

Disparities and trends of COVID-19 epidemiology in EU-5 countries across pandemic waves: A targeted literature review (TLR)



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Background and objectives

- The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes Coronavirus Disease 2019 (COVID-19) has resulted in a high number of COVID-19-related infected individuals and deaths in society, is still circulating in 2021 with new variants, resulting in a state of emergency in numerous countries¹.
- Europe had to deal with a second wave of COVID-19. Italy compared to other large European countries (e.g., France, Germany, Spain, and the United Kingdom) appears to have had a smaller impact on people's health, most likely due to containment measures implemented to limit the COVID-19 pandemic¹.
- The objective of this study was to assess the disparity in epidemiology of COVID-19 during the first and second waves of pandemic in EU-5 countries.

Methodology

- A targeted literature review (TLR) using Embase[®] and Medline[®] databases was conducted between December 2019 and June 2021.
- Published COVID-19 literature was identified to generate evidence for assessing the epidemiology of COVID-19 in EU-5 countries during first wave and second wave of pandemic.
- Screening and data extraction for this TLR was performed by a single reviewer.

Results

- COVID-19 entries have increased exponentially compared to other diseases.
- Overall 3189 references were screened using prior mentioned methods and nine studies (n=73,525) were included which focused on Spain (n=3), Italy (n=3), Germany (n=1), UK (n=1), and France (n=1) (Figure 1).
- The first wave occurred between March-August 2020, February-September 2020, March-June 2020, and February-July 2020 in UK, Italy, Spain, and Germany, respectively. The second wave existed between September-October 2020, July-October 2020, February-April 2020, and July-December 2020 in Italy, Spain, France and Germany, respectively (Figure 2).
- The cumulative incidence of COVID-19 infections in Italy was significantly higher during second wave than first wave (679 vs. 387/100,000). However, the case fatality rate was lower in second wave than in first wave (0.15 vs. 0.025).

Figure 1: Country wise Included studies

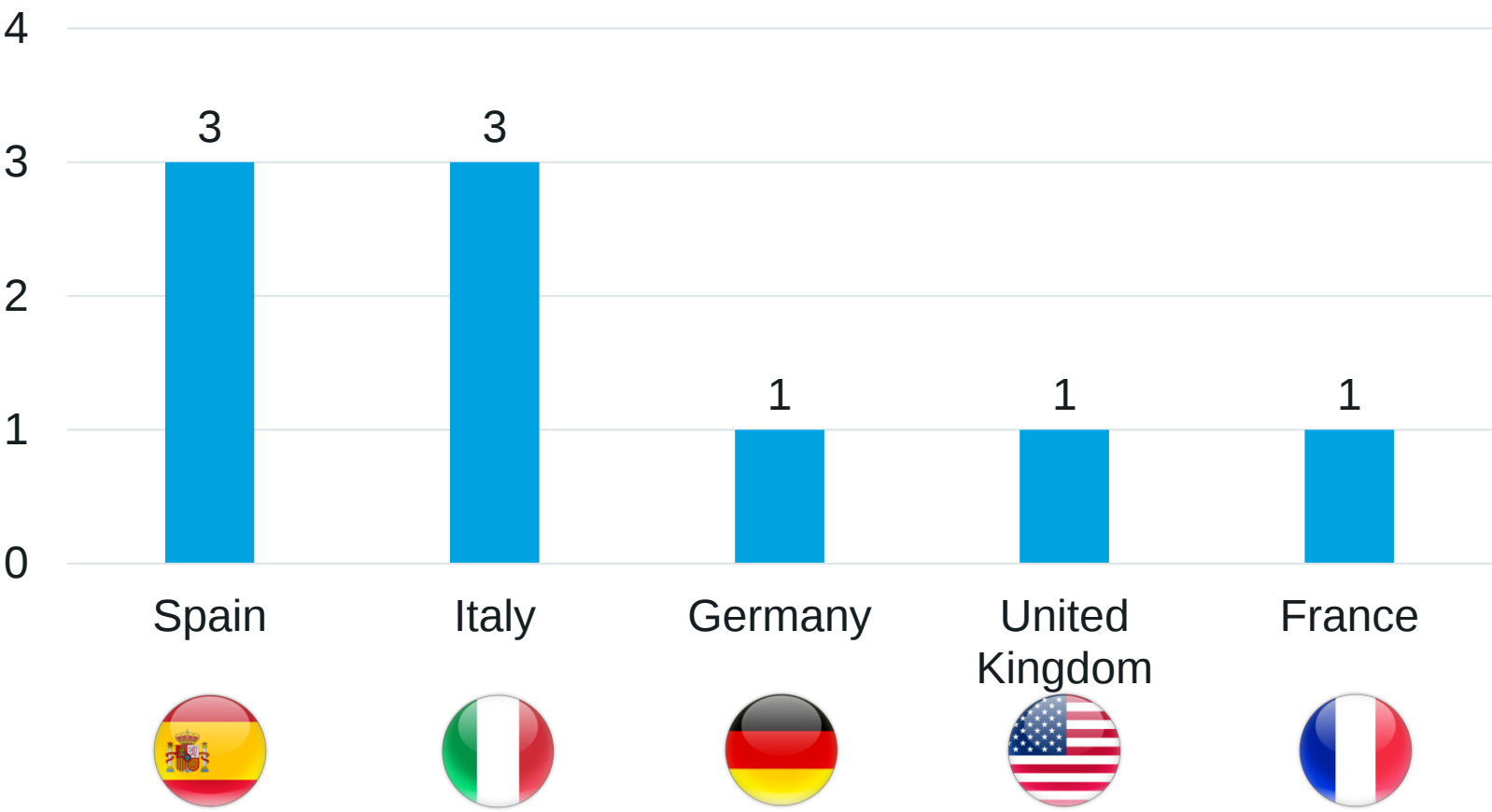


Figure 2: Country wise representation of 1st wave and 2nd wave time periods

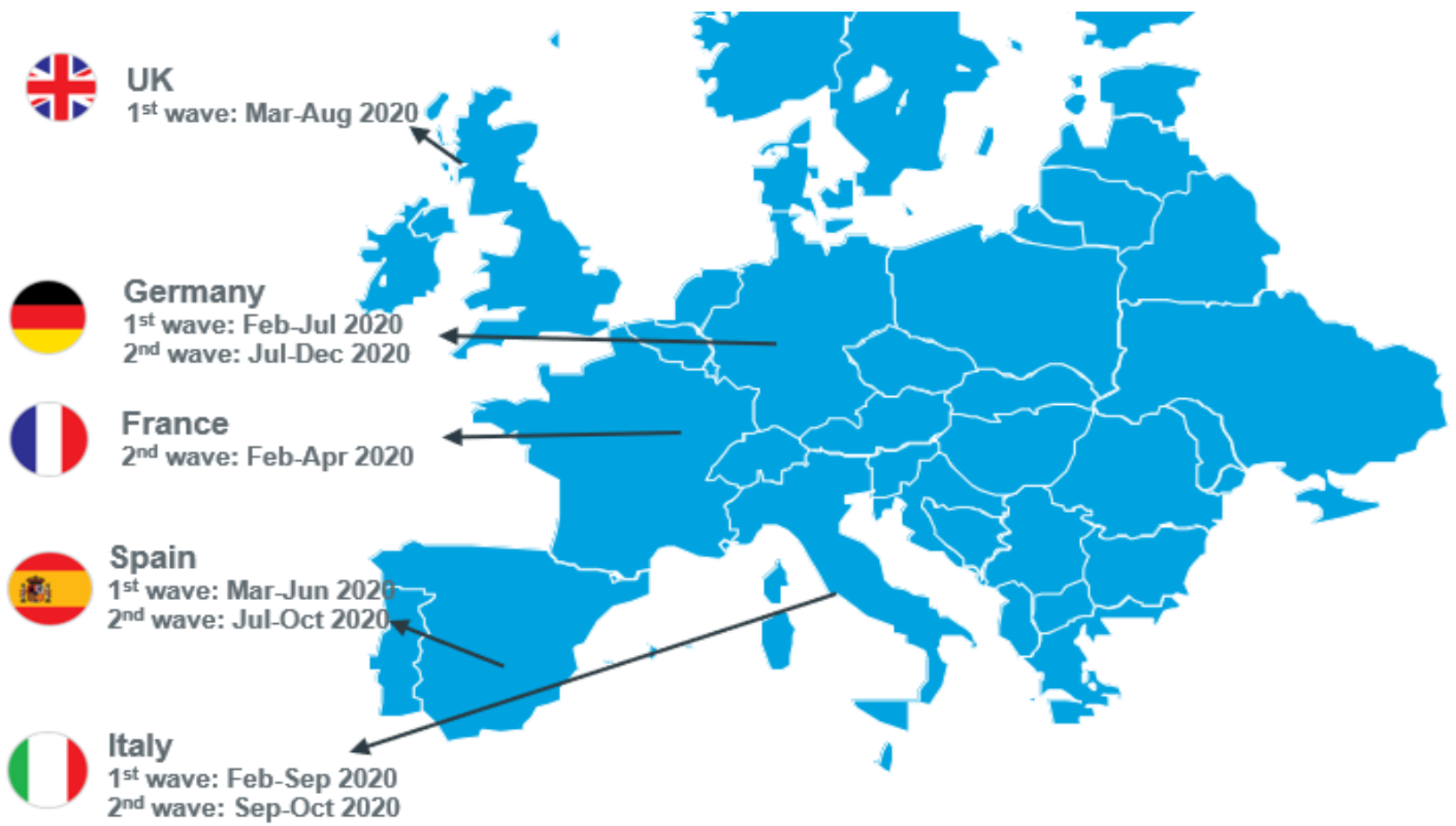
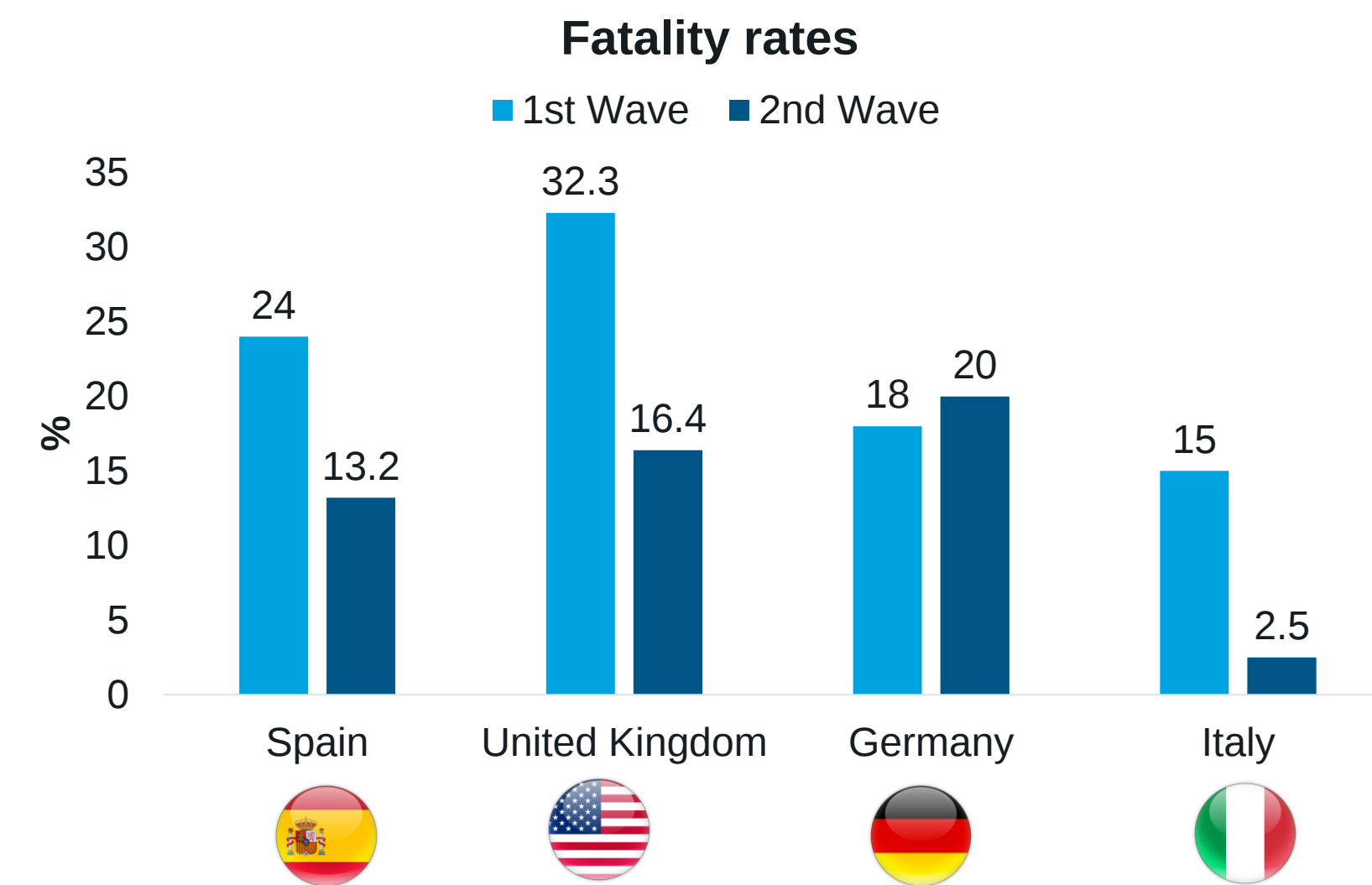


Figure 3: Fatality rates



- The fatality rate was significantly higher in first wave compared to second wave (24% vs. 13.2%) in Spain and in the UK (32.3% vs. 16.4%). While there was no significant difference in mortality between the two waves in Germany (18% vs 20%) (Figure 3).
- Only first wave data was limited and available for France. The peak incidence of cases was recorded between March-April 2020 in France, the COVID-19 related mortality during first wave was 20%.

Conclusion

- COVID-19 incidence was higher during the second wave in Italy, while the fatality rate was higher in the first wave in Italy, UK, and Spain.
- However, time frame of COVID-19 waves varied across the countries/studies despite its colloquial use. Therefore, future studies are required to reach a consensus on wave definition and explore the disparities between the pandemic waves' definitions

Source: 1) Coccia M. The impact of first and second wave of the COVID-19 pandemic in society: comparative analysis to support control measures to cope with negative effects of future infectious diseases. Environmental Research. 2021 Jun 1;197:111099.

Abbreviations: COVID-19, Coronavirus Disease; TLR, targeted literature review.