

The 1918 Influenza Pandemic and the Rise of Italian Fascism: A Cross-City Quantitative and Historical Text Qualitative Analysis

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Evidence linking past experiences of worsening health with support for radical political views has generated concerns about the consequences of the COVID-19 pandemic. The influenza pandemic that began in 1918 had a devastating health impact: 4.1 million Italians contracted influenza and about 500 000 died. We tested the hypothesis that deaths from the 1918 influenza pandemic contributed to the rise of Fascism in Italy. To provide a “thicker” interpretation of these patterns, we applied historical text mining to the newspaper *Il Popolo d'Italia* (Mussolini’s newspaper). Our observations were consistent with evidence from other contexts that worsening mortality rates can fuel radical politics. Unequal impacts of pandemics may contribute to political polarization. (*Am J Public Health*. 2022;112(2):242–247. <https://doi.org/10.2105/AJPH.2021.306574>)

Are those living in communities experiencing rising death rates more likely to turn to radical politicians? A growing body of evidence suggests that they are. In the United States, Bor et al. found that those counties where life expectancy stagnated or declined between 1980 and 2014 were more likely to swing toward support for Donald Trump in the 2016 presidential election.^{1,2} Similarly, communities experiencing worsening health in the United Kingdom saw greater support for Brexit.³ The same association also holds in different historical junctures. For instance, worsening mortality rates in German localities in the early 1930s were positively associated with the rise of the Nazi Party,^{4,5} and influenza deaths in 1918 also correlated with the Nazi electoral boost.⁶

Given these examples, there are some concerns that the COVID-19

pandemic could further boost populist parties that have been attracting growing support in some countries since the global financial crisis. The risks are clear; in many countries, the pandemic has precipitated the biggest health, economic, and social crisis since World War II, and some researchers have suggested that democracies have fared worse than autocracies.⁷ During epidemics, people are more likely to accept state-mandated collective action, supporting a rise in authoritarianism.⁸

Some populist politicians (like Jair Bolsonaro in Brazil) have exploited the pandemic by sowing divisions in society, creating cleavages between young and old, immigrants and established populations, and the rich and poor. Others, such as India’s Narendra Modi, have used the crisis to consolidate their power and suppress opposing voices. The opposite also seems possible: a

poor response to COVID-19 could bring calls for change, as shown by the November 2020 US presidential election.

We tested the relationship between the health consequences of a pandemic and support for Fascism by using a unique historical case: the rise of Fascism in Italy that occurred in the aftermath of the 1918 influenza pandemic (Appendix A, available as a supplement to the online version of this article at <http://www.ajph.org>). It was devastating, infecting 4.1 million Italians—among them Mussolini’s wife, Rachele⁹—500 000 of whom died (Figure 1). For comparison, as of June 2021, in several waves, COVID-19 had infected 4.2 million Italians, of whom 127 000 died.

Since the beginning of the COVID-19 pandemic, there has been a renewed interest in the 1918 pandemic. Yet, while most articles have examined the economic aspects of, and governmental

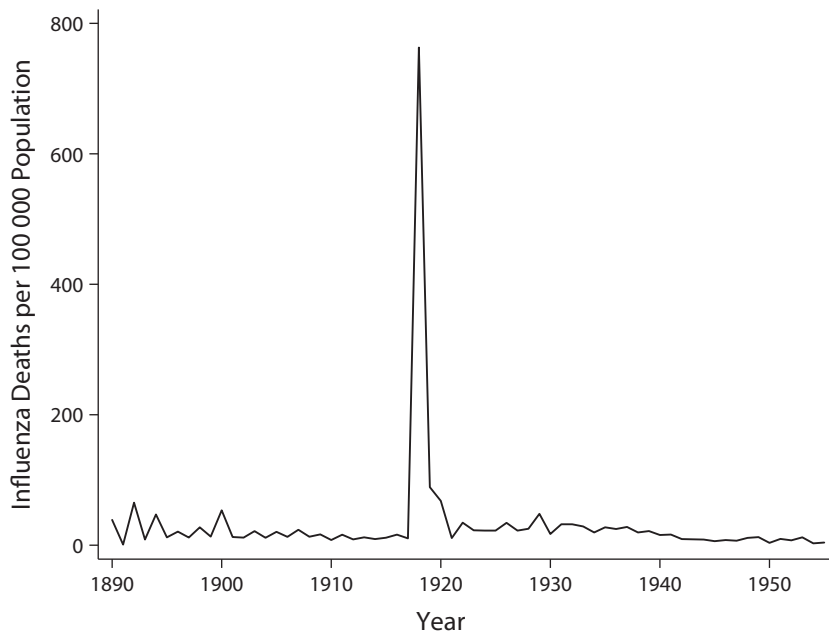


FIGURE 1— Deaths From Influenza per 100 000 Population: Italy, 1890-1959

Source: Mortality data are from Istituto Centrale di Statistica. *Cause di Morte: 1887-1955*. 1958. Available at: <http://www.laveritasuivaccini.it/ftp/Causedimorte1887-1955.pdf>. Yearly population data are from B. R. Mitchell. *European Historical Statistics, 1750-1975*. New York, NY: Columbia University Press; 1975.

responses to, the pandemic,¹⁰ there has been relatively little written on the political consequences of high death rates at that time, even though the political aspects were recognized even then, with a contemporary cartoon in the magazine *Punch* showing Mussolini saying to influenza, “Go away—I am the big sneeze here” (Appendix B, available as a supplement to the online version of this article at <http://www.ajph.org>). The Italian case is particularly important, as Italy was the first European nation to turn to authoritarianism during the interwar period (with Spain, Greece, Germany, and others following later).

To test the hypothesis that communities experiencing influenza deaths saw greater support for the Fascists, we collected historical cause-specific mortality data and linked it to vote shares for the Fascist party in 73 Italian cities in the 1924 election.

BACKGROUND

We obtained official city-level data on voting patterns for the Fascist party and its main political competitors in the general election of April 1924 by using data from Corbetta and Piretti¹¹ and originally collected from official local state archives and historical newspapers ($n = 73$). Ideally, we would look at election outcomes over time, but we were restricted to just one election (1924) because, although the Fascist party was created in 1919, in the election of that year, the Fascists presented candidates in only a few electoral districts, and in 1921 they were part of the *Blocchi Nazionali* (a coalition of moderate and conservative parties). Hence, it was difficult to capture local Fascist support before 1924. We measured Fascist support as the ratio of the number of votes for the Fascist Party (*Partito*

Nazionale Fascista) to the total number of votes cast in the 1924 election.

For the 73 cities included, we manually extracted cause-specific mortality data for each year from 1916 to 1924 from official sources (for details on data sources, see Appendix C, available as a supplement to the online version of this article at <http://www.ajph.org>). Specifically, we collected data on city-level deaths from influenza and other leading causes of death, including from accidents (that correlate with the economic conditions in each city), cancer (used as a placebo, as there is a long lag between carcinogenesis and death), tuberculosis (to assess whether results are explained specifically by influenza or simply as part of worsening deaths from infectious and communicable diseases), and all deaths (to measure the overall worsening health). Because age-specific mortality data are unavailable at city level in historical Italian records, we expressed the number of deaths from each specific cause as the unstandardized rate per 1000 population. Nonetheless, as we show in Appendix D (available as a supplement to the online version of this article at <http://www.ajph.org>), the pandemic had very little impact on older people, and most deaths occurred to persons between the ages of 20 and 39 years. However, our regional fixed effects would have accounted for any time-invariant characteristics of the local age distribution.

We added city-level controls to adjust for economic decline and the local characteristics of the cities. The variable population controls for the size of the city, and, to account for spatial autocorrelation, we added its latitude and longitude. We also controlled for the occupational and social structure of each city, with the share of workers in the primary sector, in

industry, in liberal occupations, and that were owners in its total population. We also controlled for World War I military casualties (per 1000 population), and proxied for economic downturn and the effects of the *Biennio Rosso* (a period of intense social conflict between 1919 and 1920), with the city's fiscal deficit and levels of unemployment. Fiscal deficit is the difference between total revenue and spending (i.e., spending beyond the city's means).

We employed multivariate regression models to adjust for several socioeconomic and demographic factors in the following way:

$$Fascist_{c,1924} = Influenza_{c,t} + \Lambda'X_{c,1924} + \gamma_s + e_{c,t} \quad (1)$$

where *Fascist* is the ratio of the number of votes to the Fascist Party to the total number of votes cast in each city *c* in the 1924 election; *Influenza* measures the size of the pandemic as the change in the deaths from influenza between 1916 and 1918 (1916 being a pre-pandemic year) and per 1000 population. ΛX is a matrix of controls; γ_s denotes state-level fixed effects, absorbing much of the unobservable characteristics or the Italian states; and $e_{c,t}$ is the error term. Because we were using a range of controls measured in different units, we standardized data to have a mean of zero and a standard deviation of 1, so coefficients across models are directly comparable. In all models, we used heteroskedasticity-robust standard errors allowing for random variation at the city level. We explored clustering standard errors at the province or state level, but they displayed the same levels of statistical confidence. We also present R^2 values as a measure of goodness of fit.

MAIN FINDINGS

Figure 2 depicts the positive and statistically significant unadjusted association of influenza deaths and proportions voting for the Fascist party (Pearson's $r = 0.78$; $P < .001$). Each increase of one death from influenza per 1000 was associated with a 4.09-percentage-point increase in vote shares to the Fascist Party in 1924 (95% confidence interval [CI] = 3.24, 4.95).

Table 1 shows the results of multivariate regression models presented in equation 1. Here, each 1-standard-deviation increase in influenza death rates was associated with between one fifth to one quarter of 1 standard deviation of the dependent variable. Adjusting for the local characteristics of the cities (population size, occupation, and occupational structure) attenuated the association, but not significantly so. The effect of adding a control for World War I casualties was also limited. This variable might be colinear with influenza

deaths as most soldiers who died in October and early November 1918 died from influenza rather than from military action.¹²

When we proxied for the lasting effects of the *Biennio Rosso*, both the fiscal deficit and unemployment increased standard errors, but results remained statistically significant ($P < .001$). Overall, despite the importance of these factors, when all covariates were included in the final model, it only attenuated the association between influenza death rates and radical voting, as results remained highly statistically significant at the 1% level of confidence ($B = 0.26$; 95% CI = 0.10, 0.42). Finally, we also show the isolated effect of influenza deaths on the rise of Fascism. The association was not driven by a general worsening of mortality; when we looked at all deaths or noninfluenza deaths, results were not statistically significant, reflecting the role of the 1918 influenza pandemic as an important correlate.

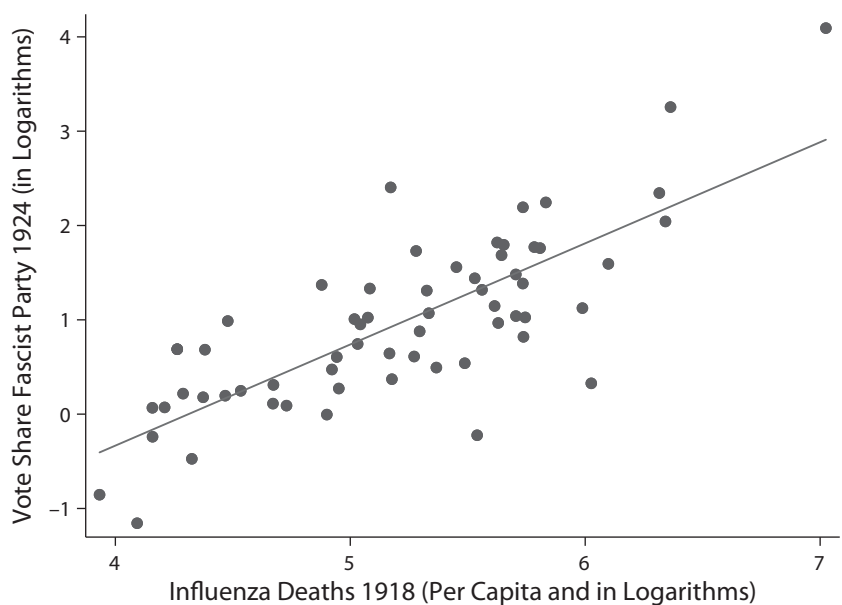


FIGURE 2— Percentage of Vote Share to the Fascist Party in the 1924 Election and Deaths From Influenza in 1918 (in Logs) in Different Italian Cities

TABLE 1— Association Between Changes in Influenza and Overall Death Rates Between 1916 and 1918, and Vote Share for the Fascist Party in 1924: Italy

Covariates	Deaths From Influenza (Δ 1916–1918; n = 72)		All Causes of Death (Δ 1916–1918; n = 72)		All Causes of Death Excluding Influenza (Δ 1916–1918; n = 72)	
	B (95% CI)	R ²	B (95% CI)	R ²	B (95% CI)	R ²
Unadjusted	0.23 (0.07, 0.39)	0.52	0.02 (–0.21, 0.25)	0.44	0.12 (–0.32, 0.55)	0.45
Population ^a	0.24 (0.07, 0.40)	0.52	0.04 (–0.19, 0.27)	0.45	0.14 (–0.30, 0.59)	0.45
Location ^b	0.22 (0.09, 0.36)	0.53	0.03 (–0.20, 0.27)	0.46	0.10 (–0.30, 0.50)	0.46
Occupational structure ^c	0.21 (0.08, 0.34)	0.56	0.11 (–0.15, 0.36)	0.52	0.26 (–0.16, 0.68)	0.53
WW1 soldier casualties ^d	0.24 (0.08, 0.40)	0.52	0.10 (–0.30, 0.51)	0.44	0.11 (–0.34, 0.57)	0.45
Fiscal deficit ^e	0.24 (0.09, 0.40)	0.52	0.02 (–0.21, 0.25)	0.44	0.12 (–0.33, 0.57)	0.45
Unemployment ^f	0.24 (0.08, 0.41)	0.53	0.03 (–0.21, 0.26)	0.45	0.12 (–0.30, 0.54)	0.45
Fully adjusted	0.26 (0.10, 0.42)	0.60	0.37 (–0.17, 0.91)	0.56	0.23 (–0.31, 0.78)	0.54

Note. CI = confidence interval; WW1 = World War I. Parameter estimates are standardized regression coefficients to have a mean of zero and a standard deviation of 1, so coefficients across models are directly comparable, representing the vote share for the Fascist Party in the 1924 election associated with an increase of one death per 100 000 population between 1916 and 1918. All models include state-level fixed effects with robust standard errors clustered at that city level.

^aPopulation size in December 1921.

^bCity's latitude and longitude in decimal degrees.

^cShare of workers in the primary sector, in industry, in liberal occupations, and that are owners in its total population in 1921.

^dWW1 military casualties per 1000 population.

^eDifference between total revenue and spending measured in thousand lire in 1924.

^fUnemployment rates in industry and agriculture in 1924.

We performed a series of robustness and sensitivity tests. First, in Appendix E (available as a supplement to the online version of this article at <http://www.ajph.org>), we predicted the Fascist vote share in 1924 with deaths from influenza and other leading causes of death from 1916 to 1924 using yearly data in separate models. Only influenza mortality in the year 1918 predicted the vote share of the Fascist party (B = 0.62; 95% CI = 0.26, 0.97). In none of the other years are deaths from influenza associated with Fascism. Thus, the association we were exploring was not just capturing worsening economic or environmental conditions via communicable and infectious diseases in general but also the exogenous impact of influenza. The same appeared to be true when we looked at other important communicable causes of death

like tuberculosis. As another placebo, we compared these patterns with causes of death that are less responsive to short-term social conditions, using deaths from cancer. Here, none of the models displayed statistically significant coefficients. Finally, we tested the association between Fascist vote shares and changes in overall mortality to provide reassurance that our findings are specific to deaths from influenza rather than simply reflecting broader mortality patterns.

Second, it is possible that some unobservables moderated this association. For instance, Autor et al.¹³ found that many predominantly African American congressional districts exposed to trade with China and loss of manufacturing swung to the left, not the right. In Appendix F (available as a supplement to the online version of this article at

<http://www.ajph.org>), we tested for other “effect modifiers” to show that deaths from influenza in 1918 were largely uncorrelated with the 1913 electoral conditions (the prepandemic election). Similar to our findings, Acemoglu et al. argued that “excess deaths from Spanish flu [*sic*] are broadly uncorrelated with the same pre-1919 economic, social and political variables.”^{14(p25)}

Third, in Appendix G (available as a supplement to the online version of this article at <http://www.ajph.org>), we also used equation 1 and measured *t* by the change between 1916 and 1919, between 1916 and 1920, and so on, to show that Fascism was only predicted by influenza deaths when we looked at the change between prepandemic year (i.e., 1916 or 1917) and 1918 (the pandemic year), as subsequent pairs (1916–1919, 1916–1920, 1916–1921, etc.) have low

predictive power. In Appendix H (available as a supplement to the online version of this article at <http://www.ajph.org>), we also adjusted for the baseline controls in levels but allowed to measure economic circumstances (i.e., unemployment and fiscal deficit) as its change during the study period (i.e., the change between 1918 and 1924) showing no material change in our findings.

We also tested for nonlinearities by using a quadratic term, and, although the size of the coefficient was substantially reduced ($B = 0.05$; 95% CI = 0.01, 0.10), together with the visual aid of a locally weighted smoother, we concluded that the assumption of linearity was largely appropriate (Appendix I, available as a supplement to the online version of this article at <http://www.ajph.org>). From Table 1, we also weighted the fully adjusted regression by the level of population in 1919, to emphasize the data from the larger cities and eliminate undue influence of smaller towns, with no material change in our findings ($B = 0.20$; 95% CI = 0.01, 0.39). Our bottom line was that the association between influenza mortality and Fascism persisted even after we adjusted for a range of factors. Certainly, it was not reflecting a common trend in overall mortality or deaths from infectious and communicable diseases, nor influenza years outside the pandemic year. This implies that pandemic influenza was not simply a proxy or mediator for a relationship between income and Fascist support.

QUALITATIVE ARCHIVAL ANALYSIS

To provide a “thicker” interpretation of these quantitative findings, we used text mining in the newspaper *Il Popolo d'Italia* from June 1, 1918, until July 31, 1919.

Overall, we found that Mussolini's newspaper tended to blame “others” for the pandemic, such as Spaniards (*Il Popolo d'Italia*, June 13, 1918) and portrayed themselves as the voice of the common people against an out-of-touch “elite,” exploiting the health crisis for political gain. On April 14, 1919, the Fascists said that “On the most important issues concerning the eight-hour day, we demanded an allowance for the flu epidemic” and denounced how “on the request of the special allowance requested for the flu epidemic . . . Minister Bonomi [from the Socialist party] has decided to replace it with an indemnity justified by the greater work in the last four years.” Before, they also denounced that “the pandemic has affected many military wives leaving their poor children without assistance” (October 23, 1918).

When the pandemic stabilized, in mid-1919, the Fascists denounced its long-lasting consequences saying that “many people have suffered from the grippe, the Spanish [*sic*] grippe, the flu. Many did not succumb to this epidemic evil, but there are many who, although relatively favored, resent the terror of the evil and it is unknown if they will ever manage to get rid of it properly” (June 9, 1919). Beyond this qualitative evidence, a famous oddity of that time is that Mussolini replaced the handshake with the Roman salute, allowing for social distancing as he considered the handshake to be unhygienic and bourgeois. Modern scholars like Acemoglu et al.¹⁴ are also of the opinion that “greater mortality from the Spanish flu [*sic*] pandemic . . . led to greater local Fascist Party activity.”

CONCLUSION

Despite the renewed interest in the 1918 influenza pandemic as a frame of

reference for anticipating potential effects of COVID-19, evidence of its impact has largely come from economic and social studies. Here we extended this work by looking at political outcomes, and we suggest a *prima facie* case for its contribution to the rise of populism: Italian Fascism. Our analysis shows a significant correlation between influenza deaths and vote share for the Fascist Party in 1924, even after accounting for other determinants of the rise of Fascism. Looking at Mussolini's newspaper *Il Popolo d'Italia*, we also found that the rhetoric of some of today's populist politicians concerning the COVID-19 pandemic mimicked that of earlier Fascist leaders.¹⁵

LIMITATIONS

As with all observational studies, our analysis had several important limitations. First, we were unable to adjust for the age distribution in cities, creating potential for error. However, our state fixed effects would have adjusted for any time-invariant characteristics of the age distribution. Second, our results rest on a balanced panel of 73 cities. While we lack complete national coverage, our data allowed us to control for observables. Indeed, in these 73 cities, we captured more than 65% of the total Italian population, and, still, in the 1920s, Italy was a poorly developed agricultural economy.

Third, it could be that the same settings that Acemoglu et al.¹⁴ correlated with Socialist vote in 1919 to 1921 (such as casualty rates from World War I) do also correlate with the Fascist vote in 1924. However, in Appendix J (available as a supplement to the online version of this article at <http://www.ajph.org>) we show that the Fascist Party was the only party that managed to transform the

pandemic experience into more votes. Neither parties on the left (the Socialists in the 1919 or 1921 elections) or far left (the Communists), nor parties at the center (such as the Italian People's Party), saw gains in support. The decline of the People's Party shows that Fascism drew votes not only from the Socialists but also from people of all political persuasions. As in Germany, the Communist Party, despite being the main party of protest for those workers disenchanted with the incumbent regime, was unable to transform suffering and misery into votes.^{4,14} We interpret this as evidence that, at times when people are suffering, they may be more open to the siren calls of right-wing radical populist parties.

Finally, it is possible that previous local policy responses were associated with unobservable variables (such as the capability of local politicians) or that a third, underlying factor drove both influenza rises and Fascist vote shares. Recent research has shown that welfare generosity buffers the mortality-voting relationship.^{1,5} The flu could have lingering political effects, and more work would be needed to understand the longer-term consequences of the epidemic for political changes. Our observational analysis can only demonstrate correlation, rather than causality. However, whether influenza in 1918 was one of the causes of Fascism, pandemics do appear to be early warnings of political polarization. **AJPH**

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CONTRIBUTORS

G. Galofré-Vilà created the study, collected the data, conducted the analysis, and wrote the first draft of the article. M. McKee, M. Gómez-León, and D. Stuckler oversaw the design of the study and facilitated interpretation of the findings. All authors edited the final draft of the article. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

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CONFLICTS OF INTEREST

The authors have no conflicts to declare.

HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not needed because we analyzed secondary public data.

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