Blaming the unvaccinated during the COVID-19 pandemic: the roles of political ideology and risk perceptions in the USA

Maja Graso 1,2, Karl Aquino,3 Fan Xuan Chen,4 Kevin Bardosh5,6

ABSTRACT

Individuals unvaccinated against COVID-19 (C19) experienced prejudice and blame for the pandemic. Because people vastly overestimate C19 risks, we examined whether these negative judgements could be partially understood as a form of scapegoating (ie, blaming a group unfairly for an undesirable outcome) and whether political ideology (previously shown to shape risk perceptions in the USA) moderates scapegoating of the unvaccinated. We grounded our analyses in scapegoating literature and risk perception during C19. We obtained support for our speculations through two vignette-based studies conducted in the USA in early 2022. We varied the risk profiles (age, prior infection, comorbidities) and vaccination statuses of vignette characters (eg, vaccinated, vaccinated without recent boosters, unvaccinated, unvaccinated-recovered), while keeping all other information constant. We observed that people hold the unvaccinated (vs vaccinated) more responsible for negative pandemic outcomes and that political ideology moderated these effects; liberals (vs conservatives) were more likely to scapegoat the unvaccinated (vs vaccinated), even when presented with information challenging the culpability of the unvaccinated known at the time of data collection (eg, natural immunity, availability of vaccines, time since last vaccination). These findings support a scapegoating explanation for a specific group-based prejudice that emerged during the C19 pandemic. We encourage medical ethicists to examine the negative consequences of significant C19 risk overestimation among the public. The public needs accurate information about health issues. That may involve combatting misinformation that overestimates and underestimates disease risk with similar vigilance to error.

The development of effective vaccines has helped reduce COVID-19 (C19) mortality, particularly among individuals over 50 years of age.1 2 In response, public health experts have strongly encouraged people of all ages to protect themselves, their fellow citizens and their society’s healthcare systems by getting vaccinated. The widely communicated benefits of vaccinations led many people to view them as the way out of the pandemic. However, such emphasis on C19 vaccination as critical to pandemic mitigation efforts also created a social situation in which those who remained unvaccinated faced prejudice3 and were criticised for placing others’ lives at risk, contributing to overwhelming healthcare systems and being partly responsible for prolonging restrictions of various forms.4 These individuals also experienced hostile sentiments and public shaming,5 loss of employment and denial of access to normal social life,6 calls to deny them medical care7 and even celebrations of their deaths on websites such as sorry-antivaxxer.com.

The present research examines whether the general prejudice against the unvaccinated is perceived by observers as being warranted. One could argue that it is. Those who take this position can claim that C19 remains a serious threat to health, thus framing non-compliance as a form of social deviance that compromises efforts to control the virus. From this perspective, hostile reactions against the unvaccinated are not primarily intended to discriminate against them, but are a morally defensible application of social control methods for the collective benefit of society.8 9 Indeed, the internet site that featured unvaccinated people’s deaths claims to have a prosocial purpose of deterring others from spreading misinformation on social media.

From another perspective, however, treating the unvaccinated as a uniquely responsible public health threat is not justified by the severity of the threat C19 poses and the effectiveness of C19 vaccines. It also has problematic ethical implications. One outcome of categorizing the unvaccinated as socially deviant and applying pressure to induce compliance is scapegoating, a practice that emerges in threatening or deeply uncertain situations.10 Scapegoating is generally defined as blaming an individual or a group of people who are not necessarily and solely responsible for an undesirable outcome.10–13 Once culprits are identified, blame becomes easier to assign and those recipients become seen as undeserving of respect or humanity.

We examine whether negative sentiments towards the C19 unvaccinated can be considered a form of scapegoating (vs a protective response against social deviants). To be clear, we make no attempt to identify a threshold after which any social threat becomes sufficiently dangerous to justify punishment or ostracism of those who do not comply with widely endorsed mitigation measures. However, because perceptions of what is harmful can vary and, if erroneous, can lead to suboptimal actions,14 we call attention to how negative judgements can be misdirected. Specifically, because C19 represents a highly uncertain situation,15 and there is evidence that people overestimate C19 risks,16–18 the ill will directed against the unvaccinated could lead to unjustified blaming of people who are not as much of a threat to public health as many believed.
CHALLENGING THE ASSUMPTION THAT THE UNVACCINATED DESERVE BLAME

Consider the two most widely communicated benefits of vaccinations: protecting one’s self and others. C19 disproportionately impacts the elderly and those with severe comorbidities such as obesity, heart disease and cancer.28–26 The age distribution of the virus and the role of comorbidities were well known from early data from Wuhan, China.24 According to these data sources, an unvaccinated person who is not vulnerable to getting seriously ill from C19 due to their age and general fitness (eg, a person under the age of 50 without major comorbidities) has a generally low likelihood of becoming severely ill and burdening the hospital system, even if they do become infected (under 1%).

Of course, self-protection is not the only benefit of vaccines. Even if the vaccinated person is not at high risk of getting seriously ill, they may reduce their chances of passing the virus on to somebody who is.25 This rationale has been a common moral justification for mandating vaccination in general.28 Yet, as early as mid-2021, it was known that C19-vaccinated individuals could acquire an infection and transmit the virus to others.29–32 At the height of their infection, both vaccinated and unvaccinated individuals have similar viral loads,32 though vaccination may expedite the clearance of the virus.30 The effectiveness of the primary vaccination series as well as boosters decreases over time.33 34 Subsequent variants of concern in 2021, notably Delta and Omicron, also reduced aspects of vaccine protection.35 Regardless of the reasons why the unvaccinated should not be blamed for prolonging the pandemic, public sentiment in 2021 and 2022 was decidedly hostile towards them.3–5 48 and complete materials online (SOM) for detailed highlights below, but we direct our readers to the original study. We declare no competing interests.

PRELIMINARY EMPIRICAL EVIDENCE FOR SCAPEGOATING

We sought to better understand the predictors of negative judgments about the unvaccinated individuals. Based on the theoretical foundation and information available at the time of data collection in early 2022, we tested the following hypotheses. First, we expected that people would be more likely to blame the unvaccinated (relative to vaccinated) for prolonging the pandemic or misestimating critically important risks. Second, we examined whether liberals would be more likely to blame the unvaccinated (relative to the vaccinated) individual than conservatives.

C19 RISK ESTIMATION AND POLITICAL IDEOLOGY IN THE USA

Political ideology may influence scapegoating of the unvaccinated for two reasons. First, liberals are more likely to show greater concern over C19 than conservatives. Liberals are more likely to comply with C19 restrictions, get vaccinated, and reject conspiracy theories that devalue the threat posed by C19.18 50–53 Liberals also view those who do not conform to the existing mandates as more harmful and impure.54 55

Second, representative polls done prior to data collection suggest that liberals were more likely to overestimate C19 risks. A Franklin Templeton-Gallup Economics of Recovery Study conducted in the second half of 2020 asked US residents to estimate the percentage of C19 infections that result in hospitalisation (the correct number at the time was between 1% and 5%).15 The poll showed that around 41% of Democrats (and 28% of Republicans) estimated this rate to be 50% or higher, and more Republicans (26%) than Democrats (10%) estimated the hospitalisation rate correctly at 1%–5%.18 A Gallup poll conducted in August (2021) showed that 41% of Democrats (vs 22% of Republicans) estimated that the unvaccinated have 50%+ chance of being hospitalised. When estimating the risk for the vaccinated individuals, the pattern reversed such that 42% of Democrats (vs 33% of Republicans) reported the risk to be below 1%.17 Finally, a Rasmussen national survey conducted in January 2022 documented that nearly half of Democrats (48%) thought that the governments should be able to fine or imprison individuals who publicly question the efficacy of the existing C19 vaccines on social media, news or other public media (vs 14% of Republicans and 18% of unaffiliated voters).

Beliefs that go unexamined or are not updated when confronted with new information can have a darker, maladaptive side.14 36–38 Thus, there is a potential for desirable social consequences arising from liberals’ (relative to conservatives’) elevated concern about C19. Liberals’ greater likelihood to overestimate C19 risks and the moral importance they assign to C19 mitigation57 could increase their animus towards the unvaccinated, as evidenced by scapegoating.

Study 1: are people more likely to blame the unvaccinated (vs vaccinated) regardless of the risk factors?

Our first study asked participants to evaluate four fictional characters with varying risk profiles and vaccination statuses. Two low-risk characters were Katy 21 and Mark 38 who had no underlying comorbidities. Consider data showing how people’s perception of C19-related risks was disproportionally greater than what the available evidence indicated.17 18 As we report below, these perceptions were not uniformly distributed across populations. Numerous independent polls and studies from 2020 and 2021 show that people differed greatly in their C19 risk estimates, and these differences can be partly traced to political ideology.28–31

The preliminary study was similar to study 1, except it did not include the unvaccinated—recovered condition. We observed the same patterns as those reported here (see SOM for complete descriptions).
their risks of hospitalisation were below 20%, and risks of dying were below 10%.

Participants read all four character descriptions. Each character was either: (a) fully vaccinated (ie, three doses); (b) unvaccinated; or (c) unvaccinated but recovered from a past infection of C19 which they contracted before vaccines were available to them. We measured scapegoating using a previously established assessment. Specifically, we asked participants to indicate on a scale from 1 = not at all to 6 = very much the extent to which the character is: (1) to be blamed for overwhelming the healthcare system, (2) die and (3) not recover.

Table 1. Study 1 means: scapegoating and participant estimates of C19 risks (hospitalisation, dying and non-recovery) by character and vaccination condition (vaccinated, unvaccinated, unvaccinated-recovered)

<table>
<thead>
<tr>
<th>Character (age, risk profile)</th>
<th>Measures</th>
<th>Risk estimates</th>
<th>Vaccinated condition</th>
<th>Unvaccinated condition</th>
<th>Unvaccinated and recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%* Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Katy (21, low)</td>
<td>Scapegoating</td>
<td>1.52</td>
<td>3.24</td>
<td>3.15</td>
<td></td>
</tr>
<tr>
<td>Hospitalisation</td>
<td>&lt;1</td>
<td>13.71</td>
<td>28.40</td>
<td>23.69</td>
<td></td>
</tr>
<tr>
<td>Dying</td>
<td>&lt;1</td>
<td>6.37</td>
<td>16.19</td>
<td>13.08</td>
<td></td>
</tr>
<tr>
<td>Non-recovery</td>
<td>NA</td>
<td>7.12</td>
<td>16.95</td>
<td>13.79</td>
<td></td>
</tr>
<tr>
<td>Mark (38, low)</td>
<td>Scapegoating</td>
<td>1.21</td>
<td>3.04</td>
<td>2.68</td>
<td></td>
</tr>
<tr>
<td>Hospitalisation</td>
<td>&lt;1</td>
<td>12.02</td>
<td>31.72</td>
<td>27.78</td>
<td></td>
</tr>
<tr>
<td>Dying</td>
<td>&lt;1</td>
<td>6.73</td>
<td>18.39</td>
<td>15.81</td>
<td></td>
</tr>
<tr>
<td>Non-recovery</td>
<td>NA</td>
<td>7.48</td>
<td>16.64</td>
<td>15.72</td>
<td></td>
</tr>
<tr>
<td>Mary (75, high)</td>
<td>Scapegoating</td>
<td>1.26</td>
<td>3.40</td>
<td>2.82</td>
<td></td>
</tr>
<tr>
<td>Hospitalisation</td>
<td>&lt;20</td>
<td>32.06</td>
<td>57.68</td>
<td>42.15</td>
<td></td>
</tr>
<tr>
<td>Dying</td>
<td>&lt;10</td>
<td>20.49</td>
<td>38.86</td>
<td>27.41</td>
<td></td>
</tr>
<tr>
<td>Non-recovery</td>
<td>NA</td>
<td>19.79</td>
<td>36.10</td>
<td>27.58</td>
<td></td>
</tr>
<tr>
<td>Richard (53, high)</td>
<td>Scapegoating</td>
<td>1.67</td>
<td>3.43</td>
<td>3.15</td>
<td></td>
</tr>
<tr>
<td>Hospitalisation</td>
<td>≤5</td>
<td>38.75</td>
<td>64.39</td>
<td>45.99</td>
<td></td>
</tr>
<tr>
<td>Dying</td>
<td>≤10</td>
<td>24.52</td>
<td>42.31</td>
<td>30.40</td>
<td></td>
</tr>
<tr>
<td>Non-recovery</td>
<td>NA</td>
<td>23.26</td>
<td>41.82</td>
<td>29.75</td>
<td></td>
</tr>
</tbody>
</table>

*Age-stratified severe and fatal C19 outcome estimates by the character in the prevaccination era (2020). Estimate ranges are conservative values based on several sources available at the time of data collection. All of these risks would be substantially lower in January 2022 when the experiment was conducted due both to vaccination and natural immunity. The Centers for Disease Control and Prevention (CDC) estimated that more than 40% of adults aged 18–49 had had a prior C19 infection at this time, while slightly less than 70% had been vaccinated.

1. We do not estimate the chances that the character will never recover.

C19, COVID-19; NA, not available.

Study 2: are people more likely to scapegoat the low-risk unvaccinated (even if contrasted against a low-risk vaccinated person who is not up to date)?

In our second study (February 2022), we asked 193 participants from MTurk (M = 39.19, SD = 12.44, 47.4% men) to evaluate a 28-year-old, low-risk male character who is ‘in general, fit, healthy, and enjoys spending as much time outdoors as he can. He spends most of his work time outside by himself’. Participants were randomly assigned to a condition in which the character was unvaccinated for more than 6 months, both characters may pose a risk of transmission as the benefits of prior infection and vaccination both wane. We relied on the same measures we used in study 1 except we used a longer, eight-item version of scapegoating (α = 0.98). We observed that people were more likely to blame the unvaccinated but recovered low-risk character (see table 2) and that this effect was associated with the same political ideology effects from our previous study (ie, liberal individuals were more likely to scapegoat the unvaccinated-recovered vs vaccinated than conservatives; see figure 2).

General Discussion

We examined whether the animosity that people showed towards the unvaccinated during the C19 pandemic could be partly understood as scapegoating (as opposed to a reasonable response to a person’s culpability). We supported our theoretical predictions in two empirical studies and one pretest conducted in early 2022. We relied on vignettes about characters with different profiles, where all information except vaccination status was held constant. Our results showed that people judged the unvaccinated (vs vaccinated) individuals as more responsible and blameworthy for overwhelming the healthcare system,
jeopardising public health efforts and prolonging the pandemic. Importantly, these judgements emerged even for characters who, according to scientific evidence available at the time, were at exceedingly low risk of hospitalisations and who had recovered from a prior infection when vaccines became available (study 1). We also found these effects when the low-risk unvaccinated-recovered character was contrasted against a counterpart who was vaccinated more than 6 months ago (study 2). On average, the participants’ ratings for the vaccinated characters fell in the lower range, while ratings of the unvaccinated characters fell within the middle range of the scapegoating scale (ie, suggesting moderate levels of blame). Finally, we observed that liberals were more likely than conservatives to blame the unvaccinated (vs vaccinated) characters.

Recall that what makes blame assignment a form of scapegoating (vs a justified response to a social threat) is that it is driven by fear or based on unfounded or inaccurate facts.\cite{10, 11, 13, 63, 64} We provide evidence that the scapegoating of the unvaccinated was not grounded in available empirical facts, but a miscalibration of risk. Our evidence for this is that while participants recognised that the elderly and people with severe comorbidities were at higher risk of hospitalisations or deaths (vs low-risk characters), they consistently overestimated the risks of C19, especially for the unvaccinated people who are not in a known high-risk group.

**Figure 1** Study 1: interaction between political orientation and vaccination status condition on COVID-19 (C19) scapegoating (aggregate of all characters).

<table>
<thead>
<tr>
<th>Dependent variable and condition</th>
<th>M</th>
<th>SD</th>
<th>T</th>
<th>Df</th>
<th>P</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scapegoating Vax</td>
<td>1.58</td>
<td>1.06</td>
<td>−7.80</td>
<td>191</td>
<td>&lt;0.0001</td>
<td>(−1.93 to −1.15)</td>
</tr>
<tr>
<td>U-R</td>
<td>3.13</td>
<td>1.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk of Hospitalisation* % Vax</td>
<td>16.59</td>
<td>18.30</td>
<td>−4.63</td>
<td>191</td>
<td>&lt;0.0001</td>
<td>(−22.09 to −8.78)</td>
</tr>
<tr>
<td>U-R</td>
<td>32.02</td>
<td>27.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk of Death* % U-R</td>
<td>6.88</td>
<td>14.76</td>
<td>−3.78</td>
<td>190</td>
<td>&lt;0.0001</td>
<td>(−17.40 to −5.36)</td>
</tr>
<tr>
<td>Risk of Non-recovery* % Vax</td>
<td>8.21</td>
<td>15.92</td>
<td>−3.75</td>
<td>191</td>
<td>&lt;0.0001</td>
<td>(−18.60 to −5.66)</td>
</tr>
<tr>
<td>U-R</td>
<td>20.34</td>
<td>27.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vax = vaccinated for C19 six months ago (without booster); U-R = unvaccinated/recovered from C19 six months ago. Scapegoating was assessed on a scale from 1 (not at all) to 6 (very much).

*According to data available in 2022, the chances that a 28-year old fit and healthy man who was unvaccinated and had never been infected with C19 before would get seriously ill or die if he contracts C19 was < 1% (also see Table 1 notes for additional citations).
These inaccurate risk estimates comport with results from representative sample-based studies available at the time.17 18 55 The final contributing factor to misperceptions, and another indication of scapegoating, was the failure to consider the protective effects of prior infection, which were known according to the evidence available at the time of our data collection.40 43

**IMPLICATIONS FOR MEDICAL ETHICS, SCIENCE COMMUNICATIONS AND IDEOLOGICAL DIVISIONS**

Humans often react to threats by applying generalisations driven by a miscalibration of risks, selective information retrieval or the unwillingness to update beliefs based on new information.14 56 Our data provide evidence that these processes led some people to use a single piece of information—vaccination status—as a heuristic for making judgements about the culpability of individuals, regardless of whether or not they are statistically at risk of needing care, pose a grave threat to others, have recovered from the virus and whether the vaccinated individuals have not been boosted for many months. These overgeneralisations and the resulting scapegoating are not without social and ethical implications.

One social consequence is that scapegoating can subject people to ostracism, discrimination and, in extreme cases, even violence and persecution.10 11 13 63 64 While we did not seek to document these consequences in our studies, scapegoating risks reinforcing public attitudes that may be based as a justification for discrimination. For instance, multiple policies were implemented in the USA to pressure individuals to get vaccinated, including employer mandates and vaccine passports. Although widely supported,69 these policies did not consider the protective effects of prior infection or the age-based risk distribution of severe disease outcomes. There is some evidence that they generated adverse societal consequences, such as reactance, and increased vaccine scepticism and social polarisation, among others. Therefore, because the C19 pandemic showed how the public’s understanding of health information could impact social cohesion, we strongly recommend that the medical community considers the downstream and negative impacts of presumptively well-intentioned guidelines.

Second, scapegoating implies that the blame is either undeserved or disproportional. Thus, we encourage public health researchers, practitioners and science communicators to consider the implications of relying primarily on fear-based approaches to mitigating the harms caused by C19.65 For example, if 35% of US adults believed that at least half of C19 infections require hospitalisation,18 it suggests a significant health communication failure. A result is that it can lead people to turn against and blame each other when doing so is not justified by available facts, which may not have been adequately presented to the public. We submit that a relevant ethical question that public health officials should debate is whether it is morally obligatory for them to correct misinformation regardless of whether it overestimates or underestimates of C19 risk.

Third, our findings also show the impact of citizens’ political ideology on scapegoating. We did not test the sources of liberals’ greater likelihood to scapegoat the unvaccinated individuals, but we encourage further investigation of whether media exposure could be a contributing factor. Just as conservative media and politicians are culpable for misinformation leading people to underestimate certain C19 risks,66 67 it is possible that liberal outlets introduced misinformation in the opposite direction. For instance, Rachel Maddow of MSNBC, an outlet with a decidedly liberal audience,68 noted in March 2021: ‘Now we know that the vaccines work well enough that the virus stops with every vaccinated person.’69 However, this claim was not possible to make at that time,70 nor was it true. The original clinical trials did not test for effectiveness on transmission.71 Early evidence, and reasonable deduction from the research in vaccinology...
and virology, suggested that the vaccines would not fully stop transmission. By April 2021, more than 10,000 vaccine breakthrough infections had been officially reported across the USA (a substantial undercounting), 10% of which had been hospitalised and 2% of which had died. An outbreak investigation by the Centers for Disease Control and Prevention in July 2021 found that 74% of cases linked to a summer event in Massachusetts were vaccinated and most were symptomatic. Therefore, we argue that it is important to correct the dubious claims made by both sides of the political spectrum, as both may distort risk and fuel polarisation.

**LIMITATIONS AND FUTURE DIRECTIONS**

Our study has limitations that must be acknowledged. First, because there is some between-country variation in antipathy towards the unvaccinated, it is unclear whether our findings would replicate in a non-US sample or in samples other than M Turk that tend to have more liberal than conservative participants. Second, we caution researchers to interpret our results and our assumptions based on the time period during which we conducted this study (January and February 2022) and, if replicating our relationships, use updated information. Third, we only assessed scapegoating judgements and we did not document behaviour towards the unvaccinated. Fourth, our findings are specific to the context of C19 vaccinations and are not meant to draw any inferences about vaccinations in general (eg, influenza or routine childhood vaccinations; see Giubilini et al.). Fifth, while many of our observed risk estimates align with the data from representative samples collected at the same time, individuals’ risk estimations can be notoriously inaccurate and often unstable. Future research should continue investigating the relationship between C19 risk estimation and social outcomes using a wider variety of risk indicators. Finally, no scientific study could ever determine the point—if any—at which punishment of social deviants or scapegoating unvaccinated people is morally or socially justifiable.

**Contributors** MG: conceptualisation and design. KA: theoretical foundation. FXC: analyses. KB: theoretical foundation and medical ethics implications. MG is the guarantor.

**Competing interests** None declared.

**Patient consent for publication** Not applicable.

**Ethics approval** This study involves human participants and was approved by the University of Otago Human Ethics Committee under reference number D20-088: ‘COVID-19: Perceptions, Attitudes, and Consequences’. We confirm that the participants were provided with information sheet and informed consent forms before they began the study. Participants gave informed consent to participate in the study before taking part.

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**Data availability statement** Data are available in public, open access repository. All data relevant to the study are included in the article or uploaded as supplementary information.

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