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Suicide Classification for News Media using NLP

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Publications

News Media and Suicide: Using Big Data Techniques to Assess the Long-Term Impact

October 2021 · Psychiatry Interpersonal & Biological Processes 85(1)
DOI: 10.1080/00332747.2021.1989934

Nora Palomar-Ciria · Hugo J. Bello · Celia Lozano · Show all 6 authors · Enrique Baca-Garcia

Suicide Classification for News Media Using Convolutional Neural Networks

May 2022 · Health Communication
DOI: 10.1080/10410236.2022.2058686

Hugo J. Bello · Nora Palomar-Ciria · Enrique Baca-Garcia · Celia Lozano

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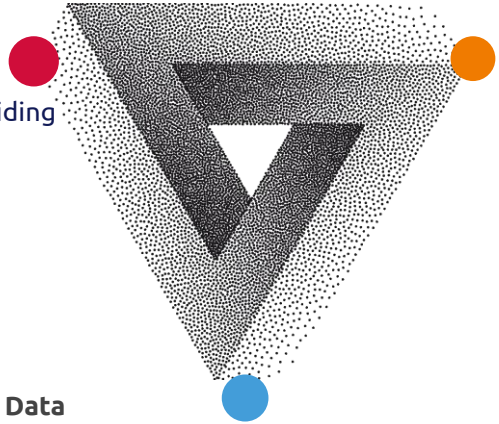

Innovation.
As a driving force and in our DNA

the Business Ignition Wick

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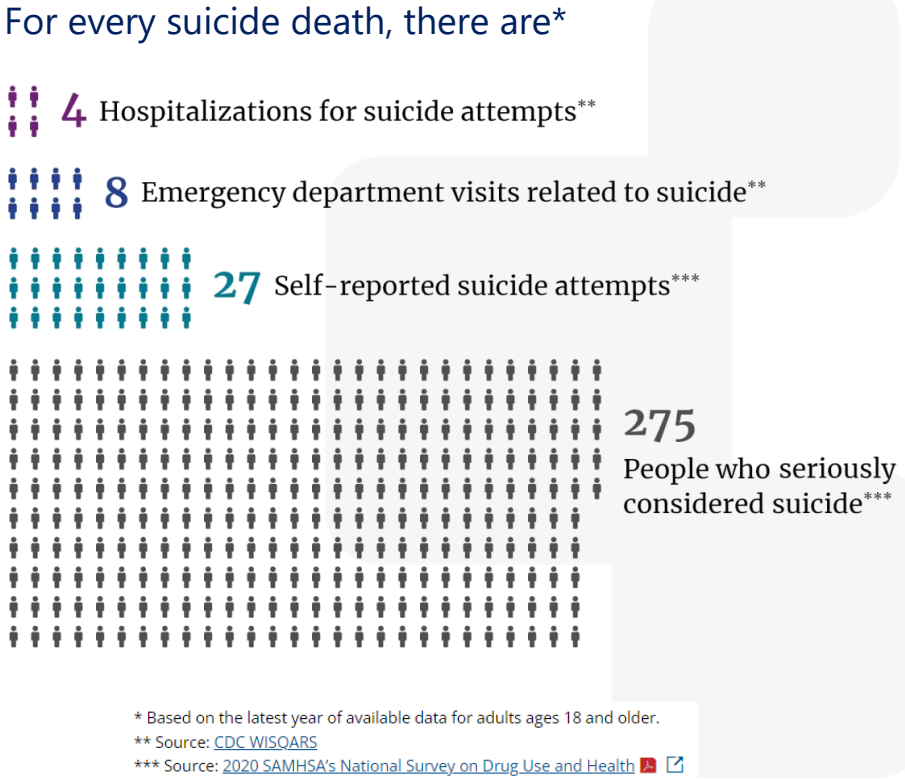
Introduction

- Suicide is a major public health issue around the world, being the second cause of death in young people (especially under 24 years)



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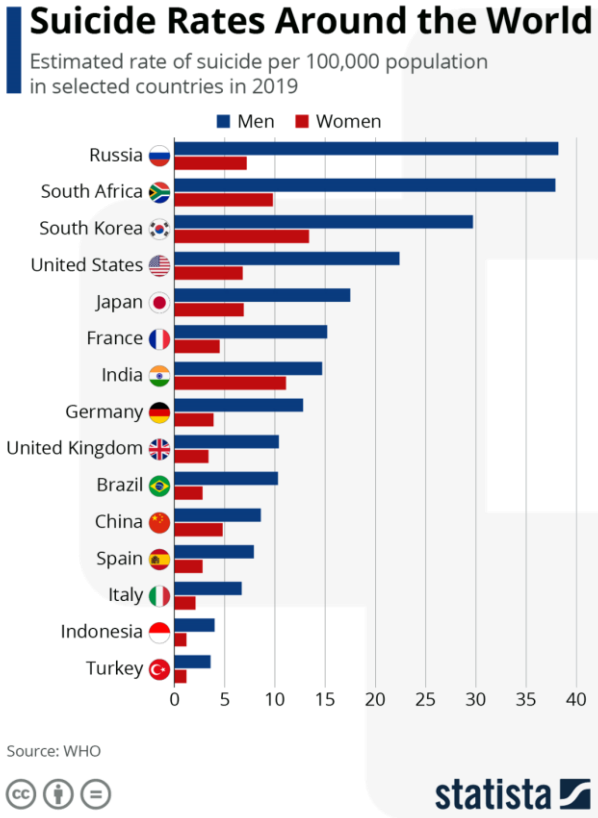
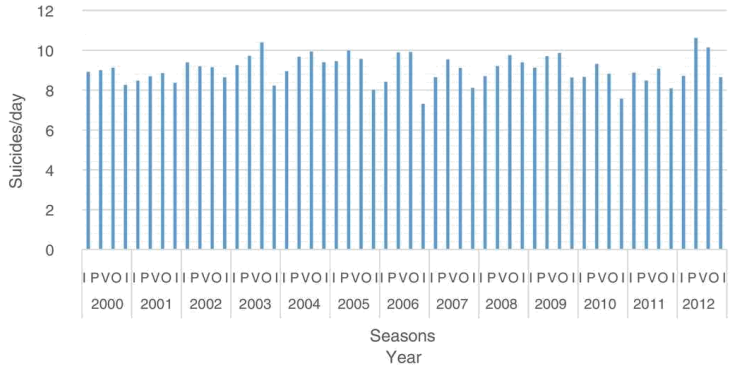
Introduction

- Spain ranked 130th of the 170 countries listed according to WHO's suicide report.
- A particular suicided case in Spain is "Suicides for eviction", i.e. linked to issues relating to housing and mortgage debt, where 34% of the suicides result from them
- Sometimes the link between eviction and suicide is unknown, and as in most suicides, is due to complex and difficult personal situations.

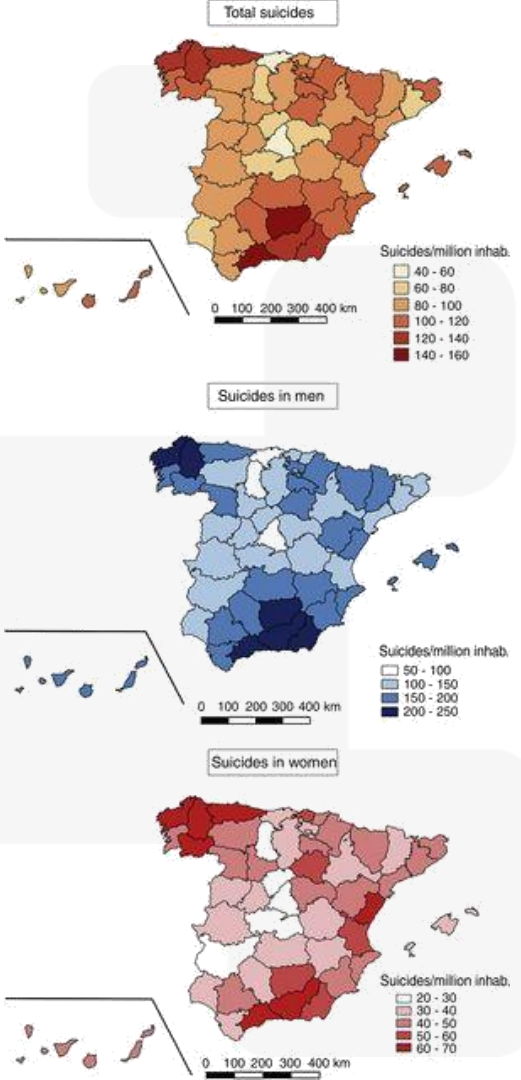


Insights about Suicides in Spain

- Region dependence
- Gender dependence
- Seasonal, monthly and weekly pattern



Rev Psiquiatr Salud Ment. 2018;11:192-8



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Our Focus

- **Papageno effect** is a protective effect on suicidal behavior determined by **overcoming facts on suicide** and empathetic responses to people suffering suicidal ideation
- **News media** are key to understanding **how the population reacts to a certain topic**
- The **role of suicide-related media** have led to the creation of guidelines for media reporting

- The **main aim of this research** is to get a **better knowledge of suicides-related contagion publishing in Spanish Media** using **NLP**

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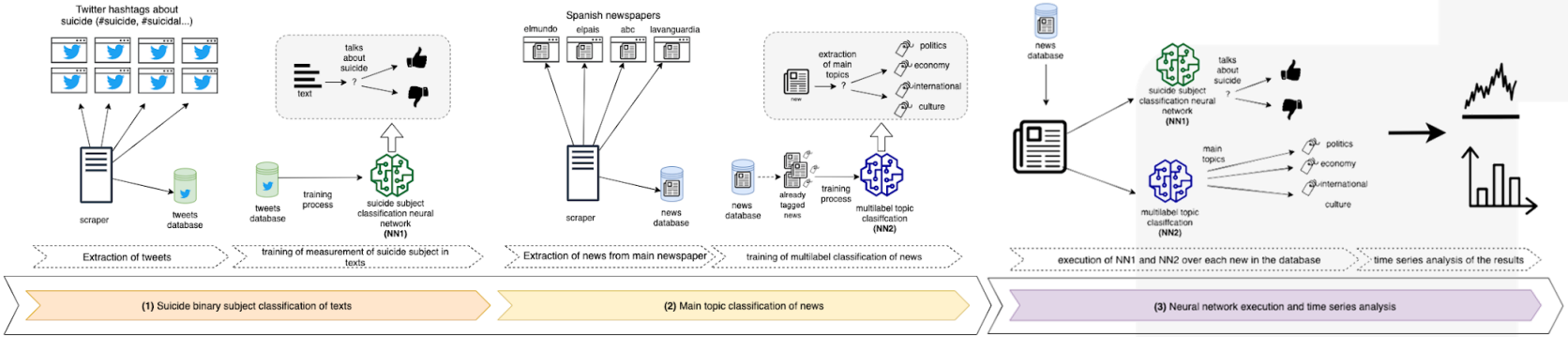
Methodology

Workflow of the topic classification process.



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Methodology

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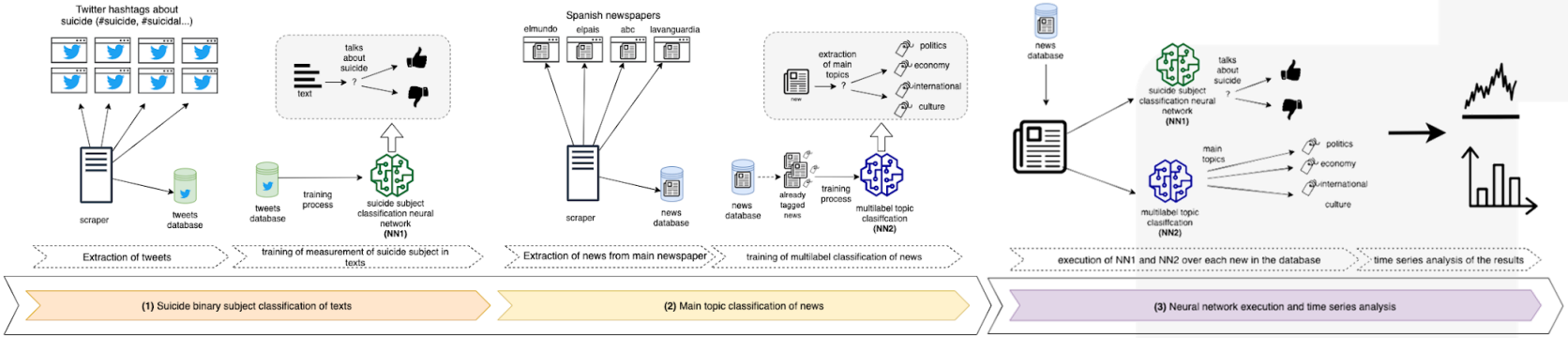

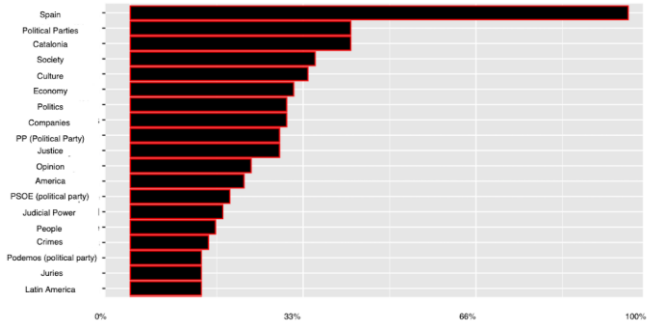

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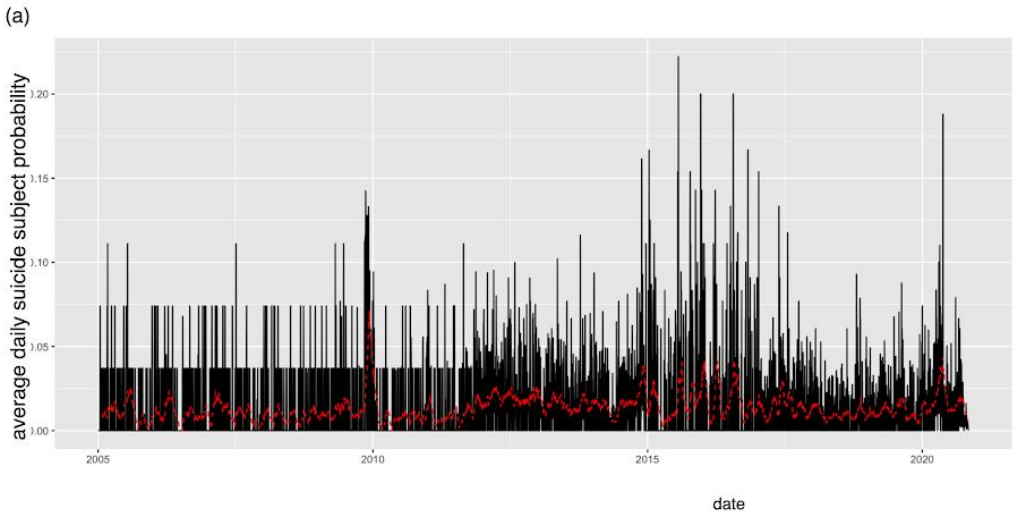
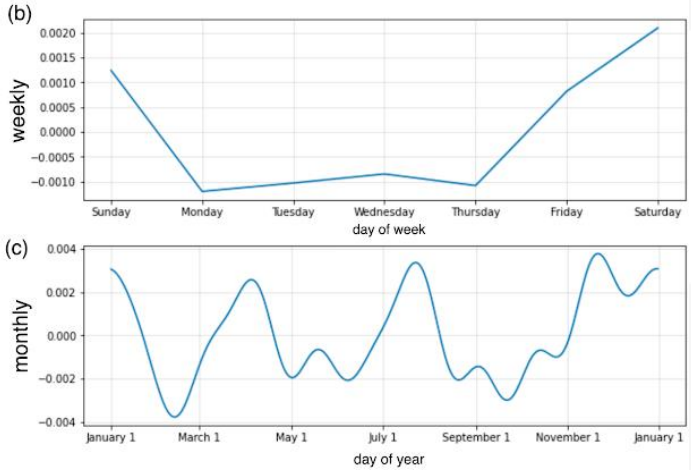
The impact of mediatic suicide cases

To understand the press coverage of suicide in more detail, we analyze the suicide **subject probability over time**, i.e. the temporal changes





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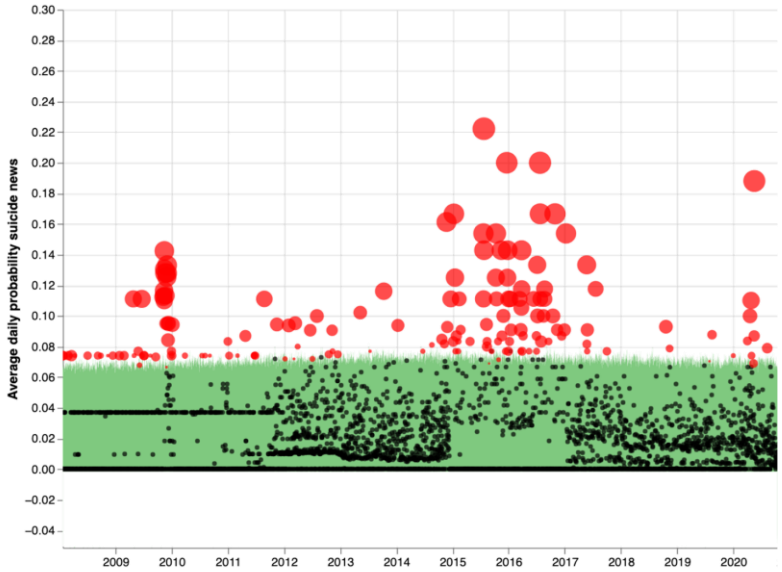
Anomalies detection

The temporal variation of the average daily probability of suicide contagion in news (black simbols) , the Porophet fitting curve (green lines), and the anomalies points (red symbols).



Date	Suicide subject average probability	Event
2015-07-24	0.22	The news refer to the death by suicide of a black woman in EEUU after being deteined. https://elpais.com/internacional/2015/07/24/actualidad/1437730718_661809.html https://www.abc.es/videos-otros/20150722/joven-negra-aparece-ahorcada-4369825582001.html
2015-12-20	0.20	The news cover a gang rape in which one of the five rapists died by suicide in jail. https://www.publico.es/internacional/menor-involucrado-violacion-grupo-nueva.html https://en.wikipedia.org/wiki/2012_Delhi_gang_rape_and_murder
2016-07-23	0.20	German-Iranian terrorist dies by suicide after killing nine https://www.publico.es/internacional/atacante-munich-suicido-disparo-policia.html

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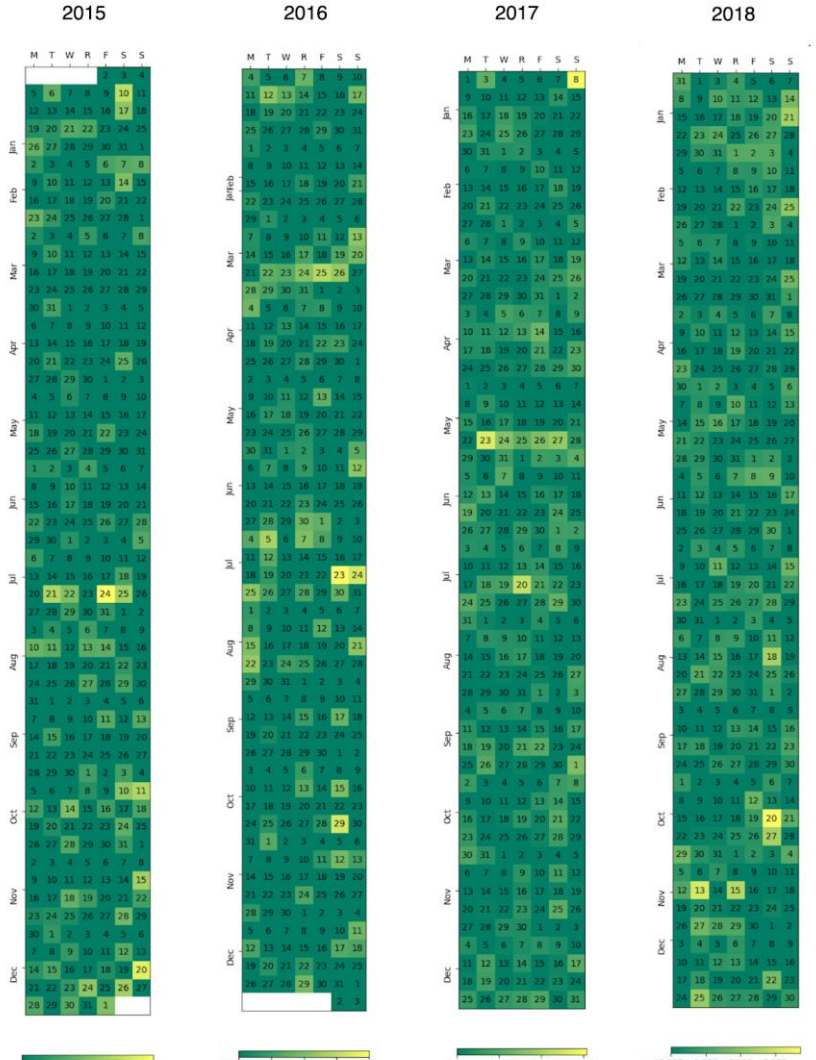
Heatmap

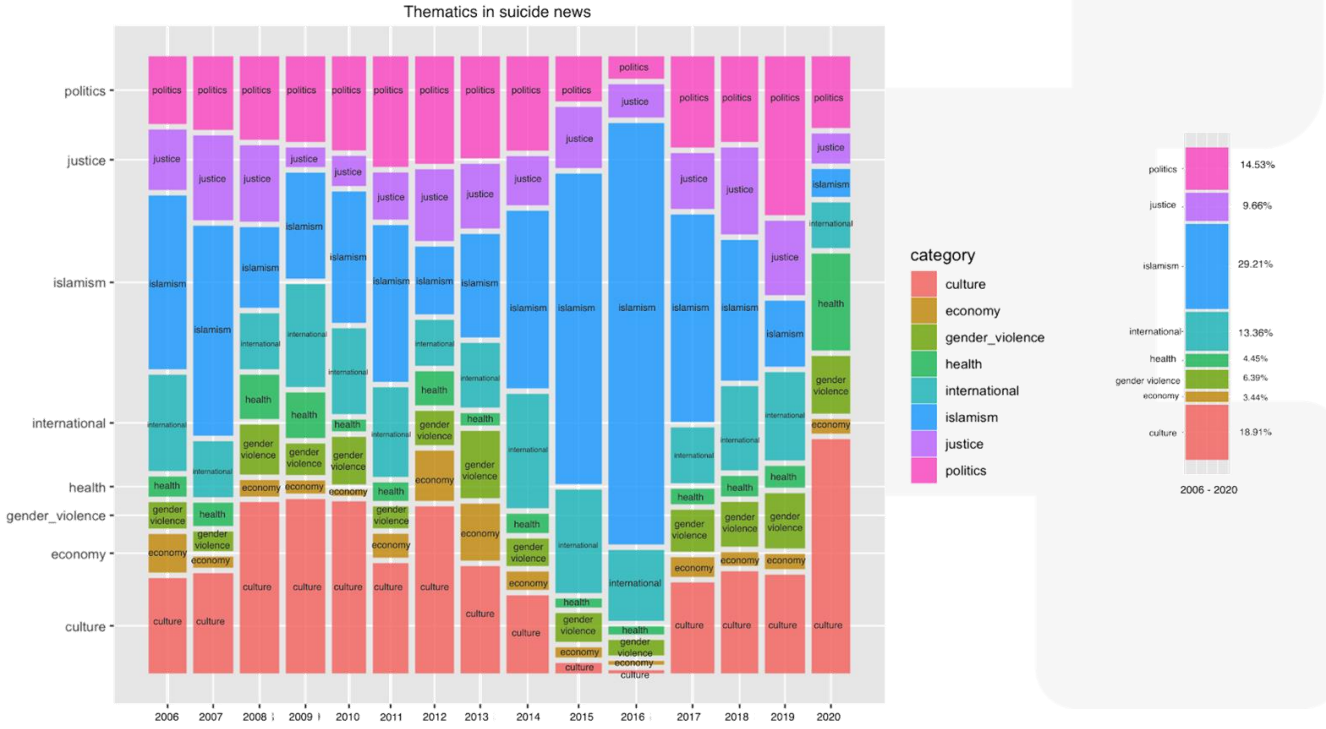
The high probabilities of suicide subject not only correspond to the anomaly day, but pop up over the course of several days, i.e. a relevant event remains on the news over time .



Intrinsic thematic relationship of suicide news

Intrinsic connection of subjects (or tags) in the news.

We extract **how likely is that each news address suicide topics by a suicide subject** binary classification



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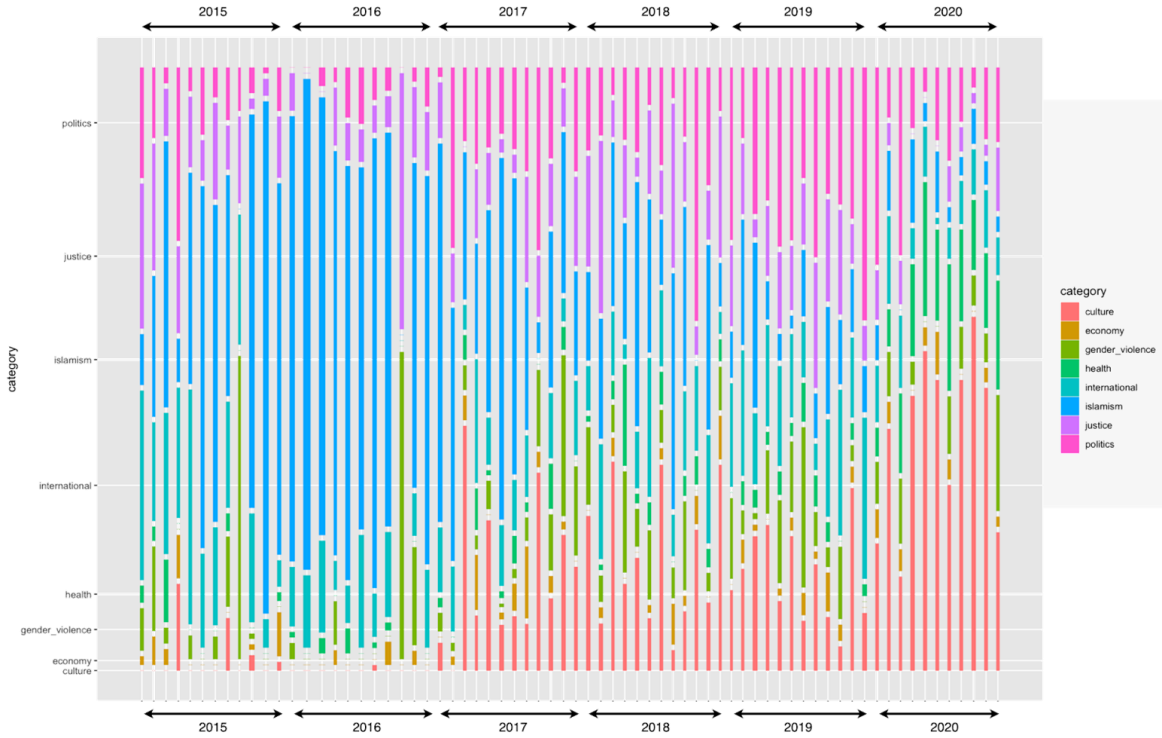
Intrinsic thematic relationship of suicide news

Despite that over the years the main topics which a suicided connotation do not change, the percentage of them does.



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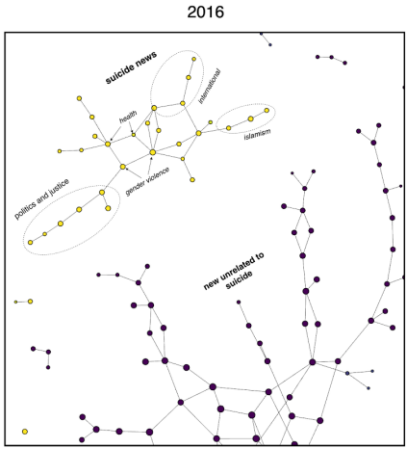
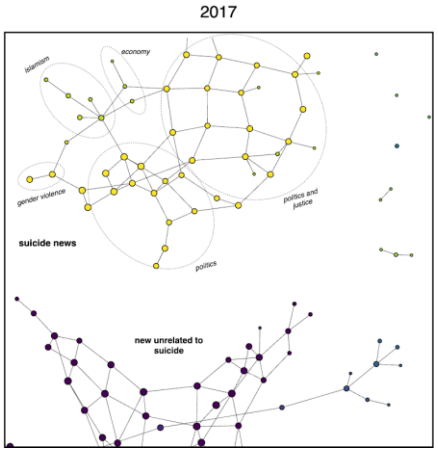
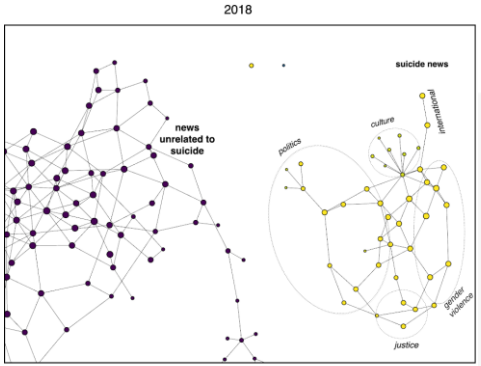
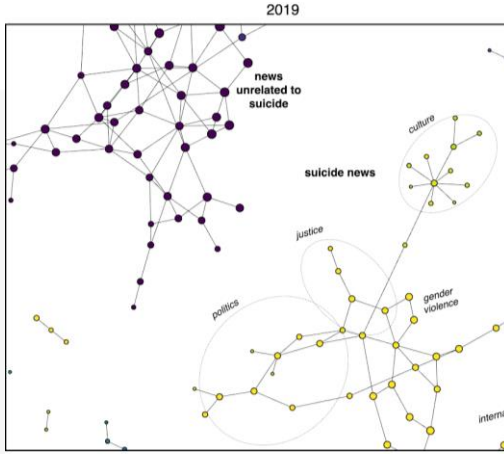
Interdepended between topcis

The fundamental assumption in topology is that the way in which the parts of a system are connected is more important than distance. Mapper algorithm









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Conclusions

- We have focused on **extrapolate the effect of mediatic suicide cases** in the **reporting of suicide news**.
- Based on the hypothetical protective effect and in order to prevent contagion (**Papageno effect**), the WHO (World Health Organization) **developed guidelines and recommendations for the news media professionals** to ameliorate the elaboration of news on suicide
- **Suicide tends to be connected** by the media with the subject “politics”, “justice”, “culture”, “Islamism” and “gender violence” and rarely with the subject “health”
- This finding may set a new point of view and representation of the news about suicide that would **lead to better reporting.**

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Presented by

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