**Supplementary Material**

**Table S1. Logistic regressions testing the effect of knowledge of development on the probability of ranking speed of development in top three risks and mentioning development as a concern in open text responses.**

|  |  |  |
| --- | --- | --- |
|  | Speed of development  ranked in top 3  B (SE) | Mentioned concerns about development in open text  B (SE) |
| **Answered Q Correctly (Correct answer)**  More scientists worked on it (T) | -0.08 (0.12) | 0.16 (0.20) |
| Parallel stages of testing (T) | -0.11 (0.11) | 0.23 (0.19) |
| Large samples available (T) | -0.13 (0.11) | -0.21 (0.20) |
| Short term testing was reduced (F) | -0.43 (0.15)\*\* | 0.19 (0.24) |
| Long term testing was reduced (F) | -0.30 (0.11)\*\* | -0.80 (0.18)\*\*\* |
| Testing stages were skipped (F) | -0.01 (0.21) | 0.33 (0.29) |
| **Intention (ref. Def No)**  Prob No | -0.50 (0.33) | -0.95 (0.34)\*\* |
| Prob Yes | -0.53 (0.29)ǂ | -1.76 (0.31)\*\*\* |
| Def Yes | -1.36 (0.28)\*\*\* | -2.83 (0.32)\*\*\* |
| Constant | 1.51 (0.30)\*\*\* | -0.22 (0.33) |

\*p < .05, \*\**p* < .01, \*\*\**p* < .001. B = beta-coefficient. SE = standard error.

**Table S2. Generalised ordered logistic regression showing effect of answering a question on novelty correctly on ranking the novelty of the vaccine as a risk.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Probability of ranking novelty as a risk at all B(SE) | Probability of ranking novelty higher than 1  B(SE) | Probability of ranking novelty higher than 2  B(SE) | Probability of ranking novelty higher than 3  B(SE) | Probability of ranking novelty higher than 4  B(SE) | Probability of ranking novelty higher than 5  B(SE) | Probability of ranking novelty higher than 6  B(SE) |
| **Answered Novelty Q Correctly** | -0.33 (0.14)\* | -0.42 (0.14)\*\* | -0.25 (0.11)\* | -0.32 (0.11)\*\* | -0.13 (0.11) | -0.29 (0.14)\* | -0.16 (0.19) |
| **Intention**  **(Ref. Def No)**  Prob No | -0.56 (0.72) | -0.02 (0.58) | -0.21 (0.37) | -0.12 (0.30) | -0.10 (0.33) | -0.15 (0.37) | -0.25 (0.52) |
| Prob Yes | -0.73 (0.63) | -0.39 (0.46) | -0.26 (0.31) | 0.12 (0.25) | 0.01 (0.27) | -0.11 (0.31) | -0.04 (0.42) |
| Def Yes | -1.82 (0.59)\*\*\* | -1.20 (0.43)\*\* | -0.76 (0.29)\*\* | -0.05 (0.23) | 0.17 (0.25) | 0.07 (0.28) | -0.09 (0.39) |
| Constant | 3.42 (0.59)\*\*\* | 2.72 (0.43)\*\*\* | 1.48 (0.28)\*\*\* | 0.16 (0.23) | -0.72 (0.25)\*\* | -1.23 (0.28)\*\*\* | -2.18 (0.29)\*\*\* |

\*p < .05, \*\**p* < .01, \*\*\**p* < .001. B = beta-coefficient. SE = standard error.

**Table S3. Logistic regression showing effect of answering a question on efficacy correctly on the ranking of protection from COVID-19 as a benefit and on spontaneous generation of protection from COVID-19 as a benefit in open text.**

|  |  |  |
| --- | --- | --- |
|  | Protection from COVID-19 or long COVID ranked in top 3  B (SE) | Mentioned protection from COVID-19 in open text  B (SE) |
| **Answered Q Correctly**  Efficacy is 90% (T)1 | 0.18 (0.13) | 0.34 (0.13)\*\* |
| **Intention (ref. Def No)** |  |  |
| Prob No | 0.51 (0.31) | 3.55 (1.03)\*\*\* |
| Prob Yes | 0.98 (0.26)\*\*\* | 3.84 (1.01)\*\*\* |
| Def Yes | 1.50 (0.25)\*\*\* | 5.08 (1.01)\*\*\* |
| Constant | -0.45 (0.23) | -4.49 (1.01)\*\*\* |

\*p < .05, \*\**p* < .01, \*\*\**p* < .001. B = beta-coefficient. SE = standard error.   
1. Note that participants chose from a list of options in the following format: “around X% of people who get the vaccine will be protected from COVID-19”. X included no-one, 10%, 50% or 90%. 90% was the closest reported efficacy for the Pfizer vaccine at the time the study was run.

**Figure S1. Scores on each question in the test of knowledge by intention**

**Tasks within each stage of the experiment.**

|  |  |  |
| --- | --- | --- |
| **Stage 1. Open Text Responses** | | |
| Some people think that vaccines only have risks, some think vaccines only have benefits, and some think they have both. In the box below, please write down the first risk or benefit that you think of when you think about the COVID-19 vaccine. Please only write down one. When you have written one, a new box will appear. You may write down as many or as few as you like. | | |
| **Stage 2. Ranking Tasks** | | |
| **Benefits** | | **Risks** |
| The vaccine will reduce the number of cases of COVID-19. | | We don’t know what effect the vaccine has in all groups of the population. |
| The vaccine will allow the economy to recover. | | The vaccine was developed very quickly. |
| The vaccine will stop me spreading COVID-19 to others, including my friends and family. | | We don’t know the long-term side effects of the vaccine. |
| Getting the vaccine means that I will help to protect people who can’t get the vaccine from COVID-19. | | This type of vaccine is new. |
| The vaccine will protect me from getting sick with COVID-19. | | Rare serious side effects from the vaccine. |
| The vaccine will allow normal life to restart. | | Common mild side effects from the vaccine (e.g. tiredness for 1-2 days). |
| The vaccine will protect me from possible long term effects of COVID-19. | | I am afraid of needles. |
| **Stage 3. Risk Prioritization Task**  **When you consider these two things, which are you more worried about?**  **I am more worried about…** | | |
| Being vaccinated with the COVID-19 vaccine. | | Getting COVID-19. |
| Being vaccinated with the COVID-19 vaccine. | | Spreading COVID-19 to someone else. |
| Being vaccinated with the COVID-19 vaccine. | | Living in lockdown for a long time. |
| Being vaccinated with the COVID-19 vaccine. | | Getting the annual flu vaccine. |
| Being vaccinated with the COVID-19 vaccine. | | Getting the flu. |
| **Stage 4. Vaccination Rationale Rating Task** | | |
| If I get vaccinated, it will be to protect close friends and family from getting COVID-19. | | |
| If I get vaccinated, it will be to protect the healthcare system. | | |
| If I get vaccinated, it will be to protect myself from getting COVID-19. | | |
| If I get vaccinated, it will be to do a good thing for society. | | |
| If I get vaccinated, it will be to end restrictions and get back to normal. | | |
| **Stage 5. Test of Knowledge** | | |
| Q1 | COVID-19 vaccine efficacy level . | |
| Q2 | What is known about transmission reduction induced by COVID-19 vaccines. | |
| Q3 | What is known about COVID-19 vaccine side effects. | |
| Q4 | Reasons for quick development of COVID-19 vaccines. | |
| Q5 | Whether mRNA vaccination is a new technology. | |
| Q6 | How much of the population needs to be vaccinated to stop COVID-19 spread. | |
| Q7 | Whether or not you can get COVID-19 from the vaccine. | |
| Q8 | Whether or not the COVID-19 vaccine can alter your DNA. | |
| Q9 | Whether or not the COVID-19 vaccine implants a tracking chip. | |
| Q10 | Whether or not you will have to pay out of pocket for the vaccine. | |
| Q11 | Whether formaldehyde, mercury and aluminium are safe vaccine ingredients. | |
| Q12 | Whether previous vaccines have had serious side effects. | |
| Q12 | How often the regular influenza vaccine is administered. | |

**Sociodemographic descriptives for full sample and by intention to take the vaccine.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **All** | **Definitely Yes** | **Probably Yes** | **Probably No** | **Definitely No** |
| **Gender (Female)** | 796 (50.1%) | 493 (46.0%) | 199 (58.9%) | 62 (62.0%) | 42 (53.2%) |
| **Age** |  |  |  |  |  |
| <30 | 244 (15.3%) | 174 (16.2%) | 44 (13.0%) | 16 (16.0%) | 10 (12.7%) |
| 30-39 | 309 (19.4%) | 174 (16.2%) | 71 (21.0%) | 37 (37.0%) | 27 (34.2%) |
| 40-49 | 296 (18.6%) | 165 (15.4%) | 78 (23.1%) | 27 (27.0%) | 26 (32.9%) |
| 50-59 | 289 (18.2%) | 200 (18.6%) | 72 (21.3%) | 10 (10.0%) | 7 (8.9%) |
| 60-69 | 305 (19.2%) | 231 (21.5%) | 57 (16.9%) | 8 (8.0%) | 9 (11.4%) |
| 70+ | 147 (9.3%) | 129 (12.0%) | 16 (4.7%) | 2 (2.0%) | 0 (0%) |
| **Region** |  |  |  |  |  |
| Connacht/Ulster | 317 (19.9%) | 196 (18.3%) | 79 (23.4%) | 20 (20.0%) | 22 (27.9%) |
| Leinster – Dublin | 430 (27.0%) | 296 (27.6%) | 88 (26.0%) | 31 (31.0%) | 15 (19.0%) |
| Leinster – Outside of Dublin | 418 (26.3%) | 288 (26.8%) | 92 (27.2%) | 23 (23.0%) | 15 (19.0%) |
| Munster | 425 (26.7%) | 293 (27.3%) | 79 (23.4%) | 26 (26.0%) | 27 (34.2%) |
| **Employed** | 863 (54.3%) | 563 (52.5%) | 194 (57.4%) | 55 (55.0%) | 51 (64.6%) |
| **Locality (Urban)** | 989 (62.2%) | 669 (62.4%) | 207 (61.2%) | 66 (66.0%) | 47 (59.5%) |
| **Nationality (Irish)** | 1376 (86.5%) | 967 (90.1%) | 288 (85.2%) | 72 (72.0%) | 49 (62.0%) |
| **Education (Degree+)** | 671 (42.2%) | 470 (43.8%) | 126 (37.3%) | 46 (46.0%) | 29 (36.7%) |
| **Reduced work due to restrictions** | 114 (7.2%) | 70 (6.5%) | 25 (7.4%) | 10 (10.0%) | 9 (11.4%) |
| **Children** | 870 (54.7%) | 576 (53.7%) | 193 (57.1%) | 52 (52.0%) | 49 (62.0%) |
| **Usually get the flu vaccine** |  |  |  |  |  |
| Never | 846 (53.2%) | 483 (45.0%) | 210 (62.1%) | 82 (82.0%) | 71 (89.9%) |
| Some years | 223 (14%) | 156 (14.5%) | 53 (15.7%) | 9 (9.0%) | 5 (6.3%) |
| Yes - most years | 521 (32.8%) | 434 (40.5%) | 75 (22.2%) | 9 (9.0%) | 3 (3.8%) |

**Most frequent risks and benefits mentioned in the open text responses for each of the four intention groups**

|  |  |  |
| --- | --- | --- |
|  | **Risk/Benefit** | **Percentage of subgroup mentioning it** |
| Definitely Yes | Protection from COVID-19 **(B)** | 59% |
| Getting back to normality **(B)** | 34.8% |
| Side effects of the vaccine (non-specific) **(R)** | 19.7% |
| Probably Yes | Side effects of the vaccine (non-specific) **(R)** | 38.7% |
| Protection from COVID-19 **(B)** | 32.8% |
| Getting back to normality **(B)** | 16.5% |
| Probably No | Side effects of the vaccine (non-specific) **(R)** | 39% |
| Protection from COVID-19 **(B)** | 24% |
| Long-term side effects of the vaccine **(R)** | 15% |
| Definitely No | Side effects of the vaccine (non-specific) **(R)** | 36.7% |
| Lack of testing of the vaccine **(R)** | 27.8% |
| General worry about authoritarian control **(R)** | 21.15% |

Note. B = Benefit and R = Risk.

**Mean Ranking of Risks and Benefits by Intention**

Note. Error bars are standard errors. SE = side effects.

**Proportion of participants who think the COVID-19 vaccine is more concerning than five related risks**

**Rationale for vaccination by intention to be vaccinated**