8

Voluntary Compliance and the COVID-19 Pandemic

INTRODUCTION

The COVID-19 pandemic served as an unprecedented testing ground for regulatory approaches beyond traditional command-and-control mechanisms. Government efforts to promote radical behavioral changes, particularly social distancing, represented a unique regulatory challenge. Never had authorities needed to implement such sweeping modifications to fundamental human social behaviors on a global scale.

In responding to this unprecedented challenge, governments worldwide developed an array of innovative regulatory approaches to influence public behavior. As state intervention in daily life reached extraordinary levels, policymakers recognized that success hinged not on enforcement alone, but on fostering voluntary cooperation from citizens. This shift toward voluntary compliance proved especially critical in situations where traditional enforcement mechanisms were either impractical or counterproductive, particularly in private spaces like homes and indoor gatherings, where the risk of virus transmission was highest yet direct monitoring was virtually impossible. The limitations of conventional enforcement mechanisms became especially apparent in high-risk scenarios. How could authorities effectively monitor private indoor gatherings without creating additional health risks or violating basic privacy rights? These practical constraints forced policymakers to innovate, developing new approaches to promote voluntary compliance through public health messaging, social norms, and community engagement.

This chapter examines the various regulatory strategies governments employed to influence behavior during the COVID-19 pandemic, as well as in other public health contexts. By analyzing these approaches, we can better understand the effectiveness of different regulatory tools in situations where voluntary compliance is not just desired but essential for public health outcomes. The pandemic experience offers valuable insights into the potential and limitations of trust-based regulatory approaches in addressing complex social challenges.

COVID-19

The COVID-19 virus, officially declared a pandemic by the World Health Organization on March 11, 2020, after more than 118,000 cases of infection and 4,291 deaths across 114 countries, has had a profound impact on global health and public policy.[1] Nearly five years later, the death toll has reached over a staggering 7 million, solidifying its position as one of the deadliest pandemics in human history.[2] The pandemic has brought to the forefront a fundamental debate regarding the extent to which government intervention and overreach into individuals' decision-making can be considered proportionate to the threat. Policymakers have grappled with the question of whether alternative means of enforcing health provisions could prove effective in curbing the spread of the virus. As the discourse has evolved over the past few years, there has been a notable shift toward encouraging voluntary compliance, reflecting a growing recognition of the limitations of COVID-19 regulations and the government's ability to directly influence individual behavior.[3] This chapter aims to explore the complexities of public policies during the COVID-19 pandemic, focusing on the delicate balance between government intervention and individual autonomy. By examining the effectiveness of various health provisions and the factors that contribute to voluntary compliance, we seek to shed light on the lessons learned and the potential implications for future public health crises.

Public health focus on the compliance literature in general and public health research on adherence in particular, could greatly benefit from analyzing the extensive comparative data regarding adherence to COVID-19 regulations. Using such data gathered from countries around the world, we can enhance our understanding of the potential of voluntary compliance. Data detailing the varying levels of strictness across countries during the COVID-19 pandemic, including Google data on compliance with regulations, may help in ascertaining whether the restrictions imposed influenced people's avoidance of certain behaviors and places. It may also help clarify whether stricter COVID-19 restrictions ultimately led to a counterreaction. It has further been suggested that women leaders enjoyed greater "success" in fighting the coronavirus, a result which is at least stereotypically associated with solidarity and empathy.[4]

[1] "CDC Museum COVID-19 timeline." Centers for Disease Control and Prevention (August 16, 2022). www.cdc.gov/museum/timeline/covid19.html.

[2] See: "CDC Museum COVID-19 timeline."

[3] Clark, Cory, et al. "Predictors of COVID-19 voluntary compliance behaviors: An international investigation." *Global Transitions* 2 (2020): 76–82.

[4] Johnson, Carol, and Blair Williams. "Gender and political leadership in a time of COVID." *Politics & Gender* 16.4 (2020): 943–950; Sergent, Kayla, and Alexander D. Stajkovic. "Women's leadership is associated with fewer deaths during the COVID-19 crisis: Quantitative and qualitative analyses of United States governors." *Journal of Applied Psychology* 105.8 (2020): 771–783.

CROSS-NATIONAL COMPARISON

The relationship between the strictness of COVID-19 regulations with the level of adherence has been extensively studied across nations.[5] The first task is to identify common themes related to the success and failure of regulatory efforts to address COVID-19 based on the studies. For example, some studies have suggested that stricter government regulations can lead to increased compliance,[6] while others have claimed that imposing more restrictive guidelines can sometimes be less effective.[7] Various studies showed that some of the factors we focus on in the book are highly relevant for COVID compliance. For example, areas with high social capital tended to exhibit greater compliance with COVID-19 regulations.[8] High levels of cohesion in an area were found to be related to high compliance.[9]

FEAR APPEALS

Various meta-analyses have examined the usage and efficacy of fear appeals in health policy, particularly in vaccination campaigns, which use persuasive messages that emphasize the negative consequences of failing to follow recommended health behaviors. These appeals aim to motivate individuals to take protective actions by highlighting potential threats to their well-being.[10]

In the context of vaccination, fear appeals can be effective in increasing intention to vaccinate, especially when combined with high-efficacy messages that emphasize the vaccine's ability to prevent disease. These appeals often focus on the risks of not vaccinating (e.g., severe illness, hospitalization) rather than the benefits of vaccination.[11]

While fear appeals can be powerful motivators, they raise ethical concerns about potential manipulation and anxiety induction. Excessive fear-based messaging may

[5] Coccia, Mario. "Effects of strict containment policies on COVID-19 pandemic crisis: Lessons to cope with next pandemic impacts." *Environmental Science and Pollution Research* 30.1 (2023): 2020–2028.

[6] Pak, Anton, Emma McBryde, and Oyelola A. Adegboye. "Does high public trust amplify compliance with stringent COVID-19 government health guidelines? A multi-country analysis using data from 102,627 individuals." *Risk Management and Healthcare Policy* 14 (2021): 293–302.

[7] Haug, Nina, et al. "Ranking the effectiveness of worldwide COVID-19 government interventions." *Nature Human Behaviour* 4.12 (2020): 1303–1312.

[8] Makridis, Christos A., and Cary Wu. "How social capital helps communities weather the COVID-19 pandemic." *PLOS One* 16.1 (2021): 1–18. See also Pitas, Nicholas, and Colin Ehmer. "Social capital in the response to COVID-19." *American Journal of Health Promotion* 34.8 (2020): 942–944.

[9] Gelfand, Michele J., et al. "The relationship between cultural tightness–looseness and COVID-19 cases and deaths: A global analysis." *The Lancet Planetary Health* 5.3 (2021): e135–e144.

[10] Tannenbaum, Melanie B., et al. "Appealing to fear: A meta-analysis of fear appeal effectiveness and theories." *Psychological Bulletin* 141.6 (2015): 1178–1204.

[11] Yang, Chun. "Exploring communication strategies to encourage COVID-19 vaccination: Motivation-based message appeals, incidental emotions, and risk perception." *Health Communication* 38.9 (2023): 1731–1743.

lead to denial or avoidance behaviors in some individuals, potentially reducing vaccine uptake.[12] The effectiveness of fear appeals varies across demographics and cultures, necessitating tailored approaches. Fear appeals are often most effective when used in conjunction with other communication strategies, such as addressing vaccine hesitancy concerns and providing clear, factual information.[13] The approach to COVID-19 public health policy drew heavily on a long history of research into behavioral change strategies in health contexts. While fear appeals might seem at odds with trust-based or cooperative regulation, they share a common goal: influencing people's intrinsic motivation. As discussed earlier in this book, these strategies, including fear appeals, are not necessarily contradictory to trust-based approaches. Instead, they represent different tools in the policymaker's arsenal for encouraging beneficial health behaviors.

Governmental Rhetoric and Public Cooperation

When discussing ways to encourage voluntary compliance with regulations, it is crucial to examine the influence of government rhetoric. The central dilemma faced by those seeking to motivate voluntary compliance is reflected in the importance of relational concerns, such as legitimacy versus deterrence. Should the rhetoric emphasize instilling fear of sanctions or strive to generate social solidarity and a moral commitment?[14] Some research has shown that fear-based appeals can be effective in general,[15] particularly in the case of compliance with COVID-19 restrictions. Despite these findings, in other contexts there is strong empirical evidence to suggest that people are more likely to comply with health regulations not only due to fear of sanctions, but also if they perceive the requesting entity as one that represents their moral values and a group to which they feel they belong.[16] The concept of social solidarity is also closely tied to the power of social norms and has been shown to be highly influential in guiding individuals' behavior.[17] Additionally, during the pandemic, people demonstrated higher levels of

[12] Ruiter, Robert A. C., et al. "Sixty years of fear appeal research: Current state of the evidence." *International Journal of Psychology* 49.2 (2014): 63–70.

[13] Kok, Gerjo, et al. "Finding theory-and evidence-based alternatives to fear appeals: Intervention mapping." *International Journal of Psychology* 49.2 (2014): 98–107.

[14] Or Cohen-Sason, Rinat Markovitch, and I are working on a large language model approach to COVID rhetoric (on file with author).

[15] Harper, Craig A., et al. "Functional fear predicts public health compliance in the COVID-19 pandemic." *International Journal of Mental Health and Addiction* 19.5 (2021): 1875–1888.

[16] Sunshine, Jason, and Tom R. Tyler. "The role of procedural justice and legitimacy in shaping public support for policing." *Law & Society Review* 37.3 (2003): 513–547.

[17] Fehr, Ernst, and Urs Fischbacher. "Social norms and human cooperation." *Trends in Cognitive Sciences* 8.4 (2004): 185–190; Rand, David G., and Martin A. Nowak. "Human cooperation." *Trends in Cognitive Sciences* 17.8 (2013): 413–425; Reynolds, Katherine J. "Social norms and how they impact behaviour." *Nature Human Behaviour* 3.1 (2019): 14–15.

compliance with governmental measures aimed at mitigating the pandemic when they perceived the measures to be legitimate and felt they were being treated fairly and with respect.[18]

The Use of Incentives in the COVID-19 Context

To understand the importance of intrinsic voluntary motivation in COVID-19 contexts, we must first acknowledge the successful use of incentives before examining their limitations. Understanding the effectiveness of incentives requires analyzing evidence of how they encourage testing and vaccination, while considering key questions: What was the reach of the incentive? Did it lead to repeated behaviors? Were community-based programs implemented that required cooperation? For example, the widespread deployment of COVID-19 vaccination incentives offers valuable insights into program effectiveness. Recent research has analyzed how different compliance approaches affected vaccination rates and identified key factors that determined whether incentives succeeded. In a study on the Israeli Green Pass, which can be considered a type of incentive, as it saves time, avoids quarantine, and allows for easier access to malls and restaurants, researchers examined the response to the exemption announcement and found a correlation with an increase in vaccine uptake.[19] Research demonstrates that perceived policy effectiveness serves as a stronger predictor of public compliance than appeals to solidarity in public health contexts. Studies have shown that individuals are more inclined to adhere to health measures when they believe in their efficacy, rather than acting primarily from a sense of communal responsibility. Although social solidarity remains a valuable factor, evidence suggests that emphasizing and clearly communicating the effectiveness of health policies may be more instrumental in securing public support and compliance during health emergencies.[20]

Another study of 1,096 adult Americans examined how the interplay of the characteristics of the COVID-19 vaccine (including manufacture, reports of adverse effects, and so on), financial incentives, and misinformation on vaccination effectiveness and safety, affected individuals' vaccination preferences.[21] A higher efficacy rate

[18] McCarthy, Molly, et al. "Policing COVID-19 physical distancing measures: Managing defiance and fostering compliance among individuals least likely to comply." *Policing and Society* 31.5 (2021): 601–620.

[19] Saban, Mor, et al. "Issues surrounding incentives and penalties for COVID-19 vaccination: The Israeli experience." *Preventive Medicine* 153 (2021): 1–6.

[20] Mantzari, Eleni, et al. "Personal financial incentives for changing habitual health-related behaviors: A systematic review and meta-analysis." *Preventive Medicine* 75 (2015): 75–85. See also Vlaev, Ivo, et al. "Changing health behaviors using financial incentives: A review from behavioral economics." *BMC Public Health* 19 (2019): 1–9.

[21] See Kreps, Sarah, et al. "Public attitudes toward COVID-19 vaccination: The role of vaccine attributes, incentives, and misinformation." *npj Vaccines* 6.1 (2021): 1–7. https://doi.org/10.1038/s41541-021-00335-2.

of vaccine intake resulted in a 13 percent increase in the willingness to be vaccinated. Manufacturer identity had no impact, while reports of more minor side effects reduced vaccination willingness by 5 percent. In addition, introducing a $100 incentive did not have any noticeable effect on increasing vaccine uptake. On the other hand, imposing a mandatory $20 co-payment for the vaccine seemed to discourage people from getting vaccinated. This study provides evidence to support the idea that increasing the effectiveness of vaccines and raising public awareness about these improvements can be an effective strategy for increasing voluntary vaccine rates.

In addition, a survey of 2,000 North American residents was conducted to investigate the impact of COVID-19 vaccine pricing, financial incentives, and vaccine efficacy on demand. The survey measured willingness to pay and willingness to accept compensation.[22] Most of the individuals (60 percent) indicated they were willing to pay a positive amount for the vaccine; 13.7 percent said they would only accept the vaccine if it were free. The amount of $500 would motivate 48 percent of those in the latter group and $1,000 would motivate 74 percent. The acceptance of vaccines was significantly influenced by their efficacy. Based on the study, it is recommended to tailor incentives to some but not all of the population, as 70 percent of people are inclined to vaccinate without incentives, while offering $500 to $1,000 incentives is sufficient for the remaining percentage.

Another study in the United States involving 2,461 participants supported this approach and suggested that incentives of $1,000 could increase vaccination rates to 86 percent, an increase of 16 percent. Both studies found that offering monetary incentives would not persuade individuals who are categorically opposed to getting vaccinated.[23] The aforementioned research indicates that age plays an important role in the effectiveness of incentives in a public health context. Building on this insight, researchers have examined several methods to enhance global vaccine acceptance. These studies consider how age-related differences in response to incentives might improve vaccine uptake across different demographic groups.[24]

Is Intrinsic Motivation Important in Public Health Contexts?

In the context of practicing safe medical behavior, using multifaceted approaches that include education along with written material, reminders, and ongoing performance feedback can have a significant impact on handwashing compliance and

[22] Carpio, Carlos E., et al. "COVID-19 vaccine demand and financial incentives." *Applied Health Economics and Health Policy* 19 (2021): 871–883.

[23] Iyer, Ganesh, Vivek Nandur, and David Soberman. "Vaccine hesitancy and monetary incentives." *Humanities and Social Sciences Communications* 9.1 (2022): 1–10. https://doi.org/10.1057/s41599-022-01074-y.

[24] Larson, Heidi J., et al. "Understanding vaccine hesitancy around vaccines and vaccination from a global perspective: A systematic review of published literature, 2007–2012." *Vaccine* 32.19 (2014): 2150–2159.

rates of hospital-acquired infections.[25] A study in this area found that interventions based on arousing disgust were considerably more effective in promoting hygienic handwashing compared to educational posters.[26] Moreover, implementing "gentle reminders" can significantly enhance safety measures – in this study, team members agreed to gently remind their coworkers whenever they deviated from safety norms.[27]

A recent study found that more conscientious people were more likely to adhere to COVID-19 regulations, both directly and indirectly, through increased self-efficacy in following the rules.[28] Moreover, it appears that higher levels of perceived social approval of the guidelines, favorable attitudes toward the guidelines, and stronger intentions to adhere to them were associated with increased adherence.[29] When discussing the topic of compliance with less fear, several studies have demonstrated that self-efficacy is the most significant predictor in the relationship. Examining representative samples across many countries, this factor was the leading one for people who are not in a risk group themselves.[30]

THE INTERACTION BETWEEN INCENTIVES AND INTRINSIC MOTIVATION

Many countries implemented a system using some combination of incentives and restrictions. One example is referred to as the Green Pass system, which allows those who had been vaccinated to be subject to fewer restrictions than those who had not.[31] Studies have shown that while normative messages can come from various sources like experts, family, and friends, expert messaging tends to be most effective in influencing behavior.[32]

Research on COVID-19 compliance illustrates the power of intrinsic motivation. A large international study of over 8,000 participants found that belief in the effectiveness of preventive measures was the strongest predictor of compliance behavior. This

[25] Naikoba, Sarah, and Andrew Hayward. "The effectiveness of interventions aimed at increasing handwashing in healthcare workers: A systematic review." *Journal of Hospital Infection* 47.3 (2001): 173–180.

[26] Porzig-Drummond, Renata, et al. "Can the emotion of disgust be harnessed to promote hand hygiene? Experimental and field-based tests." *Social Science & Medicine* 68.6 (2009): 1006–1012.

[27] Erev, Ido, et al. "The value of gentle enforcement on safe medical procedures." *Quality and Safety in Health Care* 19.5 (2010): 1–3.

[28] Tedesco, Lisa A., Michele A. Keffer, and Cynthia Fleck-Kandath. "Self-efficacy, reasoned action, and oral health behavior reports: A social cognitive approach to compliance." *Journal of Behavioral Medicine* 14 (1991): 341–355.

[29] Bogg, Tim, and Elizabeth Milad. "Demographic, personality, and social cognition correlates of coronavirus guideline adherence in a US sample." *Health Psychology* 39.12 (2020): 1026–1036. osf.io/preprints/psyarxiv/yc2gq.

[30] Jørgensen, Frederik, Alexander Bor, and Michael Bang Petersen. "Compliance without fear: Individual-level protective behaviour during the first wave of the COVID-19 pandemic." *British Journal of Health Psychology* 26.2 (2021): 679–696. doi.org/10.1111/bjhp.12519.

[31] Saban, et al. "Issues surrounding incentives and penalties for COVID-19 vaccination," 1–6.

[32] Salali, Gul Deniz, and Mete Sefa Uysal. "Effective incentives for increasing COVID-19 vaccine uptake." *Psychological Medicine* 53.7 (2023): 3242–3244.

finding extends beyond the pandemic context, reinforcing broader research showing that internal motivation often drives compliance more effectively than external pressures. Based on a sample of 2,461 individuals across the United States aimed to evaluate the effectiveness of monetary incentives,[33] research found that a $1,000 incentive could increase vaccination rates to 86.9 percent. However, the study identified two distinct groups: vaccine-hesitant individuals who responded to monetary incentives and those firmly opposed who wouldn't vaccinate regardless of payment.[34] In a comprehensive review of the behavioral economics literature on health behavior, Ivo Vlaev and colleagues explored the role of incentives and identified the types of behaviors that are most likely to be positively influenced by incentives.[35] Financial incentives work better for one-time actions, like getting vaccinated, than for ongoing behaviors like maintaining a healthy diet. During the COVID-19 pandemic, some programs successfully combined individual and community incentives, rewarding municipalities that achieved high vaccination and testing rates.[36] Belief in the efficacy of vaccination has been found to be more important than incentives in influencing vaccination decisions among US participants.[37]

Research on public health incentives shows they can effectively change habitual behaviors, with effects lasting up to eighteen months during implementation. However, behavioral changes typically disappear three months after financial incentives end. The effectiveness of incentives also depends heavily on their size – incentives that are too small may backfire, requiring policymakers to ensure rewards are substantial enough to justify their cost.[38] Studies have also found that mandating vaccinations can trigger public resentment, leading policymakers to seek alternative approaches.[39]

MASKS VS. VACCINES: DIFFERENT COMPLIANCE

Masks and vaccines differ in that people must wear masks properly, over time, and in situations where enforcement may be limited. In contrast, vaccine compliance is a specific, one- or multi-time, albeit limited, behavior that is 100 percent monitored.

[33] See: Iyer, Nandur, and Soberman. "Vaccine hesitancy and monetary incentives."

[34] Khazanov, Gabriela K., et al. "The effectiveness of financial incentives for COVID-19 vaccination: A systematic review." *Preventive Medicine* 172 (2023): 1–16. See also Iyer, Nandur, and Soberman. "Vaccine hesitancy and monetary incentives."

[35] Vlaev, et al. "Changing health behaviors using financial incentives."

[36] See Saban, et al. "Issues surrounding incentives and penalties for COVID-19 vaccination," 106763. See also: Salali and Sefa Uysal. "Effective incentives for increasing COVID-19 vaccine uptake."

[37] Kreps, et al. "Public attitudes toward COVID-19 vaccination," 73.

[38] Mantzari, et al. "Personal financial incentives for changing habitual health-related behaviors."

[39] Lytras, Theodore, et al. "Interventions to increase seasonal influenza vaccine coverage in healthcare workers: A systematic review and meta-regression analysis." *Human Vaccines & Immunotherapeutics* 12.3 (2016): 671–681. In the context of COVID see Klüver, Heike, et al. "Incentives can spur COVID-19 vaccination uptake." *Proceedings of the National Academy of Sciences* 118.36 (2021): 1–3.

The fact that mask mandates are problematic was acknowledged even in the popular press. The problems included the fact that people can always choose to use cheap masks, wear them improperly, or not wear them consistently.[40]

Public Discretion in Mask Wearing and Voluntary Compliance

Mask policies that target high-risk settings while allowing more flexibility in low-risk environments are likely to increase public adherence. This approach acknowledges the potential downsides of face masks while maximizing their protective benefits where most needed. Bakhit and colleagues conducted a systematic review and meta-analysis of face mask drawbacks and potential mitigation strategies, providing valuable insights for policy development.[41] Along those lines, Seale and colleagues examined factors influencing engagement with nonpharmaceutical interventions during COVID-19, offering guidance on improving the impact of such measures.[42] Finally, a comprehensive review by Escandón and colleagues further emphasizes the importance of nuanced, evidence-based policymaking in COVID-19 response plans, supporting the need for sensitive and targeted mask policies.[43]

The Mask Mandate Debate

As already mentioned regarding the discussion on the gap between vaccines and masks, a classic example of a COVID-19-related regulatory challenge involves mandates for wearing masks.[44] For masks to work, they need to be worn in close spaces, over time, and the masks need to be very high-quality ones that cover the whole face.[45]

Mask wearing is a very low-cost intervention.[46] However, in many countries, there were concerns regarding the ability of masks to actually stop transmission, given that people tended to remove their masks during several activities, such as eating and in

[40] Leonhardt, David. "Why masks work, but mandates haven't." *New York Times* (May, 2022). www.nytimes.com/2022/05/31/briefing/masks-mandates-us-covid.html.

[41] Bakhit, Mina, et al. "Downsides of face masks and possible mitigation strategies: A systematic review and meta-analysis." *BMJ Open* 11.2 (2021): 1–12.

[42] Seale, Holly, et al. "Improving the impact of non-pharmaceutical interventions during COVID-19: Examining the factors that influence engagement and the impact on individuals." *BMC Infectious Diseases* 20 (2020): 1–13.

[43] Escandón, Kevin, et al. "COVID-19 false dichotomies and a comprehensive review of the evidence regarding public health, COVID-19 symptomatology, SARS-CoV-2 transmission, mask wearing, and reinfection." *BMC Infectious Diseases* 21.1 (2021): 1–47.

[44] Teichman, Doron, and Kristen Underhill. "Infected by bias: Behavioral science and the legal response to COVID-19." *American Journal of Law & Medicine* 47.2–3 (2021): 205–248.

[45] Brooks, John T., and Jay C. Butler. "Effectiveness of mask wearing to control community spread of SARS-CoV-2." *JAMA* 325.10 (2021): 998–999.

[46] Aldila, Dipo, et al. "Analyzing the MERS disease control strategy through an optimal control problem." *International Journal of Applied Mathematics and Computer Science* 28.1 (2018): 169–184.

social gatherings, where most of the transmission occurs.[47] Furthermore, numerous studies have indicated that the vast majority of people did not wear masks properly.[48]

"Smart Masking" vs. "Universal Masking"

A dilemma that is highly related to intrinsic motivation, voluntary compliance, and COVID is related to whether to trust people to know when it is important to cover their faces (e.g., smart masking) or whether to reduce people's discretion and give them instructions to always wear masks (e.g., universal masking). It seems from current research that publications advocating universal masking for the public leave out important details about viral transmission dynamics, risk communication, and the sustainability of policies.[49] Mask policies that target high-risk settings rather than low-risk activities are more likely to encourage people. To increase acceptance and compliance with mask-wearing mandates, it's crucial to address the main areas of concern. These include discomfort barriers, external factors, and usability issues. By focusing on these aspects, policymakers can work to reduce mask-related discomfort and fatigue, potentially improving overall adherence to mask mandates.[50] Therefore, face mask mandates are accepted only as a temporary measure in liberal Western societies and should be enforced only when epidemiologically necessary.[51]

MIXED EVIDENCE ON THE INTRINSIC MOTIVATION PREDICTORS OF COVID-19 COMPLIANCE

Several strategies have been employed to encourage compliance with preventive measures like social distancing, better hand hygiene, and vaccination. Research has shown that rhetoric, including appeals to fear, unity, and solidarity, can influence public health compliance.[52] In addition, the more individuals perceive that social norms or authority figures support guidelines, the more positive their attitudes are toward the guidelines, and the more likely they are to intend to follow them.[53]

[47] Zimmermann, Bettina Maria, et al. "Face mask uptake in the absence of mandates during the COVID-19 pandemic: A qualitative interview study with Swiss residents." *BMC Public Health* 21 (2021): 1–10.

[48] Huynh, Toan Luu Duc. "'If you wear a mask, then you must know how to use it and dispose of it properly!': A survey study in Vietnam." *Review of Behavioral Economics* 7.2 (2020): 145–158.

[49] Escandón, et al. "COVID-19 false dichotomies and a comprehensive review of the evidence regarding public health."

[50] Esmaeilzadeh, Pouyan. "Public concerns and burdens associated with face mask-wearing: Lessons learned from the COVID-19 pandemic." *Progress in Disaster Science* 13 (2022): 1–11.

[51] Zimmermann, et al. "Face mask uptake in the absence of mandates during the COVID-19 pandemic."

[52] Harper, et al. "Functional fear predicts public health compliance in the COVID-19 pandemic."

[53] Bogg, and Milad. "Demographic, personality, and social cognition correlates of coronavirus guideline adherence in a US sample," 1026; Salali and Sefa Uysal. "Effective incentives for increasing COVID-19 vaccine uptake."

Especially, in the context of health, people's belief in the efficacy of preventive measures, which is a classic example of an intrinsic motivation, has been identified as a strong predictor of compliance.[54] Research shows that increasing people's sense of self-efficacy – their belief in their ability to take protective actions – leads to better adoption of preventive measures, especially among groups resistant to health policies.[55]

REMINDERS FOR HEALTH WORKERS

Research on behavioral change in public health includes studies focused not only on the public but also on healthcare workers. Various approaches have been employed for interventions aimed at improving hygiene practices, such as handwashing and mask wearing. A combined approach utilizing written materials, reminders, and continued feedback on performance has been found effective.[56] As mentioned in the discussion on motivation in public health, disgust-based interventions have been shown to be significantly better at promoting hand hygiene compared to educational posters.[57] "Gentle reminders" have also been used to encourage safe medical procedures.[58]

TRUST AND VOLUNTARY COMPLIANCE IN THE COVID-19 CONTEXT

Our discussion of trust and voluntary compliance in the COVID-19 context begins with the study of Cory Clark and colleagues.[59] They surveyed an international sample to examine which of five belief predictors – effectiveness of health precautions, health importance, invulnerability, disruptiveness, and government trust – correlate with voluntary compliance. However, having faith in the effectiveness of precautions was strongly associated with compliance with government recommendations, taking health precautions (such as wearing masks and quarantining), and encouraging others to do the same. Therefore, their findings emphasize the crucial role

[54] See: Iyer, Nandur, and Soberman. "Vaccine hesitancy and monetary incentives."

[55] Fathian-Dastgerdi, Zohreh, Banafsheh Tavakoli, and Maryam Jaleh. "Factors associated with preventive behaviors of COVID-19 among adolescents: Applying the health belief model." *Research in Social and Administrative Pharmacy* 17.10 (2021): 1786–1790. Ozdemir, Semra, et al. "Adoption of preventive behaviour strategies and public perceptions about COVID-19 in Singapore." *International Journal of Health Policy and Management* 11.5 (2020): 579–591; Rabin, Carolyn, and Sunny Dutra. "Predicting engagement in behaviors to reduce the spread of COVID-19: The roles of the health belief model and political party affiliation." *Psychology, Health & Medicine* 27.2 (2022): 379–388.

[56] Naikoba and Hayward. "The effectiveness of interventions aimed at increasing handwashing in healthcare workers."

[57] Porzig-Drummond, et al. "Can the emotion of disgust be harnessed to promote hand hygiene?"

[58] Erev, et al. "The value of gentle enforcement on safe medical procedures."

[59] Clark, et al. "Predictors of COVID-19 voluntary compliance behaviors."

of the public's confidence in the effectiveness of health behaviors in encouraging compliance with COVID-19 mandates, especially in policies that rely on voluntary adherence.[60]

In their influential and extensive paper, Timothy Besley and Sacha Dray expanded on this idea, emphasizing the importance of both interpersonal and governmental trust, in addition to factors such as state capacity to offer responses and COVID-19 mortality rates.[61]

Besley's definition of state capacity is broad and encompasses various factors, such as the capacity to levy taxes. In the context of interpersonal trust, the authors posit that the stronger the mutual trust and cooperation ingrained within the civic culture, the better the state's performance during the pandemic. This study does not clarify whether there is any additional factor that influences both civic culture and pandemic performance; however, it highlights the importance of promoting a culture of trust.

How law shapes civic virtue is a fundamental question in legal and regulatory frameworks. This broader issue invites us to examine how legal systems can foster civic-mindedness among citizens. The relationship between state capacity and citizen support is particularly relevant here. As Besley argues, growing state capacity requires increasing cooperation from citizens, particularly through mutual obligations and reciprocity. The strength of these relationships depends heavily on levels of trust and social solidarity within the nation, which in turn shape citizens' preferences and willingness to cooperate with state institutions.

According to Besley's research, an expected pattern emerges:[62] Countries with strong accountability and open debate sometimes had higher COVID-19 mortality rates than those with fewer civil liberties and lower incomes. This highlights why voluntary compliance is crucial – not just because coercion often proves ineffective, but because governments cannot sometimes enforce measures. The challenge is particularly acute in nations that need high public cooperation but suffer from low mutual trust, as limited government trust restricts policy options while simultaneously increasing the need for public cooperation.

TRUSTING WHAT EXACTLY?

Understanding the relationship between trust and voluntary compliance helps identify which types of trust matter most when selecting policy tools. There are many different aspects to trust within the COVID context. First, it relates to

[60] On trust and health-related behavior, see, more generally, Jarrett, Caitlin, et al. "Strategies for addressing vaccine hesitancy: A systematic review." *Vaccine* 33.34 (2015): 4180–4190.

[61] Besley, Timothy, and Sacha Dray. "Institutions, trust and responsiveness: Patterns of government and private action during the COVID-19 pandemic." *LSE Public Policy Review* 1.4 (2021): 1–11.

[62] Besley and Dray. "Institutions, trust and responsiveness," 10.

trusting the capacity of policymakers and the technical and organizational skills of the government,[63] as well as trusting information from government sources.[64] With distrust in government extending to vaccines,[65] there are studies showing an overall positive correlation between trust in government and vaccine uptake.[66] Other studies have shown that the perception of trust is often intertwined with an individual's political views and that partisanship can affect one's trust.[67] It is also noteworthy that other studies on trust have examined trust in science, in the scientists, and in the healthcare workers.[68] Generally, these studies anticipate that having trust in science is linked with compliance with COVID-19 guidelines.[69] There are also COVID-related studies on the crisis of trust in science, particularly about denialism and discrediting experts,[70] which also discuss how to restore trust in science.[71] The last form of trust in science in the context of COVID is trust in the product of science – the vaccine.[72] Finally, trust in others is an important aspect of trust in a pandemic situation.[73]

HETEROGENEITY IN INTRINSIC MOTIVATION DURING COVID-19

There is an intriguing correlation between how incentives affect people who hold different attitudes toward vaccinations. For example, Tali Goren and colleagues have shown that there are differences in the effects of negative and positive incentives on

[63] Mesch, Gustavo S., and Kent P. Schwirian. "Confidence in government and vaccination willingness in the USA." *Health Promotion International* 30.2 (2015): 213–221.

[64] Lazarus, Jeffrey V., et al. "COVID-SCORE: A global survey to assess public perceptions of government responses to COVID-19 (COVID-SCORE-10)." *PLOS One* 15.10 (2020): 1–18.

[65] Freimuth, Vicki S., et al. "Determinants of trust in the flu vaccine for African Americans and whites." *Social Science & Medicine* 193 (2017): 70–79.

[66] Larson, Heidi J., et al. "Measuring trust in vaccination: A systematic review." *Human Vaccines & Immunotherapeutics* 14.7 (2018): 1599–1609.

[67] Baumgaertner, Bert, Juliet E. Carlisle, and Florian Justwan. "The influence of political ideology and trust on willingness to vaccinate." *PLOS One* 13.1 (2018): 1–13.

[68] Badur, Selim, et al. "Vaccine confidence: The keys to restoring trust." *Human Vaccines & Immunotherapeutics* 16.5 (2020): 1007–1017.

[69] Plohl, Nejc, and Bojan Musil. "Modeling compliance with COVID-19 prevention guidelines: The critical role of trust in science." *Psychology, Health & Medicine* 26.1 (2021): 1–12.

[70] Peretti-Watel, Patrick, et al. "Vaccine hesitancy: Clarifying a theoretical framework for an ambiguous notion." *PLOS Currents* 7 (2015): 1–9.

[71] Verger, Pierre, and Eve Dubé. "Restoring confidence in vaccines in the COVID-19 era." *Expert Review of Vaccines* 19.11 (2020): 991–993.

[72] Dror, Amiel A., et al. "Vaccine hesitancy: The next challenge in the fight against COVID-19." *European Journal of Epidemiology* 35.8 (2020): 775–779; Majid, Umair, et al. "COVID-19 vaccine hesitancy and acceptance: A comprehensive scoping review of global literature." *Health Promotion International* 37.3 (2022): 1–12.

[73] Thoresen, Siri, et al. "Trusting others during a pandemic: Investigating potential changes in generalized trust and its relationship with pandemic-related experiences and worry." *Frontiers in Psychology* 12 (2021): 1–9; Gambetta, Diego, and Davide Morisi. "COVID-19 infection induces higher trust in strangers." *Proceedings of the National Academy of Sciences* 119.32 (2022): 1–10.

people with either positive or negative intentions to get vaccinated.[74] The findings demonstrate that both negative and positive incentives have similar positive effects on individuals who express hesitancy about getting vaccinated or declare that they will not get vaccinated. Additionally, both positive and negative incentives have a crowding-out effect, but negative incentives create a larger crowding-out effect in individuals who express a preliminary intention to get vaccinated, in comparison to positive incentives.

Concerning following COVID-19 restrictions, a study conducted in Australia found that people who were resistant to following the rules were much less likely to comply with physical-distancing measures.[75] For individuals who are highly resistant and disengaged, police-initiated encounters that were considered procedurally unjust resulted in decreased compliance. Furthermore, highly disengaged individuals were less likely to follow guidelines if they were concerned about the ongoing loss of freedom after the pandemic ended. Without an understanding of the variations in compliance, it can be challenging to determine the appropriate motivation to employ at the right time.

CULTURE AND COVID-19

The varying success rates among jurisdictions in their COVID-19 response raised important questions about regional disparities. A significant contribution to this discourse emerged from Charron and colleagues' research,[76] which examined the relationship between excess mortality, societal trust, and political polarization across 153 European regions during the pandemic's initial wave. Their analysis provided valuable insights into regional variations in public health behavior adoption.

Their investigation revealed that the ideological stance and polarization of political parties correlated with increased mortality rates. This relationship manifested as parties often prioritized their core constituents' interests, such as business concerns, rather than fostering broader political consensus for implementing necessary but unpopular measures. The research aligned with numerous concurrent studies that highlighted the crucial role of mass polarization.[77] Notably, regions characterized by high political mistrust between government supporters and opponents consistently exhibited elevated levels of COVID-19-related excess mortality during the

[74] Goren, Talia, Itai Beeri, and Dana R. Vashdi. "Framing policies to mobilize citizens' behavior during a crisis: Examining the effects of positive and negative vaccination incentivizing policies." *Regulation & Governance* 17.2 (2023): 570–591.

[75] McCarthy, et al. "Policing COVID-19 physical distancing measures."

[76] Charron, Nicholas, Victor Lapuente, and Andrés Rodriguez-Pose. "Uncooperative society, uncooperative politics or both? How trust, polarization and populism explain excess mortality for COVID-19 across European regions." *European Journal of Political Research* 62.3 (2020): 781–805.

[77] Kerr, John, Costas Panagopoulos, and Sander Van Der Linden. "Political polarization on COVID-19 pandemic response in the United States." *Personality and Individual Differences* 179 (2021): 1–9.

pandemic's first wave. Not surprisingly, other studies show that countries with more liberal regimes and greater state capacity to respond generally fared worse during the pandemic compared to countries with less liberal regimes and lower incomes.[78]

THE COMPLIANCE OVERLOAD EFFECT

One notable dilemma faced by governments around the world is related to the question of how to create the best policy regarding wearing masks. Should we establish a basic and inclusive rule or provide individuals with more nuanced and informed options? If we want people to wear masks indoors, what practice is more likely to increase that likelihood: saying "Always wear a mask," or saying, "Wear masks only when you are indoors"? On the one hand, unambiguous rules are easier to understand and monitor, making them better for establishing social norms.[79] However, it is important to consider the legitimacy of the request; asking for too much may result in receiving nothing at all.

Elsewhere I have demonstrated that engineers in Silicon Valley, who believed that trade secret laws required them to do more than they thought reasonable (e.g., not using information they already possessed) were more likely to behave unethically, even outside their professional contexts.[80] The argument I developed was that if the law is seen as overly inclusive, it loses its legitimacy even among those who would support it.[81] In the context of COVID-19, if people are asked to obey the law and wear masks in public areas, they may comply. However, this may also lead to a decrease in trust in the legislators' decision-making abilities, ultimately eroding overall trust in the legal system. Research on compliance could benefit from integrating these lessons into a variety of other research contexts.

THE IMPORTANCE OF EFFICACY AND VULNERABILITY

Trust encompasses both confidence in the effectiveness of specific measures and faith in institutional legitimacy, with the former being more closely tied to intrinsic motivation. Studies across multiple countries show that perceived effectiveness of COVID-19 policies was the key factor in compliance.[82] People's belief in their ability

[78] Besely, Tim. "Trust, resilience, and effectiveness of government." *LSE Economics* (December 2020). www.lse.ac.uk/Events/Events-Assets/PDF/2020/03-MT/Tim-Besley-PP.pdf.

[79] E.g., Posner, Eric A. "Standards, rules, and social norms." *Harvard Journal of Law & Public Policy* 21 (1997): 101–118.

[80] Feldman, Yuval. "The expressive function of trade secret law: Legality, cost, intrinsic motivation, and consensus." *Journal of Empirical Legal Studies* 6.1 (2009): 177–212.

[81] Feldman, Yuval. "Experimental approach to the study of normative failures: Divulging of trade secrets by Silicon Valley employees." *University of Illinois Journal of Law, Technology & Policy* 1 (2003): 105–108.

[82] Jørgensen, et al. "Compliance without fear."

to impact pandemic outcomes significantly influenced their behavior,[83] though self-reported compliance data may show reporting biases not found in econometric studies. Ganesh Iyer and colleagues highlighted that people's belief in the efficacy of preventive measures was the strongest motivator for compliance.[84] Sarah Kreps suggested that belief in the efficacy of vaccination was more important than financial incentives in encouraging vaccination uptake.[85]

The pandemic's limited enforcement capacity highlighted questions about what drives safety guideline adherence. While some research demonstrates that incentives influence vaccination decisions,[86] other studies found that understanding vaccine efficacy was more crucial.[87] US-based research supported this, showing health concerns and beliefs as primary motivators.[88]

Vlaev and colleagues propose using behavioral economics insights – like loss aversion and hyperbolic discounting – to improve health policy design.[89] A large study of 8,317 individuals found that belief in health precaution efficacy predicted voluntary compliance behaviors. Another study of 26,000 citizens across 8 Western countries during the first COVID-19 wave revealed that while fear of disease predicted self-protective behavior, self-efficacy had significant impact, especially among those perceiving lower threat levels. Notably, interpersonal and institutional trust did not improve compliance.[90]

SOFTER RHETORIC, GENDER, AND COMPLIANCE

To some extent, the interplay between intrinsic and extrinsic motivation is related to some of the intriguing discussions prevalent during the COVID-19 era. For example, it appears from a brief review of the literature that women leaders were less likely than their male counterparts to use war-like rhetoric.[91] Moreover, some studies have shown that women leaders were more likely than male leaders to prioritize minimizing human suffering, to adopt a more caretaking-orientated approach.[92]

[83] Martela, Frank, et al. "Motivating voluntary compliance to behavioral restrictions: Self-determination theory-based checklist of principles for COVID-19 and other emergency communications." *European Review of Social Psychology* 32.2 (2021): 305–347.
[84] See: Iyer, Nandur, and Soberman. "Vaccine hesitancy and monetary incentives."
[85] Kreps, et al. "Public attitudes toward COVID-19 vaccination," 73.
[86] Saban, et al. "Issues surrounding incentives and penalties for COVID-19 vaccination," 106763.
[87] Clark, et al. "Predictors of COVID-19 voluntary compliance behaviors."
[88] Kreps et al. "Public attitudes toward COVID-19 vaccination," 73.
[89] Vlaev, et al. "Changing health behaviors using financial incentives."
[90] Jørgensen, Frederik Juhl, et al. *Lockdown evaluations during the first wave of the COVID-19 pandemic*. Aarhus University Press, 2020.
[91] Dada, Sara, et al. "Words matter: Political and gender analysis of speeches made by heads of government during the COVID-19 pandemic." *BMJ Global Health* 6.1 (2021): 1–12.
[92] Luoto, Severi, and Marco Antonio Correa Varella. "Pandemic leadership: Sex differences and their evolutionary–developmental origins." *Frontiers in Psychology* 12 (2021): 1–23. www.frontiersin.org/

NON-COVID-19 INTRINSIC MOTIVATION STUDIES

Several studies in recent years have focused on using nudge interventions to promote healthier dietary choices. Tamara Bucher and her colleagues showed that by altering the order or placement of food products, it is possible to have a significant impact on consumers' food choices.[93] In a similar vein, the efficacy of nudge interventions in improving children's dietary habits within the home was explored by Kate Lycett and her team.[94] Their findings showed that 83 percent of the interventions were successful in increasing vegetable consumption and reducing the choice of unhealthy portion sizes. Furthermore, the study revealed that nudges were more effective among older children and adolescents. Numerous other studies have also explored the impact of nudging on food choices and nutrition. Arno and Thomas performed a systematic review of nudge strategies and discovered that these tactics effectively boosted the selection of healthy food options by an average of 15.3 percent.[95] These findings suggest that nudge interventions have the potential to positively influence public health by encouraging healthier dietary choices, although further research is needed to address the limitations identified in the current body of knowledge.

SELF-EFFICACY AS INTRINSIC MOTIVATION

As mentioned, self-efficacy – people's belief in their ability to successfully take protective actions – appears to be a critical factor in health compliance, enabling individuals to act on their intrinsic motivation. Self-efficacy refers to an individual's belief in their ability to execute behaviors necessary to reach specific goals and is a significant predictor of COVID-19 voluntary compliance behavior.[96] We can observe that higher self-efficacy can reduce stress related to COVID-19 and positively correlates with adolescents' protective behaviors.[97] Higher self-efficacy is also related to increased adoption and frequency of taking preventive measures.[98]

journals/psychology/articles/10.3389/fpsyg.2021.633862/full. See also other directions in research on this topic: World Health Organization. "Closing the leadership gap: Gender equity and leadership in the global health and care workforce." Policy action paper (June 2021). https://iris.who.int/bitstream/handle/10665/341636/9789240025905-eng.pdf.

93 Bucher, Tamara, et al. "Nudging consumers towards healthier choices: A systematic review of positional influences on food choice." *British Journal of Nutrition* 115.12 (2016): 2252–2263.

94 Lycett, Kate, et al. "'Nudge' interventions for improving children's dietary behaviors in the home: A systematic review." *Obesity Medicine* 7 (2017): 21–33.

95 Arno, Anneliese, and Steve Thomas. "The efficacy of nudge theory strategies in influencing adult dietary behaviour: A systematic review and meta-analysis." *BMC Public Health* 16 (2016): 1–11.

96 Meyer, Natanya, et al. "Biting the bullet: When self-efficacy mediates the stressful effects of COVID-19 beliefs." *PLOS One* 17.1 (2022): 1–16.

97 Meyer, et al. "Biting the bullet," e0263022; Fathian-Dastgerdi, et al. "Factors associated with preventive behaviors of COVID-19 among adolescents."

98 Ozdemir, et al. "Adoption of preventive behavior strategies and public perceptions about COVID-19 in Singapore," 579.

Morality and Social Norms

Regarding the impact of moral values on compliance with COVID-19 regulations, studies conducted in Switzerland revealed that individuals with lower care for intrinsic social and moral factors were more likely to be noncompliant.[99] In contrast, a different study of young participants (college students) found that acceptance of preventive measures was not linked to personal characteristics. Instead, it was related to how highly participants prioritized health concerns.[100]

In another study, the significance of social norms was found to be crucial in the context of COVID-19,[101] particularly regarding the acceptability of prioritizing health over other interests. Social norms rather than individual behavior played a crucial role in promoting public health acceptance.[102]

CONCLUSION

The COVID-19 pandemic has provided valuable insights into public health compliance strategies. While research reveals complex factors influencing individual behavior, the inconsistent findings present a key challenge for voluntary compliance approaches. This uncertainty makes it difficult for regulators to confidently shift toward trust-based policies, as the evidence about their effectiveness remains mixed. Although extrinsic motivators such as rewards and punishments have demonstrated some success, particularly in boosting vaccination rates, the significance of intrinsic motivation cannot be disregarded, at least not in the COVID context.

Empirical evidence demonstrated that compliance with COVID-19 guidelines was primarily driven by three intrinsic factors: belief in the effectiveness of preventive measures, institutional trust, and sense of social responsibility. The magnitude of these intrinsic motivators' impact proved notably higher in the COVID-19 context compared to environmental and tax compliance scenarios examined in Chapters 9 and 10.

Moreover, while belief in scientific evidence emerged as a particularly strong predictor of compliance, regulators faced significant constraints in their available extrinsic enforcement mechanisms during the pandemic. The limitations of

[99] Nivette, Amy, et al. "Non-compliance with COVID-19-related public health measures among young adults in Switzerland: Insights from a longitudinal cohort study." *Social Science & Medicine* 268 (2021): 1–9.

[100] Zhu, Nan, Judith G. Smetana, and Lei Chang. "Acceptance of society-level and individual-level preventive measures during the COVID-19 pandemic among college students in three societies." *Journal of Cross-Cultural Psychology* 52.7 (2021): 606–621.

[101] Kittel, Bernhard, Fabian Kalleitner, and David W. Schiestl. "Peers for the fearless: Social norms facilitate preventive behavior when individuals perceive low COVID-19 health risks." *PLOS One* 16.12 (2021): 1–20.

[102] Zhu, Smetana, and Chang. "Acceptance of society-level and individual-level preventive measures during the COVID-19 pandemic."

mandates and coercive measures, especially in liberal democracies, suggest that public health officials should balance targeted incentives with trust building, education, and appeals to collective responsibility. Moreover, the variations in reactions among various demographic groups and cultures indicate that policies designed for everyone are unlikely to be successful. Future public health strategies need to be adaptable, culturally sensitive, and designed in a way that motivates both intrinsic and extrinsic factors, with a particular emphasis on enhancing self-efficacy and social norms that promote healthy behaviors. The COVID-19 pandemic has provided us with valuable insights that can help us tackle future public health challenges and improve our society's resilience.