



Keeping Wales Safe: Interim Evidence Review

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FORWARD

This Report

This is a copy of the report provided to Welsh Government and the three local teams taking part in part in the Keeping Wales Safe: Covid Behaviours Programme (KWS). KWS is a Welsh Government funded programme focussed on effective ways to support people to reduce risk and self-isolate when necessary. This report forms part of the support we offered to three Welsh local authority areas in developing, testing and scaling effective ways to support people and communities to live and work in ways that are Covid-safe. KWS was delivered by Y Lab in partnership with the Behavioural Insights Team (BIT) and the People Powered Results (PPR) team at Nesta.

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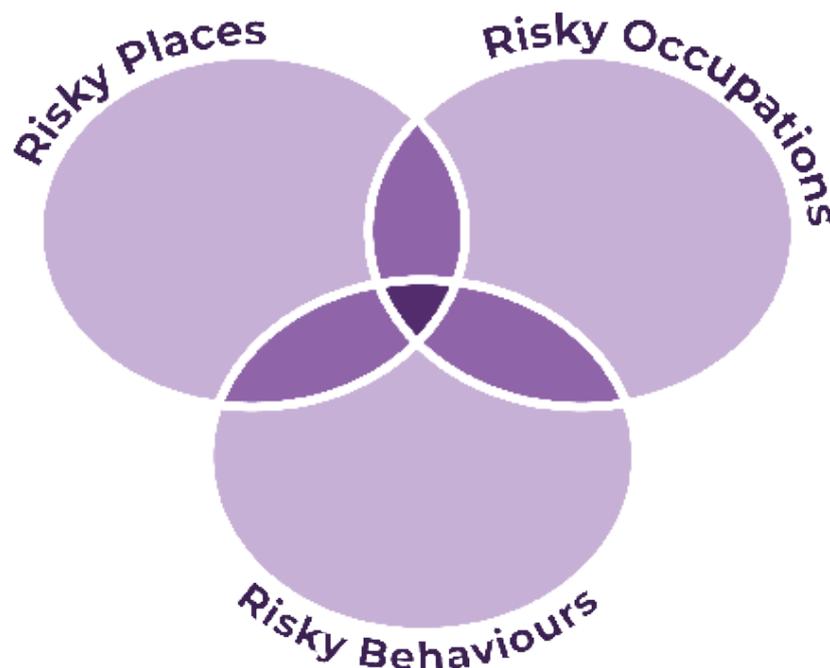
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Keeping Wales Safe: Executive Summary of Y Lab's Interim Evidence Review

The review covered five principal topics, aiming to identify the key work accessible as of July 2021. We focused particularly on self-isolation and avoiding risky behaviours, as those were the two headline topics being discussed within the project at the outset of the review (late June 2021). The report is deliberately concise and with learning points at the end of each section, designed to be used as a tool by the three teams as they go about refining and designing their interventions.

1. What we know about risks of transmission: risky places, risky occupations and risky behaviours

We understand that there are patterns of infection, hospitalisation, and clear evidence of transmission risks. This can be split up into risky places, risky occupations and risky behaviours. We suggest that this framing is used to identify categories of risk and priorities of engaging with it in this project: so the darkest area in the diagram below represents the highest risk.



2. High-risk groups

Groups emerge from the statistical data as being at high risk for transmission and /or for low adherence (to vaccination, self-isolation, social distancing, etc.), by engaging in risky behaviours, often in risky places, while doing risky occupations, or combinations of these. We know from the data that these groups are typically younger (especially men); people working in precarious and/ or low-paid employment; living in more crowded conditions; and some BAME communities. However, we also acknowledge that there are other groups that do not engage with public health practices for other reasons. The explanations for non-adherence in the literature fall into two camps; 'practical' e.g. financial reasons and 'psychological', i.e. to do with the way they see themselves and society. These are connected and it is important to understand them for our project. Lastly, we prefer to use the term 'structural' instead of 'practical', because it covers more than finance and day-to-day practicalities.

3. Recommendations and interventions from the literature

Much of the work on interventions studies top-level government interventions, often in an international comparative frame. Here, particular pharmaceutical and non-pharmaceutical interventions (NPIs) such as various versions of lockdown; vaccination regimes; track and trace systems; self-isolation; social distancing; mask-wearing, etc. are identified as being effective, in different combinations, with different timings.

The recommendations from within the UK (Technical Advisory Group, British Psychological Society; Public Health Wales; Sage, etc.) can be split into three broad areas; communications and messaging; preparing people for self-isolation; supporting people in various ways once they have begun self-isolating.

In terms of the recommended tailored communication -which is very pertinent to KWS- the TAG, BPS and some academic literature has advocated the development and delivery of bespoke advice for groups with higher levels of non-adherence and understanding of Covid-19 symptoms (including young males, key workers, people from lower socio-economic status groups and minority ethnic communities). However, one of the challenges for KWS is that there is little evidence of what these messaging strategies look like so far. The opportunity is to pilot some.

As for evaluated interventions, there is a paucity of published and peer-reviewed work on the kinds of micro-level initiatives we are trying to produce in KWS. There is quite a lot of large-scale modelling data suggesting which government interventions were most effective and in what contexts. However, some is not yet peer-reviewed, and there is quite a variety of framings and of practical steps in this research. There is however evidence that clear signage has some impact on particular practices, and that offering daily testing as an alternative to self-isolation for people's contacts may encourage engagement with track and trace measures after testing positive for Covid. Lastly, some work done in New Zealand suggests that people could be identified as being engaged with the overall outcome (eliminating Covid); the specific initiatives (e.g. wearing masks); both; or neither. Those disengaged from the initiative but not the outcome, or vice versa, might be encouraged to engage more via something else that they are more interested in.

4. Assessing the research to date and considering future directions

Most literature acknowledges that there is very limited data and evidence regarding the effectiveness of certain NPI measures and programmes. Many of the initial ones were based on previous research on epidemics, established psychological theories and learning from other types of behaviours. While there are calls for more robust, vigorous studies in order to produce higher quality evidence, it is essential to be aware that the impact of measures, restrictions and interventions are extremely difficult to judge. In many cases it is not possible to provide detailed empirical evidence above and beyond a broad consideration of what may or may not be effective.

The current evidence available is heterogeneous in nature with evaluation methods and approaches varying which means it is difficult to compare between data sets. At times where evaluation and monitoring methods have taken place, they have not been robust and considered key contextual influences. The changes that have taken place during the data collection time periods for many of the studies across society in relation to the vaccine rollout, changing rules and regulations, time of year (winter vs. summer), which groups infections rates are higher amongst, and the types of campaigns being run are significant. This means that a majority of the findings have to be taken with significant caution, a fact that is often acknowledged by authors

across the literature.

In relation to self-isolation specifically, the evidence is often self-reported, and based on intention to self-isolate rather than actual behaviour and there is significant difference between intentions data and actions and behaviours data.

5 Future directions

This study is taking place at a period of significant change, with high transmission but increasingly relaxed rules, guidance, and public attitudes. All the research referred to and reviewed here, and the systematic reviews consulted took place in a context of restrictions. Now those restrictions have been partially or fully lifted (England, since 21 July 2021), the context of peer-pressure and community norms will be different. That is the context in which this project will be working. This means that it is possible that much of the evidence currently informing decision making may lose relevance over a short period of time. In the new world of guidelines, devoid of government rules that have been major components in the regulatory landscape since March 2020, the job of keeping Wales safe becomes more challenging. The need to understand both the psychological and structural barriers identified above, in terms of social class, age, employment status, ethnic minority status and gender, as relevant in different ways is all the more acute.

LEARNING POINTS

Summary of learning points from the review

- The risk of transmission is cumulative: the various elements have been identified and can compound one another, generating higher risk.
- Disaggregating risk into specific behaviours, patterns and locations helps us make sense of it, in order to more effectively target them with NPIs.
- In the cases of both risk and intervention there is thus a spectrum - running from low risk-high risk, and from low impact-high impact.
- Different groups develop different maps of risk formed by both psychological and structural matters and life experiences.
- There is a structural as well as a behavioural aspect of risk.
- In Keeping Wales Safe, the three teams are set to tackle both psychological and structural factors as part of their interventions. This means tweaking behaviour within the broader framework of constraints: to do this we have to understand the distinction between these two types of barrier, and why they are barriers.
- Research has varied methods and is not necessarily comparable
- Mathematical models of macro level interventions (see section 1) and self-reporting surveys are much more numerous than pieces of empirical work on interventions of the style envisaged in KWS
- Simple interventions have impact but there is a hierarchy of impacts, running from low to high.
- Breaking down people's engagement in different ways may yield useful insights into how to communicate with them and change their behaviour
- The evidence discussed ranges in robustness, replicability, and comparability. Some has not been peer-reviewed, while others are normative models rather than empirical tests.
- It is to be expected that a review of such evidence carried out a year from now would include more peer-reviewed material, allowing work that is currently draft and pre-reviewed work to pass into publications. For the time being we have indicated some of the key points, although there may be caveats, usually pointed out by the researchers themselves.
- In terms of what we should take out of this; interventions should be designed as carefully as possible, and with robust evaluation built in as part of the design (not added on after it has started, and especially not after it has finished).
- The context in which KWS will play out will differ from that in which the research on adherence referred to here was carried out.
- As government measures shift toward guidelines, and passing responsibility to the public, the stake in having an input into behavioural change is set to increase.

Overview

In this interim evidence review, Y Lab sought to focus directly on the questions and topics most closely related to the initial two project themes discussed, namely: self-isolation and mitigating risky behaviours, up to the end of July 2021 (phase 2). The report is deliberately concise and with learning points at the end of each section, designed to be used as a tool by the three teams as they go about refining and designing their interventions.

In the final review, this will be expanded to cover the precise areas engaged with by the three teams on the ground, and integrated with BIT's report, including their national Predictiv pilot.

This review takes the following form. It is divided into 5 sections, each addressing an aspect of our findings:

- 1. Risky places, risky occupations, and risky behaviours**
- 2. High-risk groups**
- 3. Recommendations and interventions from the literature**
- 4. Assessing the research to date and considering future directions**
- 5. Framings and questions**

SECTION ONE

What we know about risks of transmission: risky places, risky occupations, and risky behaviours

Covid 19 (SARS-CoV-2) is an airborne virus. In the UK, the 'Kent' variant was the principal form of the virus until Spring 2021, when the 'Delta' variant became more dominant^{1&2}.

- Patterns of transmission indicate the following risks: poor ventilation; being in close proximity to multiple people, being indoors; and having multiple contacts across time.
- Patterns of hospitalisation show older age groups³, BAME groups⁴ and those with co-morbidities / pre-existing underlying conditions (particularly obesity, hypertension, type 2 diabetes⁵ as well as, inter alia, pulmonary disease, dementia and pneumonia)⁶ are at greater risk of serious outcomes (obviously those can compound one another).
- The most effective public health responses have involved vaccination, track and trace, and isolation, with lockdowns used earlier rather than later in the cycle^{7/7}. However, Brauner et al. argue, in their international comparative case study of over 40 countries⁸, that closure of schools, universities, along with limiting groups meeting up to ten people, have proven the most effective NPIs, with closure of non-essential face-to-face businesses having a moderate effect on transmission.

For the purposes of KWS, risk has to be broken down. Are we talking about risk of transmission / infection; risk of hospitalisation; risk of death? And can these risks be identified as pertaining to people, objects, places, etc.? In terms of the scope of this project, we focus on non-pharmaceutical interventions (NPIs) encouraging changes in behaviour to procure positive public health outcomes. Therefore, the most relevant elements seem to be where, how, and why transmission rates are greatest.

Table 1: Typology of risks of transmission

Type of risk	Examples	
Risky places	Poor ventilation Indoors	Crowded Multiple contacts
Risky occupations	Frontline health and social care Factory work Public-facing retail	Taxi driving Schools
Risky behaviours	Not vaccinating Not wearing a mask Not reporting symptoms Not testing	Not isolating when required Going into risky places Doing risky occupations

From our review of material, we suggest that these transmission risks can be broken down into three main areas (all of which could overlap):

- 'Risky places': These could be either geographical⁹ or types of environments, such as households where transmission can occur quickly, and workplaces;
- 'Risky occupations': characterised by 'high social connectivity'¹⁰ (involving multiple contacts, particularly in poorly-ventilated indoor locations) and after;
- 'Risky behaviours' (engaged in by individuals and groups ranging from not getting vaccinated through to combining elements of the two types of risk above). An embodiment of the compounding nature of these types of risk can be seen in SPI-B's characterisation of low-income areas as 'risky places'¹¹ (with concentrations of smaller, poorer-quality housing, and people with 'high social connectivity' moving between workplaces and (multiple) households).

One way for us to understand how to prioritise the degree of risk is to imagine these three categories in the form of a Venn diagram (Figure 1):

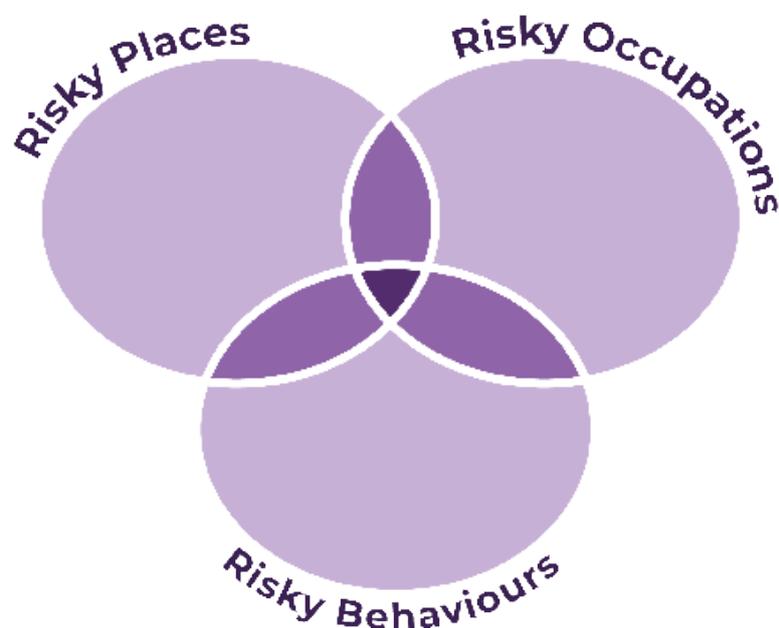


Figure 1: Overlapping categories of risk*

**Note: The areas in purple combine two categories of risk and are therefore at a higher level than the parts coloured white. The highest risk stems from the overlap of all three categories, expressed as darker purple in the middle of this diagram.*

What we can learn from this:

1. The risk of transmission is cumulative: the more the elements in Table 1 are ticked, the higher the risk.
2. Disaggregating risk into specific behaviours, patterns and locations helps us make sense of it, in order to more effectively target them with NPIs.
3. In the cases of both risk and intervention there is a spectrum - running from low risk-high risk, and from low impact-high impact.

SECTION TWO

High-risk groups

There is no such thing in Covid terms as a 'risky person' per se. People are put at a higher risk because of their engagement in risky behaviour, in risky places, and especially through risky occupations, or in combinations of these. Moreover, it is no coincidence that across international settings, similar groups of people are also identified as at higher risk of non-adherence to regulations, vaccinations and NPIs.

Behaviours:

There are two principal bases for the explanations for adherence and non-adherence, particularly to self-isolation, which was a primary focus of this review, i.e. 'practical and psychological barriers', as SPI-B expresses it¹². In practice, it is difficult to assert that they are completely distinct. However, it is useful to think of them as separate but connected. In section 4 (below) we underline why it might also be useful to break down how we think of 'practical'.

Regarding self-isolation, there are high levels of reported willingness to comply (80%+), although evidence is that, as of summer 2021, this compliance is partial and declining. The Office for National Statistics' monthly tracker on self-isolation among those with positive test results¹³ shows a drop in June and July as compared to the previous months of Spring 2021. With part of this decline being attributable to the imminent loosening of regulations in England (21 July 2021), it should be borne in mind that the research cited here was carried out in a different context to that in which Keeping Wales Safe will be obliged to operate, as the authors of a SPI-B paper on adherence to self-isolation note:

'Adherence to quarantine likely imposes less of a social, educational or occupational cost to many people when a general "stay at home" order is already in place. The large intention-behaviour gap observed in relation to adherence to self-isolation suggests that the barriers are more likely to be due to difficulties implementing intentions rather than a lack of motivation'¹⁴.

Moreover, compliance is uneven, as Wright et al. maintain, in the UCL's study of 20,000 self-reporting respondents: 'lower self-reported compliance was related to young age, high risk-taking behaviour, low confidence in government, and low empathy, among other factors'¹⁵.

However, self-isolation is just one element of a broader set of NPIs¹⁶, and may be problematic. Indeed, many people need different types of messaging support to be able to do less risky things. SPI-B's summary prior to the first lockdown emphasizes communications that stress civic duty, high levels of adherence within the wider population, and provide 'specific guidance to people in different circumstances'¹⁷.

While this general framing might be useful, it is also clear that there are other groups impervious to such logics. Many are more inclined to believe misinformation than official public health messaging¹⁸; others respond to requests by authority with resistance (a phenomenon labelled 'reactance' in the psychology literature), and others still are psychologically unable to

fully understand risk outside of the personal sphere¹⁹. Lastly, the politicisation of public health measures has polarised some communities, which means that public health messages are filtered through highly partisan understandings.

The array of barriers labelled 'practical' by SPI-B recur in the research and revolve primarily around the much-reduced capacity to self-isolate afforded to people in low-income and/or precarious employment^{20/20} compared to those who are retired or have professional employment that allows working from home and, or, the advantage of official sick leave. Research indicates that there are four main aspects of this issue for those falling into the former category:

1. insufficient financial support;
2. insufficient Universal Credit;
3. confusion over the rules when advice to self-isolate hasn't come directly from T&T (e.g. schools);
4. employers withholding pay and encouraging return to work.²¹

While these could indeed be understood as 'practical', we suggest that a more specific term of 'structural' be used within this project to afford a broader grasp of the dynamics and 'constrained choices'²² facing the people we will be working with. This term also more adequately covers the vaccine hesitancy of particular minority ethnic groups, whose reluctance is traceable to painful histories of real ill treatment and exploitation by governments and large corporations in a way that 'practical' nor psychological issues can really do justice to. This has considerable impact in terms of trust²³.

What we can learn from this:

1. Different groups develop different maps of risk formed by both psychological and structural matters and life experiences.
2. There is a structural as well as a behavioural aspect of risk.
3. In Keeping Wales Safe, the three teams are set to tackle both psychological and structural factors as part of their interventions. This means tweaking behaviour within the broader framework of constraints: to do this we have to understand the distinction between these two types of barriers, and why they are barriers.

SECTION THREE

Recommendations and interventions in the literature

A range of non-pharmaceutical interventions (NPIs) have been shown to be effective in mitigating the spread of the COVID-19 ^{24 25 26}. Ayouni et al.'s²⁷ recent systematic review noted that these measures included: restrictions on travelling; quarantine of travellers and border control; the use of lockdowns; prevention of mass gatherings; school closures; social distancing; isolation of infected individuals; their close contacts and contact tracing and testing; as well as mask wearing in the general population and use of PPE amongst healthcare workers. These were found most effective when implemented early in the epidemic, and when done in combination ²⁸.

Despite the effectiveness of these NPIs, there have been significant issues with adherence to government guidance. In response to this, numerous recommendations have been made across government policy and guidance, as well as the academic literature. A brief overview of current evidence in these areas will now be presented, covering both recommendations from the existing evidence as well as measures and interventions that have been evaluated during the course of the COVID-19 epidemic.

Recommendations

In response to the challenges with adherence to self-isolation a number of bodies have developed a series of recommendations, providing both broad guidance and guidance focused on targeting specific groups within the UK and Welsh populations. Much of the information in the literature is centred around recommendations, rather than approaches that have been tested and evaluated during the pandemic. For example, the Welsh Government via the Technical Advisory Group (TAG)^{29 30} has designed a series of advice documents compiling guidance from other groups (including SAGE and WHO) and evidence related to research and practice both pre- and during the pandemic. Drawing on learning from other behaviours, psychological theory and research on previous infectious disease pandemics, the British Psychological Society (BPS)^{31 32} produced a series of recommendations regarding encouraging self-isolation and delivering public health campaigns.

This advice covers a variety of topics, and some are setting specific, such as weddings, religious sites, etc. The core of the advice is often centred around the well-established guidelines regarding wearing face masks, two-metre social distancing, hand-washing, and ensuring adequate ventilation.

The recommendations centre on three broad areas:

Communications (official and in workplaces)

- PR and advertising campaigns suggested to inform, change, or maintain behaviour. A key focus to emerge from the TAG publications has been on improving risk literacy in the general population in order to facilitate informed decision making with the view that people need to be enabled to understand the balance between knowledge, risk, certainty, and action.
- Targeted campaigns to specific groups with tailored communication.
- Ensuring messages are consistent (within and between agencies).
- Importance of all employers clearly communicating and supporting self-isolation - can create positive social norms for self-isolation within an organisation and society.
- Signage suggested to encourage and maintain COVID-safe behaviours as well as rule following in various environments.

Being and feeling prepared for self-isolation

- People need to be encouraged to be prepared to self-isolate.
- Having nominated individuals to enforce rules and safe behaviours is also recommended in certain contexts.
- People need to understand what, why and how and when. Including explaining what self-isolation means and symptoms.

Support for people during self-isolation

- Physical support needs to be provided to follow recommended behaviours (e.g. self-isolation) (physical/environmental context and resources)
- Create awareness of what support is available locally,
- Community groups/local leaders/influencers need to take a role.

In terms of the tailored communication -which is very pertinent to KWS- the TAG, BPS and some academic literature has advocated the development and delivery of bespoke advice for groups with higher levels of non-adherence and understanding of Covid-19 symptoms (including young males, key workers, people from lower socio-economic status groups and minority ethnic communities)^{33 34}. Neither clear guidance on the specifics of what this looks like in practice, nor the testing of its effectiveness have been provided or carried out so far. However, a recent Public Health Wales (PHW) report³⁵ outlined the four target areas for different populations in Wales in order to improve self-isolation adherence.

Table 2. Recommendations to encourage self-isolation and target groups.

Action	Target Group(s)
Provide targeted mental wellbeing and social support	Women; BAME groups; ages 18-29; people living alone; those with high income precarity
Increase financial support and access to food and medications for those with precarious incomes	People with high income precarity and people in most deprived areas.
Direct contacts to exercise at home and dog walking services	People in least deprived areas
Enhance social care provision at home for older adults and those living alone	Older adults 70 +; people living alone

The need for increased financial and practical support was a consistent recommendation across the literature^{36 37} and findings from an examination of international evidence regarding self-isolation also suggested:

- providing alternative accommodation for people who cannot safely isolate at home.
- solutions should be delivered locally with local government and community engagement, deemed highly effective, particularly for vulnerable or low-income populations.
- the 'Take Care' initiative in New York has reported promising findings (see Behavioural Insights Team interim report).
- the efficacy of punitive measures is not well-evidenced and could be counter-productive³⁸. Indeed, SPI-B advise against punitive approaches³⁹ stressing instead the need to reframe messaging in order to highlight positive steps, encourage civic duty and encourage a feeling of being in a collective effort⁴⁰.

Evaluated Interventions

Given the rapid onset of the pandemic and the limited time to design, test and report on new interventions and measures there is limited literature on what works, with who and within what context. However, in relation to self-isolation testing has been established as a key intervention in mitigating the spread of COVID-19, particularly when it is utilised alongside the tracing and isolation of cases and close contacts⁴¹.

Some testing and trialling of messages and engagement approaches has been reported in the literature, with some studies comparing the types of guidance given to the public. These approaches were not all successful and some were counter-productive, or effects were limited to particular contexts. Two studies which evaluated simplified information^{42 43} showed it had either had no effect or resulted in reduced understanding, for instance. These results point to a need to think carefully about communications interventions before implementation and having a clear evaluation plan in place. The literature makes clear that knowledge and intentions do not automatically translate into behaviour change.

However, we can point to a couple of studies that attempt to promote behaviour change and

evaluate the effort, plus one on theorising the starting points for influencing behaviour. Davies and her team⁴⁴ observed students entering and interacting in a university building with a focus on mask wearing and social distancing. The next day they placed clear signage in the entrance hall to the building and continued their observations. Both mask wearing and social distancing increased on day two, but the former much more than the latter. Public Health England carried out a pilot study with a sample of 1,370 in which close contacts of people with COVID-19 had the option to take lateral flow tests for a week (as an alternative to quarantining). If those tests came back negative, the participant could continue with their daily activities. The idea was to see if reducing the stakes of testing for someone's contacts would increase the probability of testing⁴⁵. This work found that daily testing showed promising signs as an acceptable alternative to self-isolation, facilitating contact tracing and promoting adherence to self-isolation. Negative covid test results did not substantially increase non-adherence to self-isolation. Testing was the more popular choice among white close contacts, but ethnic minority participants were split between testing and isolation. The study points to a need to ensure effective communication with all, especially ethnic minority groups. It should be noted that the study was conducted during a period of stringent lockdown measures which may have resulted in unusually high levels of adherence and explain the reaction to negative tests.

It is a struggle to understand people's motivation for engaging with various elements of public health policy, and a study from New Zealand posits a useful way to break down such engagement⁴⁶ intervention (e.g. wearing masks). They assert that people's involvement falls into one of four categories:

1. Detached: not engaged with either issue or intervention;
2. Engaged with the issue but not a specific intervention;
3. Engaged with the issue and with an intervention:
4. Low engagement with issue, but high engagement with intervention.

So people are more or less likely to adhere to a particular protocol depending on how much they care about preventing the spread of Covid and/or the specific protocol. There are two implications of this insight. The first is the behavioural response of interventions aimed at changing the degree of involvement. Compliance should require 'as little effort and thought as possible; for example, by supplying face masks for free on public transport and other high-risk locations such as supermarkets, by ensuring testing is as convenient as possible, by minimising as far as practical the time spent travelling to testing centres and the time spent queuing for tests, and by offering limited compensation for those who are required to self-isolate because they test positive'⁴⁷. The second requires public health actors to think laterally and creatively: 'The attention of people with low involvement in a subject can be captured if messages about the subject can be linked to another matter that is involving for them' (our italics).⁴⁸ Emphasis on this should be a key consideration for us and the three teams going forward.

The notable dearth of published work on interventions tested in the field and critically evaluated should be an added impetus for the teams involved in KWS, as we will most likely be producing work that at the very least fills gaps in knowledge, and may well be ground-breaking, particularly if it is scalable, as envisaged in the final phase of the project.

What we can learn from this:

1. Research has varied methods and is not necessarily comparable.
2. Mathematical models of macro level interventions (see section 1) and self-reporting surveys are much more numerous than pieces of empirical work on interventions of the style envisaged in KWS.
3. Simple interventions have impact but there is a hierarchy of impacts.
4. Breaking down people's engagement in different ways may yield useful insights into how to communicate with them and change their behaviour.

SECTION FOUR

Assessing the research to date and considering future directions

While this review has been limited in time and scope (Appendix B provides details on the search criteria, sources of evidence and limitations), it is widely acknowledged across the literature that there is very limited data and evidence regarding the effectiveness of certain NPI measures and programmes. Many of the initial measures and interventions were based on previous research on epidemics, established psychological theories and learning from other types of behaviours. Therefore, while there are calls for more robust, vigorous studies in order to produce higher quality evidence, it is essential to be aware that the impact of measures, restrictions and interventions are extremely difficult to judge. They are often delivered simultaneously in a constantly evolving context. In many cases it is not possible to provide detailed empirical evidence above and beyond a broad consideration of what may or may not be effective. Appendix A below provides reflections on the limits and methodological issues relating to the work reviewed here.

The current evidence available is heterogeneous in nature with evaluation methods and approaches varying which means it is difficult to compare between data sets. At times where evaluation and monitoring methods have taken place, they have not been robust and considered key contextual influences. The changes that have taken place during the data collection time periods for many of the studies across society in relation to the vaccine rollout, changing rules and regulations, time of year (winter vs. summer), which groups infections rates are higher amongst, and the types of campaigns being run are significant. Literature on behavioural approaches in the current Covid pandemic over the last 16 months is relatively light on empirical evidence with many of the sources of evidence available being preprint articles, which as such have not yet been peer-reviewed. This means that a majority of the findings have to be taken with significant caution, a fact that is often acknowledged by authors across the literature.

In relation to self-isolation specifically, the evidence is often self-reported, and based on intention to self-isolate rather than actual behaviour and there is significant difference between intentions data and actions and behaviours data. There are also discrepancies between the Welsh data, from the CABIN and ACT studies, on adherence to self-isolation and rest of UK. The reasons for this are likely to be complex but as the authors note, 'social desirability bias' is an important consideration⁴⁹. It is also important to note that there are some programmes and linked interventions operating in Australia and East Asia which have not been reported here. Given the level of intensive monitoring of individuals and groups through digital surveillance it's probable that these will contravene privacy laws in European countries and public attitudes, regarding the role of governments and individual freedom, would not support them⁵⁰.

SECTION FIVE

Future Directions?

This study is taking place at a period of significant change, with high transmission but increasingly relaxed rules, guidance and public attitudes. All the research referred to and reviewed here, and the systematic reviews consulted took place in a context of restrictions. Now those restrictions have been partially or fully lifted (England, since 21 July 2021), the context of peer-pressure and community norms will be different. That is the context in which this project will be working. This means that it is possible that much of the evidence currently informing decision making may lose relevance over a short period of time.

More empirical work from the March 2020-March 2021 period will likely emerge over the next few months and years -due to the relatively slow publishing cycle for different types of studies- but it may also be based on periods of the pandemic that are not comparable to those that will be faced in the future. In the new world of guidelines, devoid of government rules that have been major components in the regulatory landscape since March 2020, the job of keeping Wales safe becomes more challenging. The need to understand both the psychological and structural barriers identified above, in terms of social class, age, employment status, ethnic minority status and gender, as relevant in different ways is all the more acute.

The struggle going forward will be to encourage less risky behaviours. Important considerations for the use of evidence will be how authorities manage this shift from 'pandemic' to 'endemic', and whether previously established principles and guidelines remain relevant; whether the patterns of infection and adherence remain similar; and what aspects of the management of the epidemic are specific to context and environment. The shift in the approach to measures and guidance is encapsulated in the following TAG statement, the '...future approach will become increasingly one of information provision and choice enablement, framed in terms of lower intensity of governmental intervention and higher levels of public behavioural modification/maintenance.'⁵¹

What we can learn from this:

- The evidence discussed ranges in robustness, replicability, and comparability. Some has not been peer-reviewed, while others are normative models rather than empirical tests.
- It is to be expected that a review of such evidence carried out a year from now would include more peer-reviewed material, allowing work that is currently draft and pre-reviewed work to pass into publications. For the time being we have indicated some of the key points, although there may be caveats, usually pointed out by the researchers themselves.
- In terms of what we should take out of this is that interventions should be designed as carefully as possible, and with robust evaluation built in as part of the design (not added on after it has started, and especially not after it has finished).
- The context in which KWS will play out will differ from that in which the research on adherence referred to here was carried out.
- As government measures shift toward guidelines, and passing responsibility to the public, the stake in having an input into behavioural change is set to increase.

APPENDIX A:

Assessing the literature to date: reflections on how to evaluate the existing research base

The BPS^{52 53}, TAG⁵⁴ and the PHW report⁵⁵ have provided guidance on how to manage and encourage adherence to Government rules regarding protective behaviours such as self-isolation. However, clear guidance on what this looks like in practice and the testing of these recommendations' effectiveness within the general public, as well as specific target populations has not taken place. While these recommendations are repeated elsewhere in the literature it is not possible to report on whether they work with current evidence on how knowledge translates into action and behaviours in the context of the current epidemic.

Within the academic literature, the current evidence available is often heterogeneous in nature, with varying evaluation methods and approaches. This makes it difficult to compare data sets and findings, a conclusion that is also reported in Ayouni et al.'s recent systematic review⁵⁶. It also applies to the public health interventions and NPIs considered effective in reducing transmission rates. Many studies are likely to be, or have openly stated, that they are affected by both selection and social desirability bias^{57 58 59}. The evidence available is often self-reported and based on intention rather than behaviour^{60 61 62} and there is a very significant difference between the data on intentions and actual behaviours⁶³. A number of studies are also cross-sectional (rather than longitudinal) so therefore only provide a snapshot of the views at the time of response. For example, the daily testing study was conducted during a period of stringent lockdown measures which may have resulted in unusually high levels of adherence (to self-isolation)⁶⁴. Data across all studies was also collected during periods of significant social change in relation to the pandemic due to changes in government guidance, the time of year and rates of infections, as well as the implementation of lockdown measures: all of which will have a significant bearing on findings and outcomes.

APPENDIX B:

Search Strategy, sources of evidence and limitations

Search strategy

Searches of relevant websites were undertaken, including: the Governments of the UK; Public Health bodies; relevant third sector bodies and other sources identified through consultation with Welsh Government, within the study team, with the Behavioural Insights Team (BIT) and People Powered Results (PPR) team at Nesta. Sources of evidence reviewed including but were not limited to:

- Public Health England's weekly literature reviews: Finding the evidence: Coronavirus – Knowledge & Library Services (koha-ptfs.co.uk)
- SAGE web pages on gov.uk – see below.: SPI-b - Search - GOV.UK (www.gov.uk)
- Technical Advisory Cell | GOV.WALES
- the IPPO Living Map: <https://covidandsociety.com/ippo-living-map-systematic-way-keeping-track-covid-19-social-science-research/> and <https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3806>
- The International Public Policy Observatory (IPPO): <https://covidandsociety.com/>
- The Economics Observatory <https://www.economicsobservatory.com/>
- The Blavatnik Tracker from Oxford <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>
- <https://www.socialsciencespace.com/coronavirus/>
- The SSRC (USA): <https://covid19research.ssrc.org/>

Pre-print sites

- <https://psyarxiv.com/> (psychology)
- <https://www.medrxiv.org/> (health)
- <https://www.preprints.org/> (generic)

Reference sections in each document identified as relevant were also reviewed for further relevant research. In academic papers/articles and websites lists of articles citing documents identified as relevant were also reviewed.

Key words

The following key words were used singularly and in combination within the criteria of publication since January 2020 in English (with Boolean search operators):

COVID; COVID 19; COVID-19; Covid-19; Covid; Covid 19; C-19; Coronavirus; SARS-CoV-2; self-isolate; self-isolation; self isolate; self isolation; social isolation; self-quarantine; self quarantine; compliance; compliant; risk reduction; harm reduction; risky behaviour; harmful behaviour; behavioural issues; behaviour management; risky areas; risky places; risky environments; risky environment

Key words were developed from initial searches and reading of key documents and added to over the course of the review.

Limitations of this review

This rapid review of evidence has several limitations. Given the limited time and scope (focused primarily on self-isolation and risk) of the review it is likely that potentially key evidence has not been included at this stage. In relation to the evidence reviewed, numerous measures and interventions have been implemented within a very short period or, at times, simultaneously. That means it is extremely challenging for both the original authors and the current review team to accurately review and evaluate the effect of measures and interventions. It is therefore possible either to overestimate or underestimate their potential impact on intentions, behaviours and more broadly on the pandemic.

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