either at home or in free hotel accommodation, including free deliveries of food and medicines, transport, and dog walking⁶². A test-to-care model implemented in San Francisco provided those asked to self-isolate with home deliveries of groceries, medication, cleaning supplies and personal protective equipment, increasing participants' trust in the system and resulting in a greater number of contacts being revealed⁶³. In France health teams offered home visits to positive cases and advice on how to self-isolate, while also providing antigen (rapid) tests for household members and extra practical support⁶⁴.

Attempts to improve self-isolation and quarantine rates through non-financial help have addressed mainly the most economically disadvantaged in society, with the aim of resolving any practical needs people might have. In Vermont, government support focused on high risk groups with plans for protection from eviction, state supported housing for homeless people, meal deliveries, and free pop-up testing in high risk communities⁶⁵. Given the difficulties of isolating for those in large, crowded, and multigenerational households, the provision of accommodation has been deemed particularly important in countries such as Denmark, Norway, South Korea, and Taiwan⁶⁶.

Cultural and language barriers to compliance

Research on rates of compliances in the UK has shown that the ability to self-isolate tends to be lower in certain minority ethnic groups⁶⁷. These lower rates of compliance could be due to a combination of socio-economic, linguistic and cultural factors.

⁶¹ [Accepted monitoring or endured quarantine? Ebola contacts' perceptions in Senegal - PubMed \(nih.gov\)](#)

⁶² [Test & Trace Corps – Take Care | NYC Health + Hospitals \(nychealthandhospitals.org\)](#)

⁶³ [Evaluation of a novel community-based COVID-19 'Test-to-Care' model for low-income populations \(semanticscholar.org\)](#)

⁶⁴ [France Covid-19: Self-isolation recommended but not forced \(connexionfrance.com\)](#)

⁶⁵ [Support for self-isolation is critical in covid-19 response | The BMJ](#)

⁶⁶ [How can we improve self-isolation and quarantine for covid-19? | The BMJ](#)

⁶⁷ [Perceptions and behavioural responses of the general public during the COVID-19 pandemic: A cross-sectional survey of UK Adults | medRxiv](#)

Ineffective communication from governments and other organisations has been identified as a key factor in misunderstanding self-isolation requirements. A qualitative study conducted in a university in England highlighted how students found that information from both the institution and the government was difficult to read and comprehend, especially for international students for whom English was not their first language⁶⁸. Research conducted during previous infectious disease outbreaks supports this point. Ethnic and linguistic minorities in Canada, for instance, were found to possess inaccurate information on measures of SARS confinement as a result of both inadequate literacy and a lack of clarity in relevant messaging⁶⁹.

Furthermore, Covid-19 terminology may pose a further barrier. Words translated from English may not retain the exact meaning in another language and result in vague and abstract concepts. Terms such as 'self-isolation' are not always well understood when translated and others like 'Test and Trace' (the English testing and contacting tracing system) could generate confusion, hence affecting contact tracing⁷⁰.

Lessons learned

The importance of providing information accessible in a range of languages and to communities with varying degrees of health literacy plays a vital role in promoting adherence to isolation regimes. The UK's Independent Scientific Pandemic Insights Group on Behaviours (SPI-B) has encouraged the use of multilingual contact tracers and clear messages to reach those in the BAME community⁷¹.

In the UK, policymakers have also been invited by researchers to tackle communication inequalities by consulting representatives from minority groups, ensuring that the interventions are developed in partnership with the target population, and setting up systems to allow rapid and ongoing feedback to be able to modify communications and strategies where needed⁷². The role of religious institutions and local leaders could also prove fundamental in addressing the perceived negative consequences of having to miss religious events or disregard the social obligation to visit family or friends if asked to self-isolate^{73 74}. This co-production would serve the purpose of empowering communities and ensuring language does not modify or hide meanings, while also fostering trust in health and political authorities. This is especially important as there may be resistance to

⁶⁸ [IJERPH | Free Full-Text | Students' Views towards Sars-Cov-2 Mass Asymptomatic Testing, Social Distancing and Self-Isolation in a University Setting during the COVID-19 Pandemic: A Qualitative Study | HTML \(mdpi.com\)](#)

⁶⁹ [Social consequences of mass quarantine during epidemics: a systematic review with implications for the COVID-19 response | Journal of Travel Medicine | Oxford Academic \(oup.com\)](#)

⁷⁰ [PsyArXiv Preprints | Using behavioural science to develop public health messages for racial and ethnic minority communities during COVID-19](#)

⁷¹ [Public health messaging for communities from different cultural backgrounds - 22 July 2020 \(publishing.service.gov.uk\)](#)

⁷² [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

⁷³ [PsyArXiv Preprints | Using behavioural science to develop public health messages for racial and ethnic minority communities during COVID-19](#)

⁷⁴ [Full article: Predictors of adherence with home quarantine during COVID-19 crisis: the case of health belief model \(tandfonline.com\)](#)

health messages when they are perceived as authoritarian, due to a history of colonialism and oppression, and perceptions of institutional racism⁷⁵.

Community support

Individual decision-making is often influenced by interpersonal interactions, by self-perception and perception of others within the community. People tend to be motivated by consideration of others, and feel encouraged to adhere to the regulations if they see others following them. Data collected in the United States in April 2020 showed that the more Americans saw others comply, the more likely they were to follow suit⁷⁶.

Conversely, willingness to comply with rules decreases when others are seen to be violating them⁷⁷. Evidence from previous infectious disease outbreaks confirms this point. During the swine flu epidemic in Australia, as rumours of people breaking quarantine rules surfaced in school communities, those involved in the outbreak admitted they were more inclined to break quarantine protocols themselves because of that⁷⁸. This is not only due to what could be called social learning, but also to the fact that individuals tend to be conditional co-operators and reason in terms of reciprocity: seeing others ignoring guidelines may lead individuals to perceive them as having different values, reducing willingness to sacrifice freedoms for each other.

Becoming a target of stigma in the community as an index or contact case has also caused reluctance to get tested and affected adherence to isolation regimes⁷⁹. SPI-B highlighted how concerns about the consequences of triggering self-isolation for others and having to disclose contacts are likely to affect compliance⁸⁰. The phenomenon of stigmatisation has been widely observed during other infectious disease outbreaks. Participants in several studies reported rejection from people in their local neighbourhoods, who treated them with fear and suspicion, avoided them or addressed them with critical comments⁸¹. This often led the unwell to keep certain symptoms a secret, and fail to seek help or communicate to others that they had been in quarantine⁸². These examples encourage reflections on the existing risk of aggravating inequalities during the current pandemic.

⁷⁵ [PsyArXiv Preprints | Using behavioural science to develop public health messages for racial and ethnic minority communities during COVID-19](#)

⁷⁶ [Compliance with COVID-19 Mitigation Measures in the United States by Benjamin van Rooij, Anne Leonore de Bruijn, Chris Reinders Folmer, Emmeke Barbara Kooistra, Malouke Esra Kuiper, Megan Brownlee, Elke Olthuis, Adam Fine :: SSRN](#)

⁷⁷ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](#)

⁷⁸ [How to improve adherence with quarantine: rapid review of the evidence – ScienceDirect](#)

⁷⁹ [Mental health policy: protecting community mental health during the COVID-19 pandemic \(nih.gov\)](#)

⁸⁰ [4b. SPI-](#)

[B Key Behavioural Issues Relevant to Test J Trace J Track and Isolate 20200506 S0327 .pdf \(publishing.service.gov.uk\)](#)

⁸¹ [The psychological impact of quarantine and how to reduce it: rapid review of the evidence - The Lancet](#)

⁸² [Factors Influencing Compliance with Quarantine in Toronto During the 2003 SARS Outbreak | Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science \(liebertpub.com\)](#)

It has been noted that the role played by social relations in the community is complex, and can influence compliance both positively and negatively. A study conducted in Iran during the Covid-19 outbreak in March 2020 reports that those who received support from their family members were likely to adhere to the regulations in place, whereas those who relied on friends were mostly non-compliant, probably because of the pressure they felt to socialize or group conformity⁸³. Yet, other research shows how those receiving help from outside their household are more likely to adhere to self-isolation and quarantine rules⁸⁴, with data collected in Wales between November 2020 and January 2021 reporting that contact cases who had people supporting them during self-isolation were significantly more likely to be compliant with the regulations⁸⁵.

Lessons learned

Suggestions to target these barriers include looking at ways to link people up with community support mechanisms, for example developing community-based peer education programmes and improving communication infrastructure to reduce the negative social impacts of isolation⁸⁶. Together with this, improving links with local authorities and community based organisations, and empowering community stakeholders to contribute to the Covid-19 response, could help promote compliance⁸⁷. Some municipalities in Belgium have set up a website where volunteers who want to help and people who need help can register to find each other⁸⁸. Finally, emphasising the relatively high prevalence of compliers, rather than accentuating the minority of non-compliers with self-isolation and quarantine regulations might elicit higher feelings of social connectedness and foster adherence based on positive attitudes towards others⁸⁹. Communication of the high levels of adherence to self-isolation in Wales has been seen as a strategy that could reinforce this positive prosocial behaviour, especially needed during the vaccine roll-out, when self-isolation regimes are potentially more difficult for people to understand and support⁹⁰.

Sense of civic duty and community belonging

A number of studies report how compliance with rules improves when this is perceived as a contribution to the wellbeing of the community as a whole (although

⁸³ [Perceived social support and compliance with stay-at-home orders during the COVID-19 outbreak: evidence from Iran \(nih.gov\)](#)

⁸⁴ [S0732 CORSAIR - Adherence to the test trace and isolate system.pdf \(publishing.service.gov.uk\)](#)

⁸⁵ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](#)

⁸⁶ [Community-centered responses to Ebola in urban Liberia: the view from below - PubMed \(nih.gov\)](#)

⁸⁷ [How can we improve self-isolation and quarantine for covid-19? | The BMJ](#)

⁸⁸ [Maximising public adherence to COVID-19 self-isolation in Europe - The Lancet Regional Health – Europe](#)

⁸⁹ [The importance of \(shared\) human values for containing the COVID-19 pandemic - Wolf - 2020 - British Journal of Social Psychology - Wiley Online Library](#)

⁹⁰ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](#)

some data suggest improvements relate more to the intention to adhere rather than actual behaviour). Results from an online survey conducted in Scotland in December 2020 indicate that people cared about the impact of their actions not only on those they know personally but also on their wider communities⁹¹. Semi-structured interviews with UK citizens repatriated from Wuhan and undergoing supported isolation found that compliance was often motivated by altruism and by a perceived shared identity of ‘being in it together’ that also improved resilience during quarantine⁹². Similarly, a cross-sectional online survey undertaken in March 2020 in Australia reported ‘I believe it is the right thing to do’ as the primary response as to what would motivate respondents to comply with self-isolation measures, suggesting compliance was related to the sense of belonging to a community and willingness to support it⁹³.

Lessons learned

Emphasising civic duty and community belonging, and appealing to altruistic motivations have been identified as possible strategies to foster compliance with self-isolation and quarantine advice⁹⁴. A number of experts have recommended the use of positive messages playing on empathy and a focus on the altruistic nature of engaging in self-isolation and quarantine regimes in mass media communications⁹⁵. Public health officials have been encouraged to emphasise civic duty in order to increase the perceived benefit that complying will have on public health⁹⁶. Research suggests that any communication that ‘we are all in this together’ from political leaders determines a sense of collective self-efficacy and hope, as the leaders are seen as part of the group and as acting for its interest⁹⁷. The potential of boosting citizens’ sense of belonging and obligation to their communities in promoting compliance has been explored in a Japanese study which has recorded an increase of 31% in the likelihood of adopting Covid-19 transmission mitigation behavioural guidelines in people with certain personality traits⁹⁸.

Finally, as increased empathy for those at higher risk predicts increased self-reported positive attitudes to physical distancing, there is also some ground to assume that communication focusing on those at higher risk of severe illness has a potential to promote adherence to wider regulations as well as self-isolation⁹⁹. Strategies adopted in the Netherlands in this regard are a case in point. The Dutch authorities opted for what they called an “intelligent lockdown” during the first wave,

⁹¹ [Barriers to adherence with COVID-19 restrictions: Findings from qualitative research with individuals in Scotland \(www.gov.scot\)](https://www.gov.scot)

⁹² [Experiences of supported isolation in returning travellers during the early COVID-19 response: an interview study](#)

⁹³ [COVID-19 is rapidly changing: Examining public perceptions and behaviors in response to this evolving pandemic \(plos.org\)](https://plos.org)

⁹⁴ [SPI-B insights on self-isolation and household isolation - 9 March 2020 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

⁹⁵ [How to improve adherence with quarantine: rapid review of the evidence - ScienceDirect](#)

⁹⁶ [S0470 Theory and evidence base for initial SPI-B recommendations for phased changes in activity restrictions.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

⁹⁷ [Using social and behavioural science to support COVID-19 pandemic response | Nature Human Behaviour](#)

⁹⁸ [Who complies with COVID-19 transmission mitigation behavioral guidelines? \(plos.org\)](https://plos.org)

⁹⁹ [PsyArXiv Preprints | The emotional path to action: Empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic](#)

namely a combination of stay at home and social distancing measures, promoted through an appeal to people's sense of morality, responsibility and self-discipline. Not only was reference made to the need to contribute to flatten the curve in order to support intensive care units, but the Dutch Prime Minister asked younger people to be more cautious, not for themselves, but for those they risk infecting, especially older people and those with underlying conditions. A qualitative study investigating this approach concluded that the principles of the intelligent lockdown were mostly in line with factors that were identified as positively influencing compliance¹⁰⁰.

Risk perception

A number of studies both on the current pandemic and on other disease outbreaks show that the belief that an illness does not pose a serious risk (in terms of transmission and severity of disease outcomes) and the inability to see self-isolation as beneficial are associated with lower adherence^{101 102 103 104 105 106 107}. Moreover, risk perception tends to vary according to demographic variables like age and gender, with men and younger people being more permissive and less risk averse than women and older people. A Spanish study from spring 2020 shows that higher levels of optimism in men predicted lower compliance with self-isolation, probably as optimism lowered their risk perception of getting infected¹⁰⁸. Similarly, a cross-sectional online survey administered in Canada in May 2020¹⁰⁹ and a longitudinal non-representative panel study conducted in summer 2020 in Chile¹¹⁰ found that men and younger age groups were more likely to engage in Covid-19 related risk behaviours. Research from Jordan is also consistent with this growing

¹⁰⁰ [The Intelligent Lockdown: Compliance with COVID-19 Mitigation Measures in the Netherlands by Malouke Esra Kuiper, Anne Leonore de Bruijn, Chris Reinders Folmer, Elke Olthuis, Megan Brownlee, Emmeke Barbara Kooistra, Adam Fine, Benjamin van Rooij :: SSRN](#)

¹⁰¹ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

¹⁰² [How to improve adherence with quarantine: rapid review of the evidence – ScienceDirect](#)

¹⁰³ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](#)

¹⁰⁴ [Frontiers | Demographic and Attitudinal Factors of Adherence to Quarantine Guidelines During COVID-19: The Italian Model | Psychology \(frontiersin.org\)](#)

¹⁰⁵ [Attitudes and opinions on quarantine and support for a contact-tracing application in France during the COVID-19 outbreak - ScienceDirect](#)

¹⁰⁶ [Behavioral Sciences | Free Full-Text | Factors Affecting Voluntary Self-Isolation Behavior to Cope with a Pandemic: Empirical Evidence from Colombia vs. Spain in Times of COVID-19 | HTML \(mdpi.com\)](#)

¹⁰⁷ [Frontiers | Social Isolation During COVID-19 Pandemic. Perceived Stress and Containment Measures Compliance Among Polish and Italian Residents | Psychology \(frontiersin.org\)](#)

¹⁰⁸ [Frontiers | Influence of Resilience and Optimism on Distress and Intention to Self-Isolate: Contrasting Lower and Higher COVID-19 Illness Risk Samples From an Extended Health Belief Model | Psychology \(frontiersin.org\)](#)

¹⁰⁹ [Socio-demographic disparities in knowledge, practices, and ability to comply with COVID-19 public health measures in Canada | SpringerLink](#)

¹¹⁰ [Taking Care of Each Other: How Can We Increase Compliance with Personal Protective Measures During the COVID-19 Pandemic in Chile? - Gerber - - Political Psychology - Wiley Online Library](#)

body of evidence, demonstrating that women tend to have a higher perception of risk and to adopt health-promoting behaviours¹¹¹.

A correlation between low risk perception and lack of symptoms has also been suggested by a cohort study among Norwegian adults covering the months April to July 2020¹¹². Qualitative research conducted at a higher education institution in England supports this theory: students who experienced Covid-19 symptoms were more likely to comply than students who were self-isolating for other reasons¹¹³.

Context seems to play a role too, with data from the Office for the National Statistics revealing that students and young people are more compliant at home and in the presence of their loved ones. Indeed, many students felt that the virus was not a threat in their university environment, with some mentioning accounts of people they knew who had the virus but only experienced mild symptoms¹¹⁴. Such a perception is echoed by an Italian study finding that 76.2% of secondary school students who took part in an online survey did not see themselves as a category at risk¹¹⁵.

Lessons learned

Communications that highlight the risk of transmission to at risk groups or the exponential nature of transmission might improve compliance and decrease risk-taking behaviours¹¹⁶, though the evidence is complex. Policy makers in France have been advised to consider emphasising personal risk in their communications in order to reach those who may be otherwise highly disengaged. The advice was based on two cross-sectional studies conducted at the beginning of the pandemic which found a correlation between a 'conspiracy mentality' and compliance with confinement: according to the researchers, those who believed conspiracies were motivated by self-interest and, as they perceived an increased personal risk, they were more inclined to adopt government-driven behaviours with the aim of protecting themselves, rather than wider society¹¹⁷.

The positive role played by fear of Covid-19 has also been explored and research shows how those with higher fear scores are more inclined to be compliant with regulations on isolation. The authors of this study explain how fear is indeed a negative emotion characterised by extreme levels of emotive avoidance, yet, it also

¹¹¹ [Full article: Predictors of adherence with home quarantine during COVID-19 crisis: the case of health belief model \(tandfonline.com\)](#)

¹¹² [Eurosurveillance | Poor self-reported adherence to COVID-19-related quarantine/isolation requests, Norway, April to July 2020](#)

¹¹³ [IJERPH | Free Full-Text | Students' Views towards Sars-Cov-2 Mass Asymptomatic Testing, Social Distancing and Self-Isolation in a University Setting during the COVID-19 Pandemic: A Qualitative Study | HTML \(mdpi.com\)](#)

¹¹⁴ [In their own words: How different people respond to coronavirus guidance - Office for National Statistics \(ons.gov.uk\)](#)

¹¹⁵ [Frontiers | Adolescents in Quarantine During COVID-19 Pandemic in Italy: Perceived Health Risk, Beliefs, Psychological Experiences and Expectations for the Future | Psychology \(frontiersin.org\)](#)

¹¹⁶ [PsyArXiv Preprints | Risk perception and personal responsibility during COVID-19: An experimental study of the role of imperative vs reasoning-based communication for self-isolation attitudes](#)

¹¹⁷ [Looking out for myself: Exploring the relationship between conspiracy mentality, perceived personal risk, and COVID-19 prevention measures \(nih.gov\)](#)

serves adaptive and protective functions and can, in certain contexts, help to keep individuals safe. Their data suggest that fear could have a functional role in the current pandemic and was a stronger predictor of compliance than moral and political orientation¹¹⁸. On the other hand, research conducted in the USA found that threat and prosocial messages focusing on the societal and communal benefits were equally effective in promoting willingness to self-isolate. The only difference was that the prosocial message was more effective if it produced a strong emotional response, whereas the efficacy of the threat message depended less on this¹¹⁹. These findings are likely to be culturally situated and the adoption of fear messages might have some limitations, where prosocial messages could prove more effective. This would need to be carefully considered in any given context.

It should be noted how the prolonged exposure to a community crisis like the pandemic could result in significant levels of mental distress and increased maladaptive levels of anxiety. A message that is perceived as too threatening could cause people to engage in defensive avoidance, hence to disregard the message altogether. There is a possibility that messages associated with negative emotions might produce instead unnecessary mental health concerns. Together with this, due to the cultural differences in how emotions are expressed, the applicability of these research findings should be carefully evaluated and might not translate cross-culturally. These points will be further explored in the following section.

Mental health

A link between isolation measures and poorer mental health has been observed during previous infectious disease outbreaks¹²⁰. However, the scale of restrictions people have been asked to abide by during the current pandemic has largely exceeded those experienced in the past and proved even more challenging for individuals' mental wellbeing. Interim findings published in July 2021 by the Scottish Government show how 49% of index and contact cases reported that self-isolation had impacted negatively on their mental health¹²¹. Data for England from March 2021 present similar results with 37% of index cases and 32% of contact cases reporting negative mental health impacts^{122 123}. Similarly, respondents to a cross-sectional survey among Albertans were significantly more likely to present with moderate to high stress, significant anxiety, and significant depressive symptoms if

¹¹⁸ [Functional Fear Predicts Public Health Compliance in the COVID-19 Pandemic | SpringerLink](#)

¹¹⁹ [Emotional responses to prosocial messages increase willingness to self-isolate during the COVID-19 pandemic \(nih.gov\)](#)

¹²⁰ [Understanding, compliance and psychological impact of the SARS quarantine experience - PubMed \(nih.gov\)](#)

¹²¹ [COVID-19 support study: index and contact case research findings from May 2021 - gov.scot \(www.gov.scot\)](#). Since searching for this review ended, the final report from this study has been published: [Coronavirus \(COVID-19\) support study experiences of and compliance with self-isolation: main report - gov.scot \(www.gov.scot\)](#)

¹²² [Coronavirus and self-isolation after being in contact with a positive case in England - Office for National Statistics \(ons.gov.uk\)](#)

¹²³ [Coronavirus and self-isolation after testing positive in England - Office for National Statistics \(ons.gov.uk\)](#)

they had to isolate¹²⁴. Concerns about an increase in suicidal thoughts and self-harming during self-isolation, particularly related to the economic consequences of lockdown and isolation regimes, have been raised in another Canadian study from May 2020¹²⁵.

In 2020, the COVIDiSTRESS global survey collected data from respondents in 48 countries and concluded that the prolonged state of emergency and the chronic psychological, social and economic stressors related to it made people less likely to follow restrictions and guidelines¹²⁶. An association between believing that the lockdown had made one's mental health worse and being less likely to remain at home has been observed¹²⁷, with the CORSAIR study indicating feeling depressed, anxious, lonely or bored as one of the main reasons for breaking with self-isolation¹²⁸.

Qualitative research has identified a range of psychological responses in those required to self-isolate and quarantine, such as confusion, low mood, irritability, sadness, guilt, numbness and insomnia. Participants also often fear being infected or infecting others, and have catastrophic appraisals of any physical symptoms experienced during the quarantine period¹²⁹.

Specific segments of the population seem to be more affected than others. Research conducted amongst Italian citizens aged 60+ showed low compliance in an age group already facing loneliness and isolation before the pandemic, hence struggling with having to stop visits to recreational clubs and the resulting loss of social contacts¹³⁰. Data from Wales (November 2020 to January 2021) reported significant differences between social groups in relation to self-isolation, with women, young people aged 18-29 and BAME groups more likely to feel lonely or experience mental health difficulties¹³¹. A study carried out in India found that some form of psychological distress (worry, helplessness, fear, nervousness and insomnia) was seen most significantly in children and adolescents who had to self-isolate, when compared to their peers who did not need to self-isolate, and this distress was usually associated with loss of father's job or income, or the unavailability of basic goods and services¹³².

¹²⁴ [COVID-19 Pandemic: Demographic Predictors of Self-Isolation or Self-Quarantine and Impact of Isolation and Quarantine on Perceived Stress, Anxiety, and Depression \(nih.gov\)](#)

¹²⁵ [Associations between periods of COVID-19 quarantine and mental health in Canada - ScienceDirect](#)

¹²⁶ [Stress and worry in the 2020 coronavirus pandemic: relationships to trust and compliance with preventive measures across 48 countries in the COVIDiSTRESS global survey | Royal Society Open Science \(royalsocietypublishing.org\)](#)

¹²⁷ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

¹²⁸ [S0732 CORSAIR - Adherence to the test trace and isolate system.pdf \(publishing.service.gov.uk\)](#)

¹²⁹ [The psychological impact of quarantine and how to reduce it: rapid review of the evidence - The Lancet](#)

¹³⁰ [Frontiers | Demographic and Attitudinal Factors of Adherence to Quarantine Guidelines During COVID-19: The Italian Model | Psychology \(frontiersin.org\)](#)

¹³¹ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](#)

¹³² [\(PDF\) Compliance and Psychological Impact of Quarantine in Children and Adolescents due to Covid-19 Pandemic \(researchgate.net\)](#)

Lessons learned

Mitigation measures to promote mental health and compliance have included access to emotional support or clinical interventions delivered remotely where possible¹³³. Recommendations have been made for mapping local resources and sources of support from voluntary and community organisations, in order to provide a valuable asset for contact tracers to signpost self-isolating people to mental wellbeing support¹³⁴.

With people indicating boredom as one of the reasons for non-compliance, some research suggests encouraging people to spend time in arts and crafts, non-productive leisure, or even household chores. UK policy makers have also been advised to consider a partnership with the entertainment industry to provide free access to online games or streaming services¹³⁵.

Other recommendations include the promotion of virtual social interactions, online social reading activities, classes, or exercise routines, and the distribution of inexpensive tablets or laptops to those isolating that do not have one or cannot afford it¹³⁶. In this respect, social media could play an important role in connecting people isolating with their loved ones or people in similar situations¹³⁷. It has also been stressed that all these virtual mental health resources should be offered proactively and that individuals in self-isolation or quarantine should not need to reach out themselves for support¹³⁸. Finally, with people reporting attention and memory difficulties when in self-isolation and quarantine, some have recommended the implementation of psychotherapeutic interventions to enhance resilience¹³⁹.

There is some evidence that long-term psychological effects and implications could disproportionately affect sections of the population also suffering from economic hardship. Given the disproportionate prevalence of mental health difficulties in BAME groups, and the disproportionate impacts on these groups from Covid-19, a need for targeted interventions and campaigns exists. The governments of all four nations have been invited to engage directly with representatives of BAME communities in order to develop culturally appropriate and readily accessible mental health support¹⁴⁰.

Lessons learned during previous infectious disease outbreaks are also valuable when thinking about ways to support key workers who are more exposed to the disease and to the mental distress that can be caused by catching the virus, fearing

¹³³ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

¹³⁴ [Self-isolation confidence, adherence and challenges: Behavioural insights from contacts of cases of COVID-19 starting and completing self-isolation in Wales](#)

¹³⁵ [S0759 SPI-B The impact of financial and other targeted support on rates of self-isolation or quarantine .pdf \(publishing.service.gov.uk\)](#)

¹³⁶ [Evaluating COVID-19 Public Health Messaging in Italy: Self-Reported Compliance and Growing Mental Health Concerns | medRxiv](#)

¹³⁷ [The psychological impact of quarantine and how to reduce it: rapid review of the evidence - The Lancet](#)

¹³⁸ [Associations between periods of COVID-19 quarantine and mental health in Canada - ScienceDirect](#)

¹³⁹ [Subjective cognitive failures and their psychological correlates in a large Italian sample during quarantine/self-isolation for COVID-19 | SpringerLink](#)

¹⁴⁰ [MHF Mental Health in the COVID-19 Pandemic.pdf](#)

becoming ill or having to isolate. During the SARS epidemic in Canada of 2003, a telephone support line was set up for hospital staff in isolation as a means to provide them with a social network¹⁴¹. Other hospitals established intranets or private internet chat rooms for their quarantined workers, while the Center for Addiction and Mental Health (CAMH) created an online forum for doctors and patients to discuss SARS and SARS-related anxiety¹⁴².

It is worth mentioning that, amongst women, compliance decreased with feelings of loneliness or that one's activities were less worthwhile¹⁴³. This might negatively affect mental wellbeing in women who are already experiencing extra pressure due to the inequality of housework distribution in the majority of countries, where they are regarded as default caregivers of children and sick family members at home. Supporting individuals to find meaningful social activities to undertake during the pandemic and develop a sense of purpose may promote adherence to self-isolation and quarantine regimes. Such support could be also beneficial to individuals who have lost employment¹⁴⁴.

Monitoring and enforcement of self-isolation/quarantine rules

With an increase in case numbers and the emergence of new strains of the virus over the course of the pandemic, stricter measures have been implemented to reduce transmission. On 28th September 2020, a legal duty to self-isolate came into force in England, together with a system of fines for those breaking the rules¹⁴⁵. People in Wales and Northern Ireland are also required by law to self-isolate or quarantine^{146 147}. In Scotland, instead, legal obligations only apply to international travellers. However, UK strategies differ from the ones adopted in a number of other European countries where people are asked to provide an official statement on their essential reason to leave home (France and Italy), risk imprisonment if flouting the rules (Germany, Italy, Finland and Norway), or are subject to random checks like in Slovakia. Closing locations such as shops, restaurants, cultural attractions, and so on, and making the violation of restrictions more difficult has been the dominant approach across the UK, with the introduction of managed quarantine hotels for international travellers perhaps representing the most extreme enforcement measure¹⁴⁸.

Research shows that institution-based isolation (e.g. in a hotel) tends to be more effective than home-based isolation, as it is less reliant on personal adherence to

¹⁴¹ [The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital - PubMed \(nih.gov\)](#)

¹⁴² [Factors Influencing Compliance with Quarantine in Toronto During the 2003 SARS Outbreak | Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science \(liebertpub.com\)](#)

¹⁴³ [What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults | medRxiv](#)

¹⁴⁴ [Predictors of self-reported adherence to COVID-19 guidelines. A longitudinal observational study of 51,600 UK adults - ScienceDirect](#)

¹⁴⁵ [New legal duty to self-isolate comes into force today - GOV.UK \(www.gov.uk\)](#)

¹⁴⁶ [Current restrictions: frequently asked questions | GOV.WALES](#)

¹⁴⁷ [Travel ban and self-isolation rules follow Denmark Covid mink outbreak | Department of Health \(health-ni.gov.uk\)](#)

¹⁴⁸ [Institutional, not home-based, isolation could contain the COVID-19 outbreak - The Lancet](#)

guidelines¹⁴⁹, with modelling suggesting that it could guarantee a 57% reduction of cases in comparison to 20% reduction achieved through home-based isolation¹⁵⁰. Evidence on solutions like regular or random checks, the use of digital surveillance technologies and the implementation of fines is mixed and presents a dimension of cultural variation¹⁵¹. Due to privacy laws and lack of social acceptability or negative public perceptions, most of these strategies have been considered counterproductive in Western countries. Leaders who threaten people with sanctions may also become distrusted, paradoxically failing in eliciting cooperation¹⁵². Research conducted in the United States in April 2020 showed that Americans are less likely to comply when they think they must obey authorities out of fear¹⁵³. Furthermore, qualitative research on the experiences of British nationals who underwent supported isolation after returning to the UK from Wuhan, China in January/February 2020 found that most participants were willing to undergo supported isolation when they felt encouraged rather than enforced¹⁵⁴.

Lessons learned

Some of the evidence analysed in this review highlighted the importance of intervening to tackle emerging social norms that may not support compliance, for example rumours of others breaking isolation without apparent detrimental effect¹⁵⁵. An independent SAGE briefing note states that punishment for blatant and visible violations may also help with maintaining a sense of justice for those adhering to the regulations. Yet, while some research suggests this might have the support of the population^{156 157}, other studies report that it would not have a significant impact. According to a study conducted between March and June 2020 in South Korea, for example, the implementation of stricter sanctions and higher fines had no significant impact on reducing the rate of non-compliance with self-isolation because concerns over the loss of income were more significant¹⁵⁸.

Enforcement approaches could pose a number of issues, for example discourage testing uptake and honest reporting during contact tracing, or impact more on low-

¹⁴⁹ [Factors associated with adherence to self-isolation and lockdown measures in the UK: a cross-sectional survey - ScienceDirect](#)

¹⁵⁰ [Institutional, not home-based, isolation could contain the COVID-19 outbreak - The Lancet](#)

¹⁵¹ [A rapid review of measures to support people in isolation or quarantine during the Covid-19 pandemic and the effectiveness of such measures - Cardwell - - Reviews in Medical Virology - Wiley Online Library](#)

¹⁵² [Using social and behavioural science to support COVID-19 pandemic response | Nature Human Behaviour](#)

¹⁵³ [Compliance with COVID-19 Mitigation Measures in the United States by Benjamin van Rooij, Anne Leonore de Bruijn, Chris Reinders Folmer, Emmeke Barbara Kooistra, Malouke Esra Kuiper, Megan Brownlee, Elke Olthuis, Adam Fine :: SSRN](#)

¹⁵⁴ [Experiences of supported isolation in returning travellers during the early COVID-19 response: an interview study](#)

¹⁵⁵ [How to improve adherence with quarantine: rapid review of the evidence – ScienceDirect](#)

¹⁵⁶ [Self-Isolation Compliance In The COVID-19 Era Influenced By Compensation: Findings From A Recent Survey In Israel | Health Affairs](#)

¹⁵⁷ [Public attitude towards quarantine during the COVID-19 outbreak | Epidemiology & Infection | Cambridge Core](#)

¹⁵⁸ [Self-Quarantine Noncompliance During the COVID-19 Pandemic in South Korea | Disaster Medicine and Public Health Preparedness | Cambridge Core](#)

income individuals when it comes to fines. Furthermore, these measures risk focusing on the wrong solutions to low rates of compliance, namely poor knowledge of what is required during self-isolation or lack of adequate financial, practical and social support¹⁵⁹.

Conclusions

This literature review has analysed research on the relation between self-isolation and quarantine regimes, and compliance. It has reported data from UK, European and non-European countries, and from the current and previous outbreaks of infectious diseases. The studies examined here show how isolation has posed serious challenges, especially given the length of the Covid pandemic, and the related impact of the surrounding uncertainty. Lack of knowledge on Covid-19 and self-isolation and quarantine regulations, financial difficulties, practical factors (such as living arrangements, caring responsibilities, ability to access food and other essential supplies, and other health conditions), psychological distress and communication inequalities have all been found to play a key role in determining whether or not people comply with self-isolation.

The review has also presented some of the lessons learned during the implementation of self-isolation and quarantine measures, both in the UK and in the rest of the world, and explored strategies and approaches to foster compliance proposed for the future by experts in different fields. Many of these suggest ensuring that people are motivated by perceived personal and sociocultural benefits, and are helped to overcome the many practical and social barriers to adherence that exist¹⁶⁰. Others stress the importance of gaining and maintaining trust in science and confidence in the government's ability to adequately handle the crisis. Paying attention to these lessons learned may help to support continued isolation for those who must do so as the vaccination rollout continues in Scotland and isolation becomes more targeted.

¹⁵⁹ [Crime-and-punishment-John-4.1-1.pdf \(independentsage.org\)](#)

¹⁶⁰ [Improving adherence to 'test, trace and isolate' - G James Rubin, Louise E Smith, GJ Melendez-Torres, Lucy Yardley, 2020 \(sagepub.com\)](#)



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