



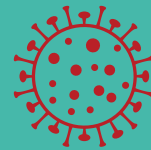
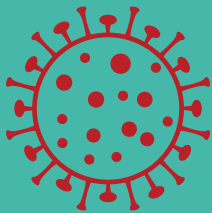
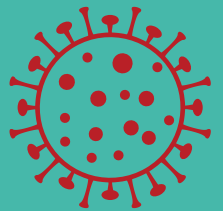
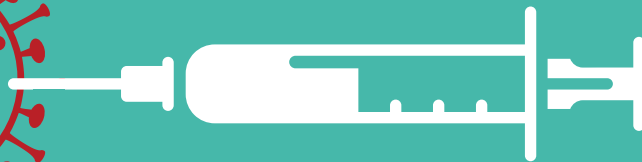
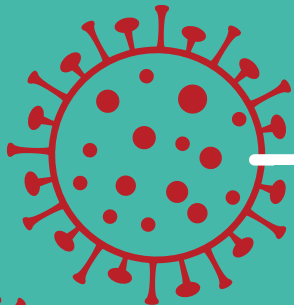
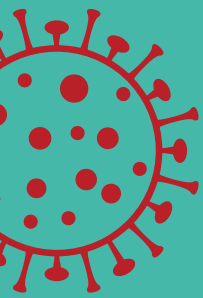
Cumann Síceolaithe Éireann

# Maximising the Benefits of a COVID-19 Vaccine:

## Getting the Psychology Right

The Psychological Society of Ireland

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This Psychological Society of Ireland (PSI) guidance document has been prepared by the PSI Science and Public Policy Committee (SPPC) in response to the COVID-19 pandemic.

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# Introduction

## 1. Vaccines are in development for COVID

- a. As of October 2020, more than three hundred COVID-19 vaccine candidates were in development across the world, of which 42 were undergoing clinical research.<sup>1</sup> Nine vaccine candidates were included in **Phase II** or **Phase III** clinical trials, which means that they were being tested in relatively large numbers of volunteer participants in order to investigate their medical efficacy and potential side-effects.
- b. As the prospect of a COVID-19 vaccine edges closer, the challenge of preparing for adequate vaccine uptake requires our attention. International surveys have found that a large subset of the population **would not trust a newly developed vaccine for COVID-19**. A recent opinion poll commissioned by Ireland's national television and radio broadcaster Raidió Teilifís Éireann (RTÉ) suggested that 32% of Irish people would decline to take a COVID-19 vaccine, even if it were fully approved by the European Medicines Agency.<sup>2</sup>
- c. Many psychological factors influence whether people avail of vaccination in sufficient numbers for it to be effective. International experience of **vaccine hesitancy** suggests that the behavioural aspects of vaccination requires the urgent attention of policy makers.<sup>3</sup>

## 2. Vaccine basics

- a. A **vaccine** is a biotechnology product that stimulates the production of antibodies in a way that makes a person immune (or resistant) to an infectious disease. Vaccines are usually made from the causative agent of the disease itself, or from a synthetic substitute. **Vaccination** is the term used to describe the process of getting a vaccine into a person's body, usually by injection or orally.
- b. Vaccination is **one of the most cost-effective ways to avoid diseases**. The World Health Organization (WHO) estimate that, around the world, vaccination prevents around 2 to 3 million deaths per year.<sup>4</sup>
- c. While vaccination is a medical innovation, **its success relies on human factors** – vaccines only work if people take them. Behaviour, in turn, is determined by attitudes, perceptions, knowledge, understanding, and emotion. Psychological factors influence when – or even whether – a person will seek vaccination for themselves or for those they care for.

<sup>1</sup> <https://www.nature.com/articles/d41573-020-00151-8>

<sup>2</sup> <https://www.rte.ie/news/2020/1001/1168630-rte-survey-ireland/>

<sup>3</sup> <https://pubmed.ncbi.nlm.nih.gov/29611455/>

<sup>4</sup> <https://www.who.int/health-topics/vaccines-and-immunization>

## Challenges

### 3. Vaccine hesitancy and refusal

- a. While the majority of people around the world appreciate the value of vaccines, a significant minority are **reluctant to vaccinate**. Most of these are not “anti-vaccinationists” (or “antivaxxers”)<sup>5</sup>; they are simply people who are complacent, busy, or hesitant in their consumer choices. Such behavioural “inertia” presents a significant challenge to the success of vaccination programmes.
- b. In addition, a small number of people *do* engage in **anti-vaccination activism**, serving to complicate the psychological challenge. Anti-vaccination activism tends to come in two forms. Some anti-vaccination activists take a “reformist” position, claiming that the current system of vaccination is defective in several respects (for example, that it lacks quality control, is rushed, or is skewed by commercial interests). Others take a “radical” position, claiming that all vaccines are unsafe and ineffective, and that all people or agencies who promote vaccination do so for corrupt reasons.<sup>6</sup>
- c. It is estimated that **vaccine hesitancy** leads to around 1.5 million deaths around the world each year. Most of these are of children whose parents did not avail of vaccination.<sup>7</sup>
- b. The turmoil and instability created by the pandemic are exactly the conditions in which **conspiracy theories** are likely to spread. Already, several groundless conspiracy theories concerning COVID-19 vaccines have circulated widely among anti-vaccination groups and in the general population.<sup>8</sup>
- c. The global nature of COVID-19 has brought widespread attention to the concept of “**herd immunity**”. However, the idea of herd immunity is frequently misunderstood. Usually, the associated death rate is overlooked – any “herd immunity” approach would involve a “trimming” of the herd. Allowing the virus to spread unimpeded in the population would lead directly to hundreds of thousands of deaths in Ireland alone, and many millions of deaths in other countries. It could also take a very long time to have its intended effect, during which large sections of the population would be wiped out in successive waves across several years.<sup>9</sup> Incomplete awareness of the implications of herd immunity serves to complicate people’s attitudes toward all COVID-19 prevention measures, including vaccination.
- d. Most people adopt health behaviours in response to personal risk. However, the nature of a pandemic means that risk is spread across the population, serving to **dilute its impact on each person’s individual motivation**. Most currently healthy young and middle-aged adults (as well as children) are at relatively low risk from COVID-19; for them, being vaccinated against the Coronavirus would largely serve to protect *other people in society*. This makes vaccination chiefly an act of altruism and of good citizenship, rather than an act of self-preservation, considerably altering the way risk is perceived.<sup>10</sup>

### 4. COVID-19 challenges

- a. The COVID-19 pandemic has upended normal living around the world. It has created societal, cultural, and economic shock, as well as political instability and strain. Lockdowns, social distancing, and fear of contagion are each very stressful. Psychologically, **emotional distress** can make people fearful and can impede their decision-making on a range of issues, including their healthcare choices.

<sup>5</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7544597/>

<sup>6</sup> <https://pubmed.ncbi.nlm.nih.gov/17381813/>

<sup>7</sup> <https://www.who.int/health-topics/vaccines-and-immunization>

<sup>8</sup> <https://time.com/5891333/covid-19-conspiracy-theories/>

<sup>9</sup> <https://www.nature.com/articles/s41577-020-00451-5?>

<sup>10</sup> <https://www.sciencedirect.com/science/article/pii/S0305750X20303636>

## Psychology and COVID-19 Vaccines

### 5. Personal psychological factors that influence vaccination uptake

a. Research suggests that a person's choice to avail of vaccination is influenced by a number of specific psychological factors, all of which need to be addressed when preparing public health advice about vaccines for COVID-19. Examples include:

i. **Appraisal of risk.** People evaluate risk in terms of both *perceived likelihood* and *perceived severity* of negative consequences. However, people rarely evaluate risk in strict arithmetic terms. Perceived severity of consequences usually outweighs perceived likelihood in influencing a decision. If people feel that the severity of outcomes is trivial, they will be less swayed even by a high risk-likelihood.<sup>11</sup>

ii. **Confidence in vaccines and healthcare.** Unsurprisingly, people are more likely to seek vaccination if they have positive attitudes about vaccination and healthcare more generally. Vaccine uptake is lowest when vaccines are perceived as ineffective, unsafe, or part of an untrustworthy medical system.<sup>12</sup> Behavioural confidence is subject to a “halo effect”: the reputation of the healthcare system as a whole will influence people's attitudes to vaccination in particular.

iii. **Motivation to act.** Many people have positive views about vaccines but still fail to get vaccinated. Their *intention* to act does not materialise because their *motivation* to act is insufficient. In this respect, much vaccine “hesitancy” is in fact passive.<sup>13</sup> Improving vaccine uptake will require ways to maximise persistent awareness of vaccines and to ensure easy-to-access opportunities to receive vaccinations.

iv. **Rationality and irrationality.** People have busy lives and rarely see vaccination as a top-tier personal priority. As such, decisions about vaccination are often made quickly and with little discussion with others. When choices are seen as relatively unimportant, people often draw conclusions based on *confirmation bias* (i.e., they attach undue weight to information that supports their beliefs or values, while ignoring information that conflicts with them).<sup>14</sup> This can lead them to miss important information that could otherwise help them to think differently. The key to promoting close rational analyses of personal choices is to encourage people to see vaccination as a high-priority issue.

v. **Fear of illness and avoidant thinking.** In general, people seek ways to avoid thinking about death or mortality. Campaigns to promote vaccination need to avoid the use of fear-based messaging, as this can encourage many people to shift their attention away from the need to be vaccinated.<sup>15</sup>

<sup>11</sup> <https://pubmed.ncbi.nlm.nih.gov/17385964/>

<sup>12</sup> <https://pubmed.ncbi.nlm.nih.gov/29611455/>

<sup>13</sup> <https://pubmed.ncbi.nlm.nih.gov/16651306/>

<sup>14</sup> <https://pubmed.ncbi.nlm.nih.gov/30895889/>

<sup>15</sup> <https://psycnet.apa.org/record/2008-14936-002>

## 6. Social psychological factors that influence vaccination uptake

- a. Social influences on individual behaviour also impinge on personal vaccination choices. These can relate to in-person interactions with other people, including healthcare providers, as well as broader community-based social dynamics:

### i. Person-to-person issues

1. **Provider-patient interaction.** Trust in doctors, nurses, and pharmacists is a key shaper of vaccine confidence. However, research suggests that confidence is derived from perceptions of professions as a whole, rather than from individual interactions with specific professionals.<sup>16</sup>
2. **Decision-making by carers (e.g., parents).** For most children and teens, vaccination is decided upon and initiated by parents. Studies show that parents and teens tend to share similar attitudes about vaccination.<sup>17</sup> Research also suggests that serving in a surrogate role can make parents more risk-averse and, thus, more likely to vaccinate their children than themselves.<sup>18</sup>

### ii. Community issues

1. **Altruism and free-riding.** Some research has examined whether vaccination uptake is promoted by *altruism* (i.e., the motivation to protect others from infection) or undermined by *free-riding* (i.e., the temptation to take advantage of the protection provided by others). In general, however, vaccination campaigns that try to encourage more “pro-social” attitudes appear to have limited effect.<sup>19</sup>

### 2. Misinformation, selective information avoidance (“echo chambers”), and groupthink.

Research consistently demonstrates that audiences are strongly influenced by what they believe to be first-hand perspectives on critical information; anecdotal accounts are valued much more than is warranted by the quality of information they provide. Secondly, most people draw their day-to-day information from their social networks, despite the fact that most social networks are highly selected; people actively choose to spend most of their time with other people who share views similar to their own. This is why misinformation can spread quickly within “echo chambers”: in general, people tend not to encounter contrary opinions that might challenge their assumptions.<sup>20</sup>

3. **Social norms.** People can be influenced by what they believe to be the prevailing attitudes within their peer-group. When people believe that *others* feel that vaccination is unimportant, they might be discouraged from seeking vaccination even if they think it is a good idea themselves.<sup>21</sup>
4. **Political and societal leadership.** The general public often view high-profile public figures (such as political leaders and celebrities) as part of their own extended peer-group. Indeed, for many of us, public figures can seem more familiar than our own neighbours. As such, public figures have disproportionate influence in shaping social norms, especially when such figures are in relevant leadership roles. When public figures engage in inconsistent, equivocal, or negative commentary about vaccines, it can pervasively undermine public confidence in vaccination.<sup>22</sup>

<sup>16</sup> <https://pubmed.ncbi.nlm.nih.gov/27391098/>

<sup>17</sup> <https://pubmed.ncbi.nlm.nih.gov/26190364/>

<sup>18</sup> <https://pubmed.ncbi.nlm.nih.gov/22127841/>

<sup>19</sup> <https://pubmed.ncbi.nlm.nih.gov/29611455/>

<sup>20</sup> [https://books.google.ie/books/about/Rethinking\\_Psychology.html?id=p2DFjgEACAAJ](https://books.google.ie/books/about/Rethinking_Psychology.html?id=p2DFjgEACAAJ)

<sup>21</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3439593/>

<sup>22</sup> <https://pubmed.ncbi.nlm.nih.gov/29522737/>

## What Next?

### 7. Preparing the ground for optimal vaccination uptake

- a. All infectious illnesses vary, and the COVID-19 pandemic is in many ways unique in modern history. Nonetheless, the behavioural and psychological aspects of vaccination have been widely researched. Findings from this research support a number of initiatives that may be effective in influencing vaccination uptake.

#### i. Initiatives that actively facilitate vaccine uptake

1. **Reminders and prompts.** Several studies have shown that systems that issue automatic reminders directly to individuals are highly effective at increasing vaccination uptake. However, research also shows that such systems can be difficult to implement without appropriate resourcing.<sup>24</sup>
2. **Presumptive invitations.** Invitations that frame vaccination as default or routine health care (e.g., “Your vaccination is now due”) are especially effective.<sup>25</sup> Such messaging enhances the pro-vaccine social norm, communicates authoritative advice, and reduces choice anxiety.
3. **Primes.** Strategies that encourage people to think actively about vaccination make it more likely that they will follow through on their intentions. For example, setting a personal deadline to get vaccinated<sup>26</sup> or simply answering survey questions about vaccines<sup>27</sup> both increase the likelihood that a person will avail of vaccination when the opportunity arises. Vaccination programmes that encourage people to keep favourable intentions in mind are likely to result in greater vaccine uptake.

4. **Incentives and sanctions.** Providing incentives or implementing sanctions may serve to improve vaccination uptake in some situations; however, in most studies the impacts seen have been inconsequential.<sup>28</sup> Further, the use of reward-and-punishment approaches risks undermining people’s intrinsic motivation to vaccinate. Reducing vaccination-choice to a material transaction may make people *less* responsive to other healthcare interventions that do not provide similar incentives.

#### ii. Initiatives that remove barriers to vaccine uptake

1. **Low cost, wide availability.** Practical barriers relating to cost and access can lead people to attach a low priority to vaccination, even if they hold positive attitudes toward vaccines. In general, making vaccination cheap or free and providing it in a wide range of venues (such as schools and workplaces) will improve vaccine uptake.<sup>29</sup>
2. **Simplifying required action.** Telephone reminder systems that provide a “one-stop-shop” approach, where people can schedule their vaccination appointment during the reminder call, are very effective in ensuring maximum vaccine uptake.<sup>30</sup>
2. **Removing choice anxiety.** Programmes that offer a single vaccination appointment, rather than a choice of multiple dates and times, will likely result in greater uptake. Choice overload appears to create decision inertia<sup>31</sup>; offering a single appointment addresses this problem, while engendering concrete commitment to see through an intention to vaccinate.

<sup>24</sup> <https://pubmed.ncbi.nlm.nih.gov/22566415/>

<sup>25</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4881857/>

<sup>26</sup> <https://www.pnas.org/content/108/26/10415>

<sup>27</sup> <https://pubmed.ncbi.nlm.nih.gov/21553974/>

<sup>28</sup> <https://pubmed.ncbi.nlm.nih.gov/26562004/>

<sup>29</sup> <https://pubmed.ncbi.nlm.nih.gov/10806982/>

<sup>30</sup> <https://pubmed.ncbi.nlm.nih.gov/29342498/>

<sup>31</sup> <https://academic.oup.com/jcr/article-abstract/37/3/409/1827647>



## Conclusion

### 8. Broad principles relating to the psychology of vaccinations

- a. **Vaccination systems should seek to engage people directly, rather than wait for public attitudes to evolve.** Many types of behavioural inertia serve to suppress vaccination uptake. Vaccination programmes are most effective when they are designed to proactively take account of, and circumvent, these inertia factors.
- b. **Vaccine uptake is highest when vaccines are seen as part of everyday life and healthcare.** Attitudes to vaccines are more positive when vaccines are discussed frequently, when vaccination is normalised within daily discourse, and when social norms are favourable. Vaccination programmes are more effective when they are routinised within standard healthcare, when they are easy to access, and when they are straightforward to navigate.
- c. **Role models should be consistent.** Social influence is impactful and misinformation spreads easily. It is important that political and civic leaders demonstrate consistent, unambiguous, and forthright role-modelling with respect to vaccination. (The same principle applies with regard to all special protective measures instituted during health emergencies.)
- d. **Reservations should be acknowledged and addressed in a non-threatening manner.** Most people hold favourable views about vaccination. As such, the attention given to vaccine scepticism can often be disproportionate. Nonetheless, it is important to address queries about vaccination in non-threatening ways, in the knowledge that most vaccine hesitancy results from barriers to motivation rather than from hostile attitudes.
- e. **Bolstering popular conscientiousness about vaccines serves as psychological “inoculation” against future apathy.** The COVID-19 pandemic has drawn attention to the issue of vaccine hesitancy. The opportunity presented should allow for a wider discussion of vaccination, and a greater awareness of the problems caused by insufficient vaccine uptake. Finding ways to enhance vaccine coverage now will serve humanity well in coming decades, given the increasing likelihood of similar pandemics in the future.<sup>32</sup>

<sup>32</sup> <https://www.bbc.com/news/science-environment-52775386>



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