Controlling the Coronavirus: The German Case

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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The World Health Organization (WHO) declared coronavirus a pandemic on March 11, 2020 (Cucinotta, 2020, p. 157). As of November 1, 2020, there are 46,386,903 COVID-19 cases globally and 1,199,500 COVID-19 related deaths (JHUSOM, 2020). Global cases increase as countries struggle to stop the virus from spreading. Like many countries, the US, France, and Italy have seen a steady rise in COVID-19 cases. According to Johns Hopkins University School of Medicine, as of October 8, 2020, the US has the highest cases of COVID-19 by country at 7,550,731. Germany performed well by European standards in containing COVID-19, having 311,503 cases in a population of 80 million (JHUSOM, 2020). There were 99,750 cases in the US on October 30 alone (CDC, 2020a). Germany, by contrast, reduced new cases from 6000 per day in March to 2000 by April and 460 in May (Wieler et al., 2020). By studying preventative measures and applying the lessons, public health experts, epidemiologists, policymakers, advocacies, and conscientious citizens can contain COVID-19.

How did health authorities in Germany achieve relative success in controlling the 2020 pandemic? The Robert Koch Institute, Chancellor Merkel's administration, the German Center for Infection Research, German healthcare workers, the Federal Ministry for Consumer Protection, Food, and Agriculture, and Romanian seasonal workers were all involved. By quickly implementing strict COVID-19 preventative measures, such as social distancing and lockdowns, Germany contained the spread of the coronavirus.

Review of Research

Tanu Singhal's research contains essential COVID-19 information such as modes of transmission, symptoms, and origin (2020). Researchers must understand how COVID-19

spreads otherwise they might incorrectly assume a relationship between a policy and infection rate.

Anneliess Wilder-Smith, Calvin Chiew, and Vernon Lee studied whether officials can contain COVID-19 by implementing SARS preventative because the virus genome shares 86 percent similarity (2020). They argue SARS prevention measures are not enough to contain COVID-19 due to disease differences such as transmission rate and origin (Wilder-Smith et al., 2020). My work confirms these findings as German COVID-19 cases continue to rise despite implementing SARS preventative measures such as lockdowns. As of February 25, 2021, the Robert Koch Institute (RKI) observed 119,000 COVID-19 patients in Germany.

Johns Hopkins University School of Medicine provides a COVID-19 dashboard with global COVID-19 cases. The RKI's COVID-19 dashboard shows COVID-19 cases by state and district. Patricia Schartau and Mike Kirby studied how Germany's response to COVID-19 affected the male mortality rate (2020). Ayse Yaylali researched how different factors like age and gender affect the number of COVID-19 cases (2020). Researchers can differentiate whether the decrease in COVID-19 cases was due to the actual policy or other factors such as age or gender.

Communication

Well-known German media figures minimized coronavirus cases by transmitting information about the virus. German Chancellor Angela Merkel televised national health updates explaining COVID-19 preventive measures and rationale (Schartau & Kirby, 2020, p.26). She pleaded people "take [COVID-19] seriously... since the Second World War – there has been no challenge to our nation that has demanded such a degree of common and united action" during a

national television address (Dempsey, 2020). *Die Sendung mit der Maus*, a popular kids television show, released a series of episodes about COVID-19 from the importance of wearing masks and hand washing to symptoms of COVID-19 (Körnich, 2021). Scientists from Germany's Fraunhofer Society, the Helmholtz and Leibniz Associations, Max Planck Society, and RKI released a joint statement expressing concerns that "even a small increase in the reproductive rate [of the virus] would take us back to exponential growth" (Carrel, 2020).

Prior warnings prepared Germany for COVID-19. Doctors first discovered the virus in Wuhan, China in December 2019 (CDCb, 2020). David A. Brenner, a professor in the Department of International Studies at Texas A&M, says that "caution is very important in post-WW2 German culture and they want to be able to adequately handle a crisis" (Clark, 2020). Germany developed its first test kit on January 16, only three days after officials confirmed the first case of COVID-19 outside China (WHO, 2020). Health officials like Nicolai Savaskan based their COVID-19 measures on existing success stories like those of South Korea, Japan, and Taiwan (Belluz, 2020). Italy's failure to control COVID-19 taught german medical professionals the importance of protecting staff and patients; COVID-19 spread by contact with infected medical officials (Combs et al., 2020, p. 3). Hendrik Streeck, professor of virology at Bonn University, said "we had more time to prepare...We saw the images from China and Italy" (Chazan, 2020).

Well-known political and science figures agreed on COVID-19 measures, thus reducing confusion and increasing government credibility (Riedl, 2020, p. 30). "Merkel provided data-driven updates to the public and deferred wherever possible to those with more expertise than herself" (Farr, 2020); Merkel herself has a doctorate in quantum chemistry (Miller, 2020).

Clemens-Martin Wendtner, an internal medicine doctor, said “Every [piece of] information we had from the hospital, they also had from the political decision side” (Belluz, 2020).

Health Infrastructure

Germany’s developed health infrastructure prepared it for the influx of COVID-19 patients. According to the International Monetary Fund, World Bank, and United Nations, Germany has the fourth-largest national economy by nominal GDP in the World and spends 11.5 percent of gross domestic product on health expenditure (Blümel & Busse, 2020). In 2009, Germany made healthcare mandatory (Eckner, 2020); “Approximately 86 percent of the population is enrolled in statutory health insurance”(Blümel & Busse, 2020). Over the last 20 years, Germany has accumulated more hospital beds, ventilators, intensive care unit (ICU) beds, and hospital doctors per capita than any other comparable country in Europe (Schartau & Kirby, 2020, p.27). The ICU increased from 28,000 to 40,000 and ventilators from 20,000 to 30,000 (Yaylali, 2020 p. 3). Hendrik Streeck says “We never reached the point where we had too many people in intensive care” (Chazan, 2020). The German Interdisciplinary Association for Intensive Care and Emergency Medicine and RKI established an ICU register in March 2020, which has been reporting ICU capacity daily since April 16, 2020 (RKI & DIVI, n.d.).

Germany increased control and production of personal protection equipment (PPE). Due to severe shortages in PPE, hospital purchasing manager Dieter Wallström says people are “so desperate that they are buying nearly everything...the market is going berserk, and the prices are becoming inflationary” (Levine, 2020). Multiple counterfeits appeared on the market, so the government is “purchasing medical protective gear at the federal government level and supplying it to all states and public health associations” according to Federal Health Minister Jen Spahn

(Levine, 2020). They created the Task Force for Production Capacity and Production Processes to "[build] up national and European value chains for PPE, test kits, and active ingredients... thereby making an essential contribution to the supply for the medium term" (BMWi, 2020). On March 4, 2020, Germany banned the exportation of PPE (BG, 2021). In April, the government hired 50 companies to produce 50 million masks by August (Chazam, 2020).

Germany's hospitals implemented many digital reforms. In November 2019, Germany's parliament passed the Digital Care Act (DVG) to promote the integration of telemedicine into the national healthcare system (Schartau & Kirby, 2020, p. 27); the DVG "[provides] electronic health records (EHRs) for Germany's 73 million publicly insured citizens and [enables] reimbursement of digital health apps" (Lovell, 2021). Health Innovation Hub published a list of easy to implement reforms; Professor Jörg Debatin says, "before the COVID-19 pandemic, only a few hundred doctors were interested...in the last few days, the number has increased to several thousands" (Olesch, 2020). Patients are worried because they cannot receive healthcare services at home; new applications allow patients to consult doctors remotely (Olesch, 2020). The RKI produced COVID-19 chatbots, robots to clean hospitals, and drones to deliver food to patients (Schartau & Kirby, 2020, p. 27). German startup DOCYET created the chatbot, using data from RKI, to help users determine whether they have contracted the virus (Olesch, 2020). The government held hackathons to develop techniques to manage the pandemic (Schartau & Kirby, 2020, p. 27). The Hospital Future Act (KHZG), which received 4.3 billion euros, funds public hospitals that present digital innovations (Lovell, 2021).

Germany's decentralized hospital system allowed states to address local issues quickly. RKI is a German federal government biomedical center that promotes general public health. They research to "observe and evaluate health trends and risks to the population" (RKI, 2020).

With that data, they can then provide reliable advice to the public which regional governments can adapt to fit their needs. According to Nicolai Savaskan, chief medical officer at a Berlin health department, “The decentralized [approach to] managing the pandemic was maybe a good way to deal with a quickly changing situation” (Belluz, 2020). Berlin implemented a one-week quarantine rather than the two-week recommendation and shut down bars, dance halls, and nightclubs in March (Belluz, 2020). In Rosenheim, Deerberg-Wittrams says doctors formed the civil protection management team to manage patients and hospital equipment with “no instructions from Berlin” (Chazam, 2020). Regional governments test and deploy measures locally (Kirchhof, 2020). Spahn says mayors “don’t get orders from above...people have to take on responsibility and make independent decisions” (Chazam, 2020). They report their results to the RKI and discuss with neighboring regions; successful measures can then be scaled up nationally (Migone, 2020). There are 150 labs spread across the country working with local health authorities to conduct COVID-19 testing (Heitmueller & Roemheld, 2020).

Early Coronavirus Testing

Germany performed rigorous and early coronavirus testing. On January 16, 2020, Germany developed one of the first COVID-19 test kits which WHO then adopted (Eckner, 2020). Multiple labs developed test cases for COVID-19 in early January resulting in widespread testing (Schartau & Kirby, 2020, p.27); By February 2020, as many as 200 to 300 labs were involved (Eckner, 2020). When the pandemic began, Germany executed 100,000 tests per day which decreased to 50,000 per day in March, “ten times higher than the tests conducted in France” (Yaylali, 2020, p. 2). On February 28, 2020, the administration required “all insurance companies pay for COVID-19 testing for symptomatic people” (Wieler et al., 2020).

Contact tracing helped the German administration contain COVID-19. On January 27, 2020, The Bavarian Health and Food Safety Authority discovered the first human COVID-19 case in Germany; the worker contracted the virus while visiting her parents during a business trip to China (Böhmer et al., 2020). Merkel's administration learned the secondary attack rate and incubation period from these early tests, and it gave the administration strategies to prepare for the virus. They reduced the number of cases by identifying new high-risk patients and implementing quick containment measures such as a two-week self-quarantine (Böhmer et al., 2020). On April 7, RKI released the Corona Donation Smartwatch app; the app detects COVID-19 symptoms by analyzing different information such as heart rate (Wieler et al., 2020). On June 16, 2020, RKI released the Corona-Warn app which advises users based on how much contact they spent with a COVID-19 carrier (Busvine, & Rinke). Users report whether they tested positive on the app and it then uses a short-range Bluetooth connection to find the time spent and proximity with another user (Busvine, & Rinke). 100 days after the initial release, there were 18 million downloads and 1.2 million test results. Spahn says "in Berlin alone, more than 50 percent of the COVID-19 test results were shared via the app last week" (Bundesregierung, n.d.). As of March 25, 2021, there are 26.5 million downloads (RKI).

Germany made up for the lack of personnel by hiring students and civilians. RKI trained containment scouts to assist contact tracing; by May 2020, there were around 500 scouts who formed teams with doctors to categorize and quarantine patients (Beaumont & Connolly). "Germany aims to have five contact tracers for every 25,000 people — or about 16,000 for its population of 83 million" (Morris & Beck, 2020). In April Former 33-year-old court officer Walther Leonard became a containment scout; He asks people who tested positive for contact information and informs them of quarantine guidelines (Chazan, 2020). Jens Deerberg-Wittram,

managing director of Rosenheim hospital, “employed 150 more people, medical students, retired doctors” and taught them intensive care medicine and how to use ventilators; a local orthopedic clinic sent them respirators and staff (Chazan, 2020). In Berlin, teams composed of students and Bundeswehr soldiers operate hospitals and call centers (Thurau, 2020).

Social Distancing

The widespread practice of social distancing reduced the spread of COVID-19. Patients transmit COVID-19 through large droplets, often by coughing or sneezing, which is why people must maintain an appropriate distance of six feet (Singhal, 2020). After discovering their first patients in January, Germany implemented contact tracing, mandatory isolation of patients, and an information campaign promoting hygiene (Naumann et al., 2020). School and university closures before March 22 also helped reduce COVID-19 cases (Yaylali, 2020, p. 2). On March 22, 2020, Germany implemented a “contact ban” which stops gatherings of more than 2 people who are not family or living together; people must also maintain “a minimum distance of 1.5 to 2 meters” (Schmidt).

Germany imposed travel restrictions to reduce the chance of spreading COVID-19. On March 17, 2020, Merkel and European Union (EU) leaders agreed to implement a travel ban on countries outside the EU (Deutsche Welle). In August, they announced new travel restrictions including a five-day quarantine for travelers from high-risk areas (BG, 2021). On January 11, 2021, Germany implemented the “two-test strategy”; travelers must take a COVID-19 test within 48 hours before or immediately on arrival to Germany (Loxton, 2021). They must self-quarantine for ten days, which can end early on the fifth day with a negative test result (Loxton, 2021). Besides these issues, they increased the travel restrictions with the Czech

Republic, Tyrol, and France (German National Tourist Board, 2021). When Romanian seasonal workers come to Germany, they must work separately for 14 days and inhabit rooms at half capacity (Kühnel, 2020).

Germany was able to implement COVID-19 social distancing measures because people trusted the administration. According to a survey conducted by Edelman in January 2021, 59 percent of Germans trusted the government whereas only 50 percent of French and 48 percent of Britons trusted theirs; Angela Merkel's approval rating is 80 percent (Clark, 2020). Georgiana Ci, a german citizen, said "[she] felt safe every time Merkel was speaking on television" (Ankel, 2020). Trier University found that in Germany, citizen trust in their administration was higher than in neighboring countries (Schaer, 2021). A survey conducted by GESIS found that voter trust in the government was at an all-time low in March 2020, but trust in Merkel's administration increased during the pandemic (Riedl, p. 25).

COVID-19 and subsequent lockdowns stressed many people; German commitment to curfew and public health measures demonstrates trust in Merkel's administration (Riedl, 2020, p. 30). Dr. Sandra Kamping says Germany had "a big campaign around mental health" (Farr). People were encouraged to go outside and hold Skype meetings; "Ulrich Hegerl, the head of German Depression Aid, urged people with depression to take steps to avoid isolation" (MX, 2021). Self-quarantine can inflict negative emotions such as "frustration, anxiety, and boredom" (Mutz, 2020). It is important to maintain optimism as "frustration and dissatisfaction can erode commitment to public health measures" (Mutz, 2020).

German citizens follow social distancing measures because they see that Germany is doing well compared to other countries. Daily COVID-19 cases in Germany decreased from April to May (Max Roser et al., 2020). On April 14, Germany had fewer daily COVID-19 cases

than the United Kingdom (UK), France, and Italy despite having a larger population (Max Roser et al., 2020). Tom Mannewitz, a political scientist at the Chemnitz University of Technology, found that "especially if you compare the situation here with that of other countries – you quickly learn to appreciate your own government" (Schaer, 2021).

Germany's COVID-19 measures worked due to strict adherence to rules. *Ordnung muss sein* is a popular german saying meaning "there must be order" (Baur, 2020). According to Hans-Dieter Gelfert, a retired literature professor, "*Ordnung* is one of the sacred words in Germany, and that has something to do with the German emphasis on security as opposed to liberty...and order is a mainstay of security" (Walker, 2007). Matthias Veith, a 31-year-old medical student, said "when there is a rule, Germans follow it...During the lockdown, it worked... When you go to the shop, everyone is wearing a mask and following the rules" (Ankel, 2020). Brenner says that Germans as a "society [feel] responsible for each other" (Clark, 2020). ZDF, a german public broadcaster, found that 77 percent of pollers thought that Germany need stricter control to contain COVID-19 (Berry, 2020).

Financial aid encouraged German citizens to follow COVID-19 guidelines like social distancing. In March 2020, during the first lockdown, Merkel's administration provided a 750 billion euro financial aid package (Martin). "According to the Bruegel think-tank [this] is equivalent to 10.1 percent of the nation's gross domestic product— larger than that of any other western country" (Chazam, 2020). In November 2020, Merkel announced a partial shutdown and 10 billion euro to aid affected businesses (Martin). "Firms with up to 50 workers, and the self-employed, can have up to 75% of their previous year's November turnover reimbursed by the government" (Martin, 2020).

Conclusion

Germany was able to control COVID-19 due to early testing, contact tracing, a developed health infrastructure, trust in the government, fast and consistent communication, and time to prepare for the virus. People did not inherently trust the government, it was a result of Merkel's administration working in tandem with scientists to deliver consistent information and guidelines for COVID-19. Citizens felt reassured comparing Germany's COVID-19 numbers to that of neighboring countries. Social distancing and lockdowns reduced the number of cases, but it only works when people follow regulations. Germany succeeded because its culture focuses on following rules. Germany implemented fast and specific COVID-19 measures in each region due to its decentralized hospital system. Some of these measures can be implemented in other countries such as developing the healthcare system. Further research can be done on how Germany failed to contain COVID-19 despite their early success.

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