

ETC5543 - Business analytics creative activity - S1 2023

Internship Report

Nishtha Arora (32296622), Monash University, Victoria, Australia

2023-06-15

Abstract

For decades, computer based reporting has been an integral part of journalism, that uses public records, databases, private and public data sources to investigate patterns, trends or even anomalies in the data collected. The integration of data analysis in the reporting industry brings challenges with it, i.e., data manipulation, wrangling, access to platforms supporting visualization reorganization, etc.(Halevy & McGregor, 2012). The aim of the project is to support the journalism team of authors and editors with compelling visualization to support their claims and research, or creation of an analysis via a visual related to the topic selected. The first package, **‘Decriminalizing Suicide’** focuses on *India’s Mental Health Act 2017* and opposite results are observed due to different data sources, an increase and decrease after 2017, which is discussed in the report. The second package, **‘Policing the Police’** takes an angle of _____. The project uses methods of data wrangling, exploration, pdf scraping, spatial analysis and basics of functions of tidyverse, in R language and uses ‘themes360info’ package for the theme. The report is divided into two sections, i.e., the topics of published articles. The workflow for both starts with initial analysis for the topic, the shortlisted/selected visualizations with 360info theme added, reasons for selection or rejection of a particular visualization and the challenges faced during the process. The overall analysis shows that _____

Contents

About	2
Background and motivation	3
Objectives and Significance	4
Methodology, data, results and discussion	6
Decrimanalizing Suicide	7
Policing the Police	14
Visualization 11- updating visualization 10	22
Conclusion	23
References	24

About

360info is a not-for-profit open access agency that provides global information regarding world's issues and provides solutions for the same. This content is forwarded to re-publishers without charge, under Creative Commons.

The content published is based on research, and each week a special report is published, focusing on a global problem, which consists of 5-10 articles covering different aspects in the problem. These articles are contributions from academics across various fields of study, depending on the article.

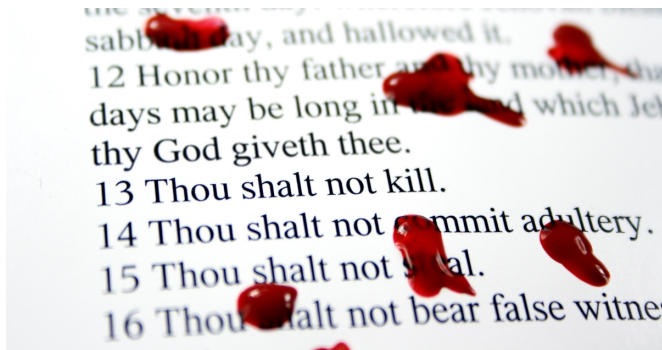
Each report is supported by visuals, can be images, graphics or interactives. Any story telling can be made better with a data-driven analysis along with it and hence, this internship has given me a chance to work in the data and digital story telling team, produce data visualizations, collaborating with the authors and editors.

All the published work is reproducible for media partners and is published under Creative Commons licences, which is good for art, educational and entertainment works. 360info uses Creative Commons attribution 4.0 because it allows the user's rights under the licence to be reinstated, if the user comes in compliance within 30 days of discovering that they were in violation of the rights.



Background and motivation

Suicide is a worldwide public health problem. There have been over 700,000 deaths from suicide worldwide in 2019. Overtime, there have been a no. of theories if decriminalizing suicide is a boon or a bane? Will it increase the suicide rate or decrease it? It may decrease the overall rates because then people will start talking about it openly, which will improve mental health and therefore, less suicides, or it may increase the attempt to suicide rate. According to WHO, there are still 20 countries that have criminalized suicide (World Health Organization: WHO, 2021).



The British common law stated that one has no right to take his/her life as it belong to the state and this affected many former British colonies like Kenya, who still criminalize suicide, even after the colonization ended.

With the advancement of science in the 19th and 20th century, it was discovered that suicidal tendencies are caused by biological factors as well and hence, continents like Europe and North America revoked the laws reagrding crimanlizng suicide.

Firther, as the years went by, and awareness increased, alot of policies came into action, like Convention on the Rights of Persons with Disabilities and World Health Organization Mental Health Action Plan 2020–2030 prompted various countries to decriminalize suicide

Theories like ‘criminalizing suicide prevents people from reaching out for help which results in an increase in suicide rate’ or ‘criminalizing suicide would decrease the attempts made to suicide and hence, lower the suicide rate’, are up for debates.

Objectives and Significance



Suicides are the result of no. of causes, ranging from abuse victims, loss, loneliness, use of intoxicants to financial issues. All these issues result in mental breakdown and it is safe to say that all potential suicide victims go through a mental health issue, it might not be true vice versa. These mental health issues come with stress, anxiety or depression and often times are linked to suicidal feelings or behaviour and might not be the only cause of suicide. The relationship between mental health and suicides is complex.

Suicide prevention strategies are being discussed and somewhat implemented at certain regions around the world, like means restriction, mental health literacy, suicide prevention financial support, free psychological help and responsible media coverage. Therapy and counselling are becoming openly talked about and acknowledgment of one's mental health is the first step towards a better human health globally.

For every one completed suicide, 20 more attempts are made. Identification of potential suicide victims via these attempts can result in help-seeking and prevention of suicide but criminalizing it, hinders the help-seeking and also results in inaccurate tracking of suicides. Also, there are data gaps in data round the world for a particular year, years or season which could be a result of no. of factors like, a change in the government, a sudden technology advancement, a low economy country, major events, etc.

These gaps need to be tackled for better tracking and hence, specific preventive measures. The causes for suicides are varied, and its tracking gaps can be because of personal or national reasons. The increase or decline in the data cannot be fully trusted, as it could be false or hampered.

Another issue is the different trusted data sources having completely different numbers for the same country and the same year. The goal for this report is:

- hello

- hello 2

Methodology, data, results and discussion

In the special report, 8 perspectives were decided to be discussed, out of which initial visualizations were created, global/generic and related to a particular article and then the ‘360themes’ package was added to the selected ones.

Note: Every text in italic is a hyperlink

Decrimanalizing Suicide

Initial Visualizations

Visualization 1: A generic visualization for the package Decimanlizing suicide- Crimanlizing suicide only makes it worse.

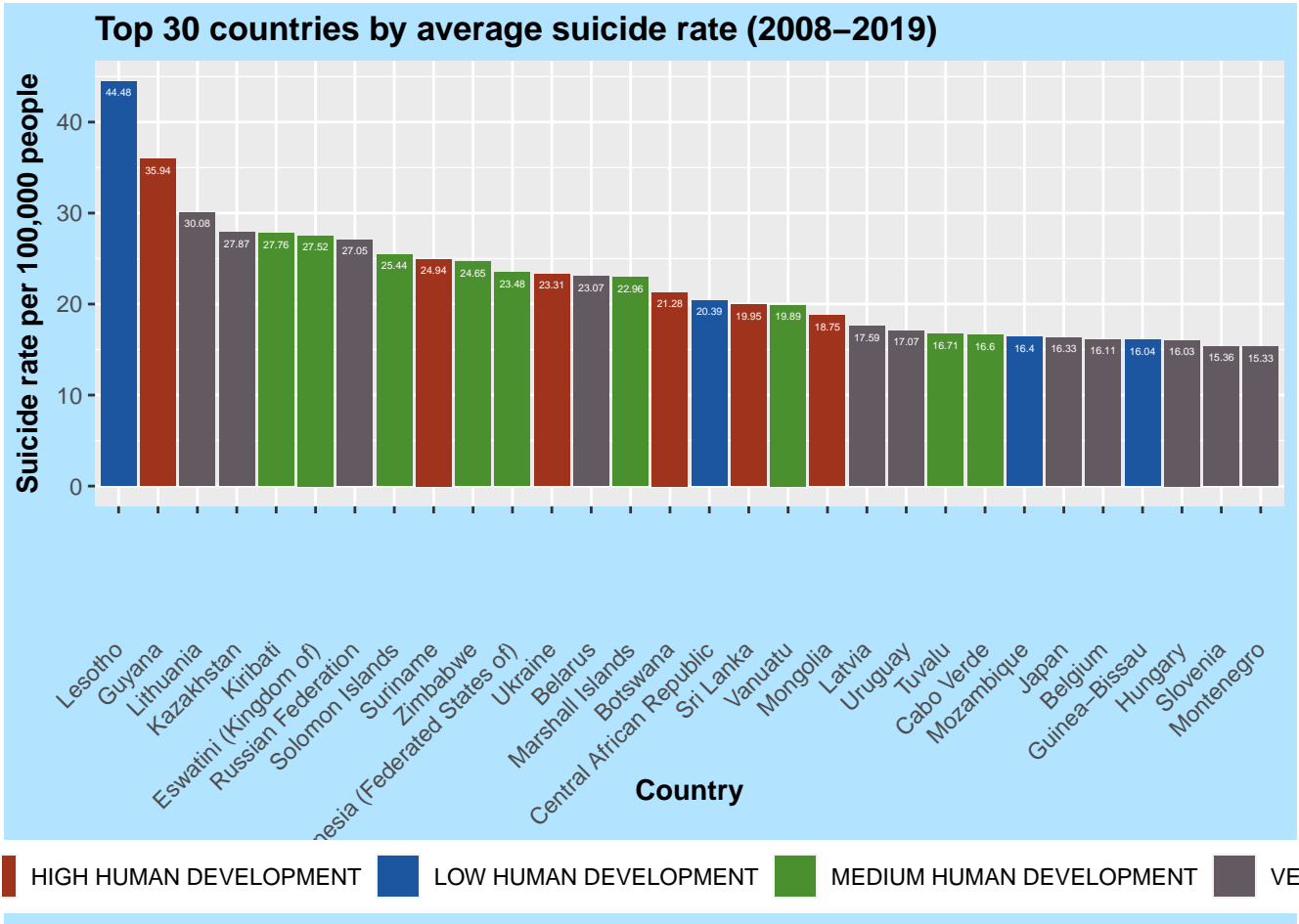
Data source:

- World wide suicide rates: Our World in Data
- Human Development Index: UNDP

HDI (Human Development Index) is a statistic composite of life expectancy, mean years of schooling, expected years of schooling and per capita income. These indicators are used to classify countries into four tiers of human development.

Table 1: Range of HDI ranks for Human Developent 2020

HDI_Value_2019	Development_Index
0.8-1	Very High HDI
0.7-0.8	High HDI
0.55-0.7	Medium HDI
0-0.55	Low HDI



Experiment for further visualizations.

For further visualizations, a more legit data source was recommended, and hence a global suicide rates data was extracted from World Health Organization which contains global data of suicide rates from 2000 to 2019..

Comparison of data from OWID and WHO by selecting a random country, say Australia.

Table 2: Comparison of Data Sources- Australia's Suicide rate

Year	suicide_rate_OWID	suicide_rate_WHO
2019	10.39	11.25
2018	10.44	11.26
2017	10.50	11.79
2016	10.90	10.92
2015	11.35	11.81
2014	11.11	11.31
2013	10.78	10.24
2012	10.74	10.48
2011	10.81	10.06
2010	10.90	10.41

It is observed that the WHO data values are higher than OWID values for the years 2014 and after, and lower for the years 2010-2014.

Visualization 2: This visualization observes data gaps and reduncies in the dataset and was to be paired up with What a suicide database registry should look like

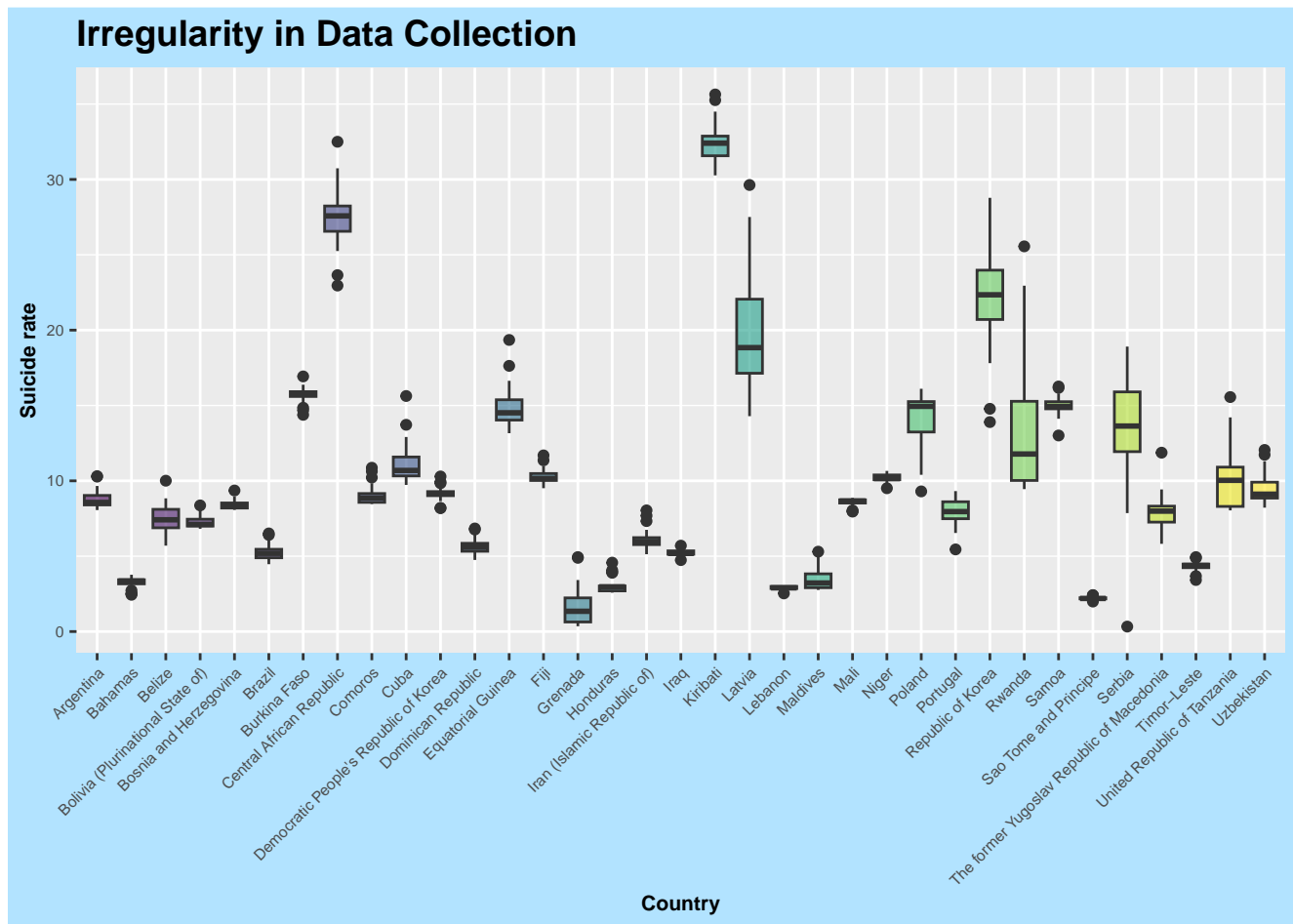
Data source: Global Suicide Rates WHO

Here, the objective of the visualization is to confirm significant errors in any data and why any data source cannot be fully trusted. This is done by observing outliers in the data set. *Stephen Hawkins described Outliers as a point that deviates so much from the other observations that it arises a suspicion about a different mechanism being used for its generation*(G, 1987).

These data points vary differently and could be due to no. of reasons, for example, variability in measurement, hampering of data, misreporting, under reporting, duplication, sampling errors, unusual events, human errors of recording incorrect data or miskeyed upon data entry, etc.

Outliers are highly underestimated! A small proportion of outliers can affect a simple analysis, giving rise to inflated error rates and distortions in statistical estimates and removal of these can help improve the accuracy significantly(Osborne & Overbay, 2004).

Here, initially the complete data set was observed for observing outliers, but due to it being a large data set, text overlapping and squeezed observations made the visualization hard to read, hence, countries with significant outliers were selected for visualization.

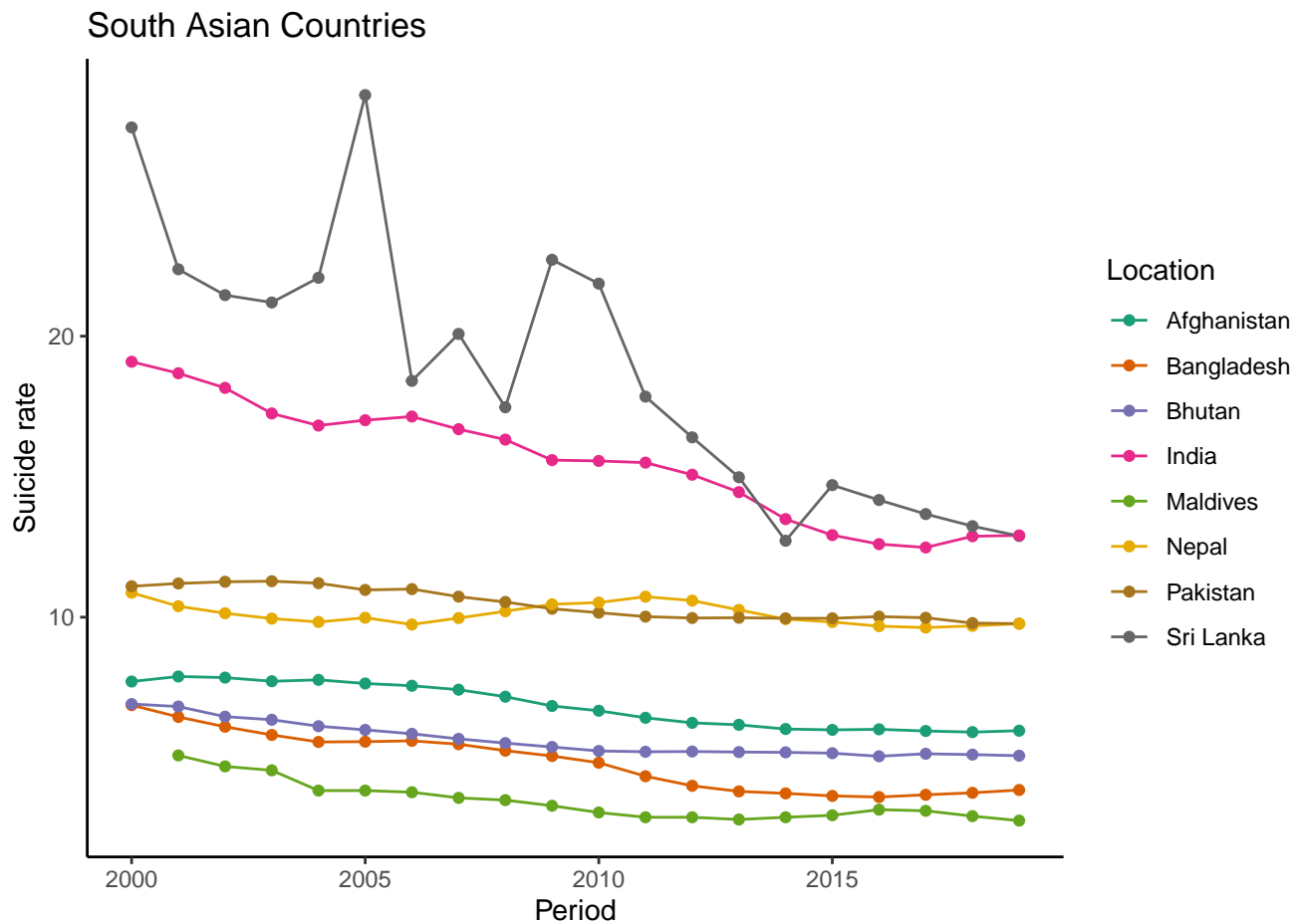


Visualization 3: Trend of suicide rates in South Asian countries. This could be paired with any of the article with a mention of a South Asian country, for example, Malaysia in

Suicide is not a crime, Pakistan in *With suicide not a crime, the real work begins*, Bangladesh in *Suicide is a mental health issue, not a crime* and a discussion on *India's Mental Health act*. Sri Lanka is also mentioned in *The alternatives that can help prevent suicide*.

Data source: WHO

The suicide rates in South Asian countries are reported to be between 0.43 to 331.0 per 100,000 population, which is high compared to the world average.



Shortlisted Visualizations

Visualization 4: A time-series plot depicting suicide rate trend before and after 2017, i.e. to pair up with the article on India's Mental Health Act 2017.

Data source : WHO

SUICIDE IN INDIA

Suicide rates in India have declined from 2010 to 2017 and then a sudden hike is observed

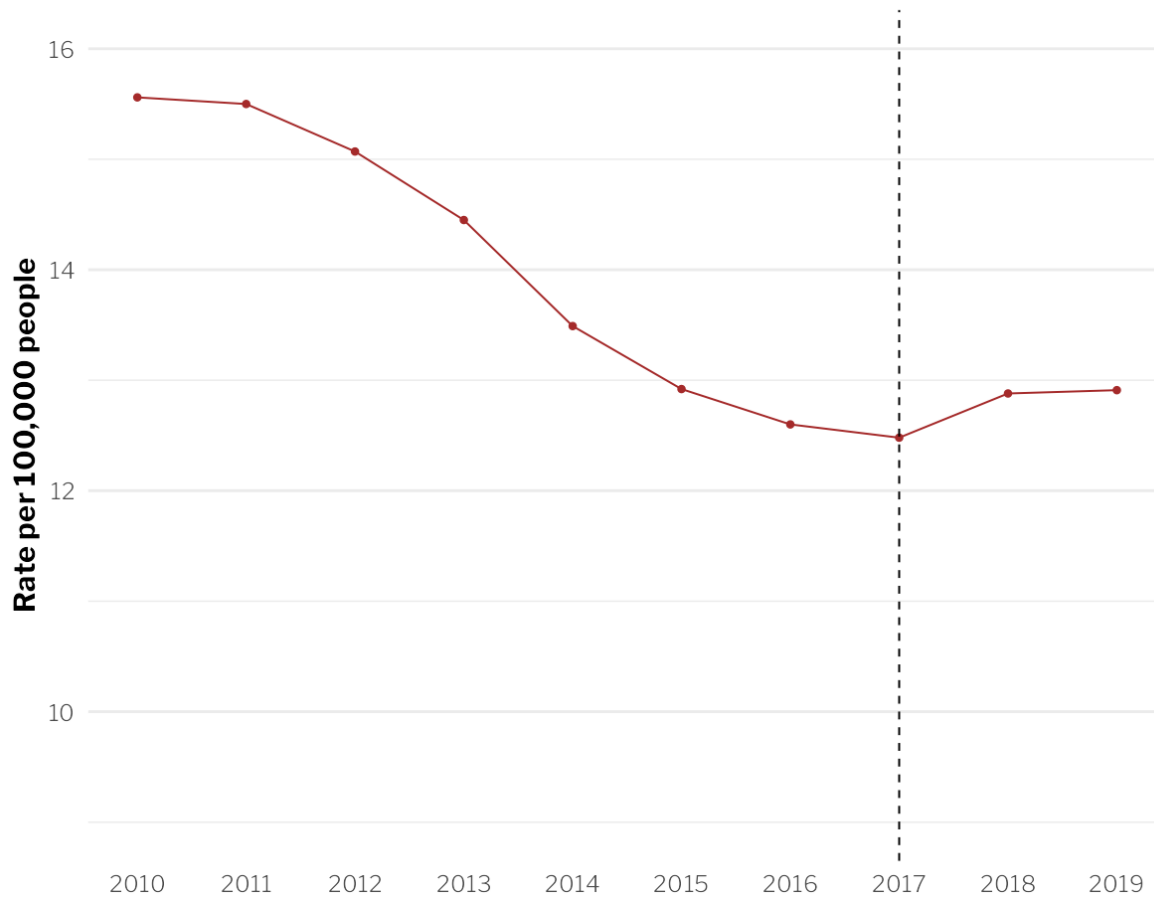


CHART: Nishtha Arora & James Goldie, 360info

DATA: Our World in Data



Visualization 5: A state wise India's suicide rate to pair with the article How India continues to punish those who attempt suicide..

Data source:

- Data.gov
- Geometry data at Diva-gis

REGION-WISE: SUICIDE IN INDIA 2019

No. of suicides were maximum in Andhra Pradesh and Arunachal Pradesh

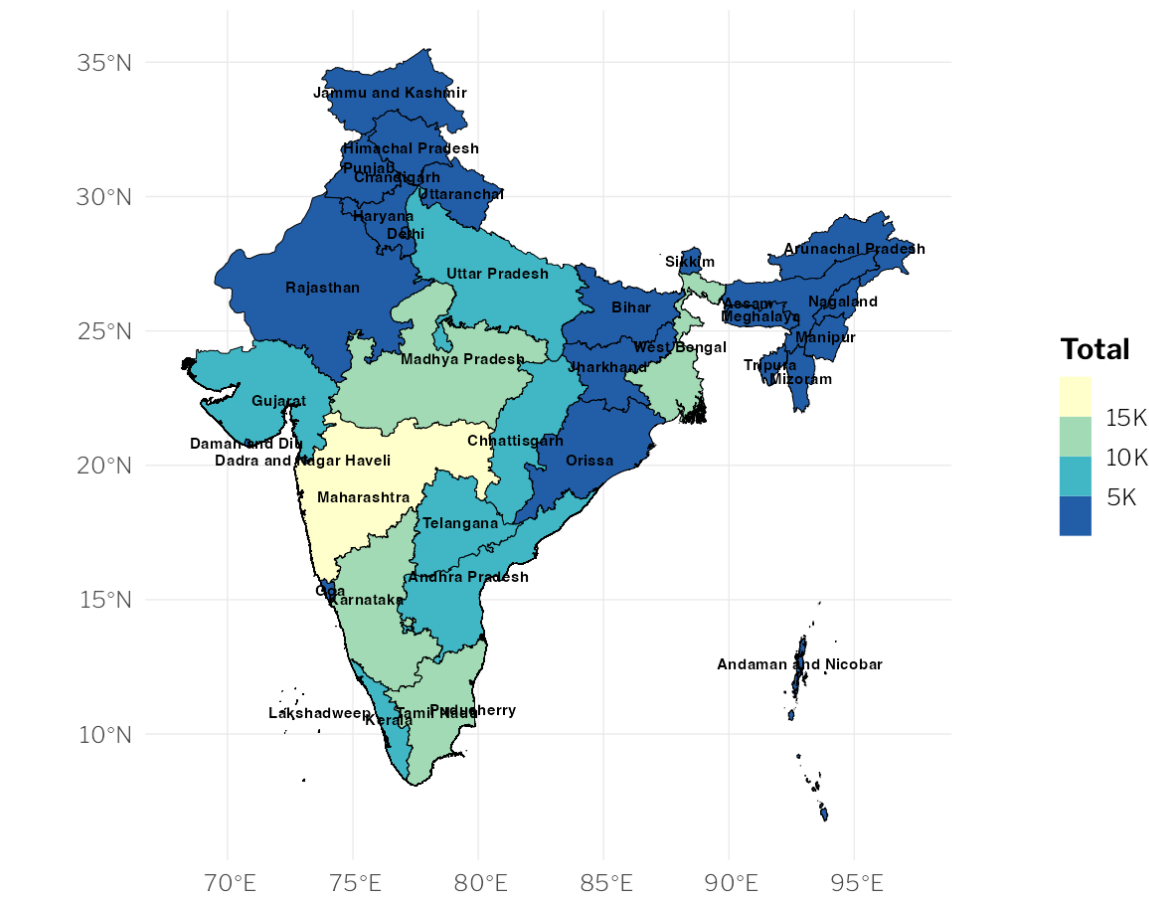


CHART: Nishtha Arora & James Goldie, 360info

DATA: Our World in Data



Selected Visualization

Visualization 6: Comparison of visualization 4 with the similar plot made from National Crime Records Bureau extracted data

Data source:

- NCRB

```
## mapping: x = ~x, y = ~y
## geom_rich_text: na.rm = FALSE, label.r = 0, label.padding = 0.25
## stat_identity: na.rm = FALSE
## position_identity
```

SUICIDE IN INDIA (data.gov)

Suicide rates in India have rapidly fallen till 2016.

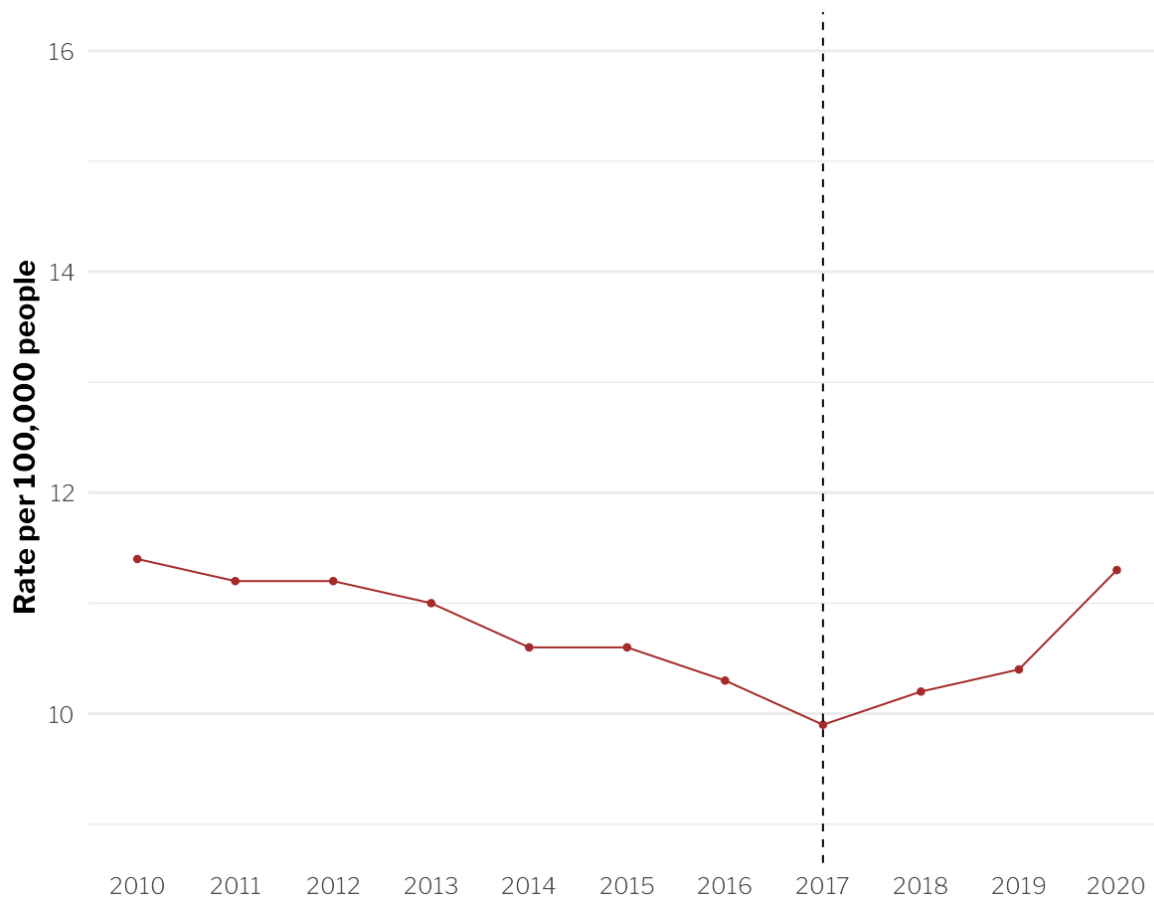


CHART: Nishtha Arora & James Goldie, 360info

DATA: NCRB



Policing the Police

The visualizations here are generic and related to different aspects of ‘Policing the Police’, for example,

- Corruption/bribery
- Police Shootings/Encounter/Drug Wars/ Causalities
- Trust in Police

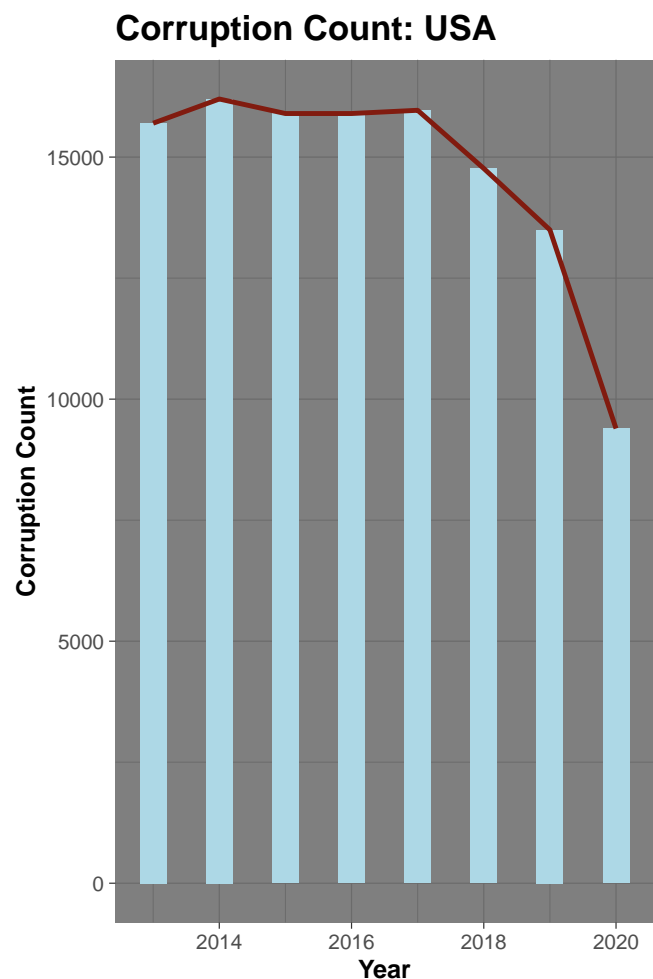
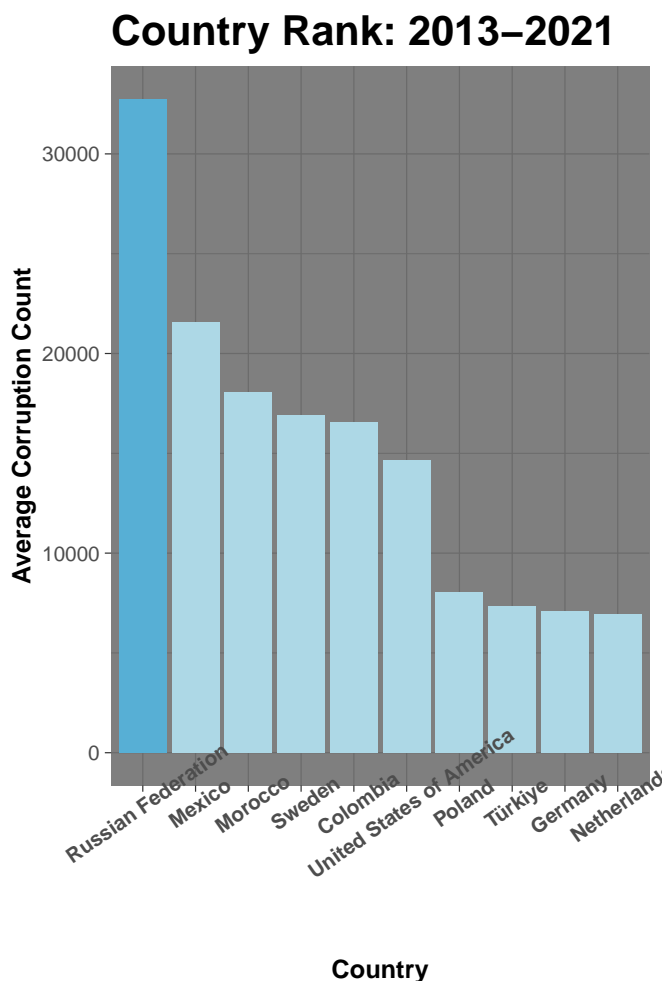
This is because, the package publication date was in June, i.e. 2-3 weeks later than the last day of internship. The article drafts would be created in early June and hence, the visualizations are not paired to specific articles for this package.

Initial Visualizations

Visualizations 1 & 2

Data source:

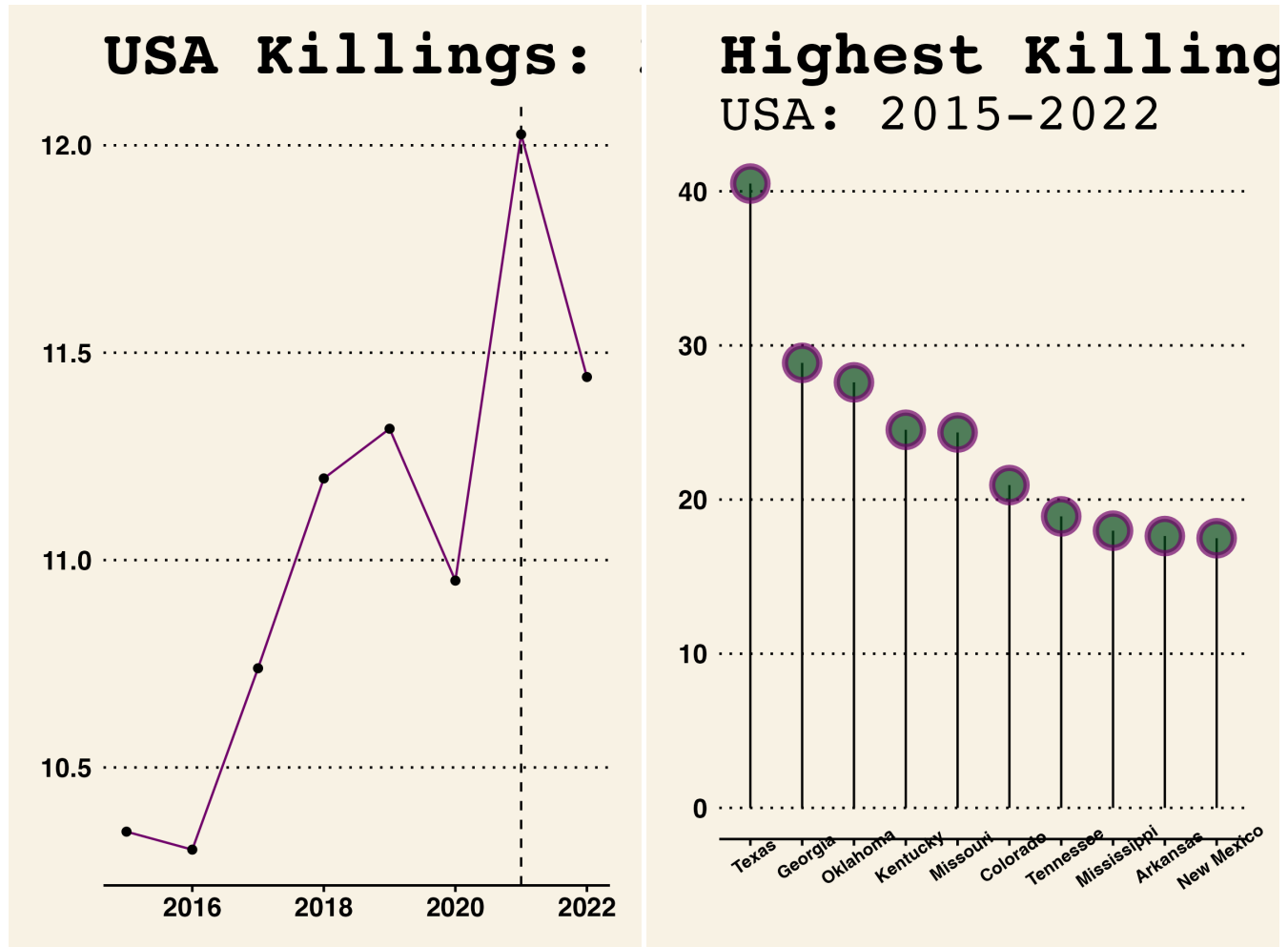
- UNODC



Visualization 3 & 4

Data Sources:

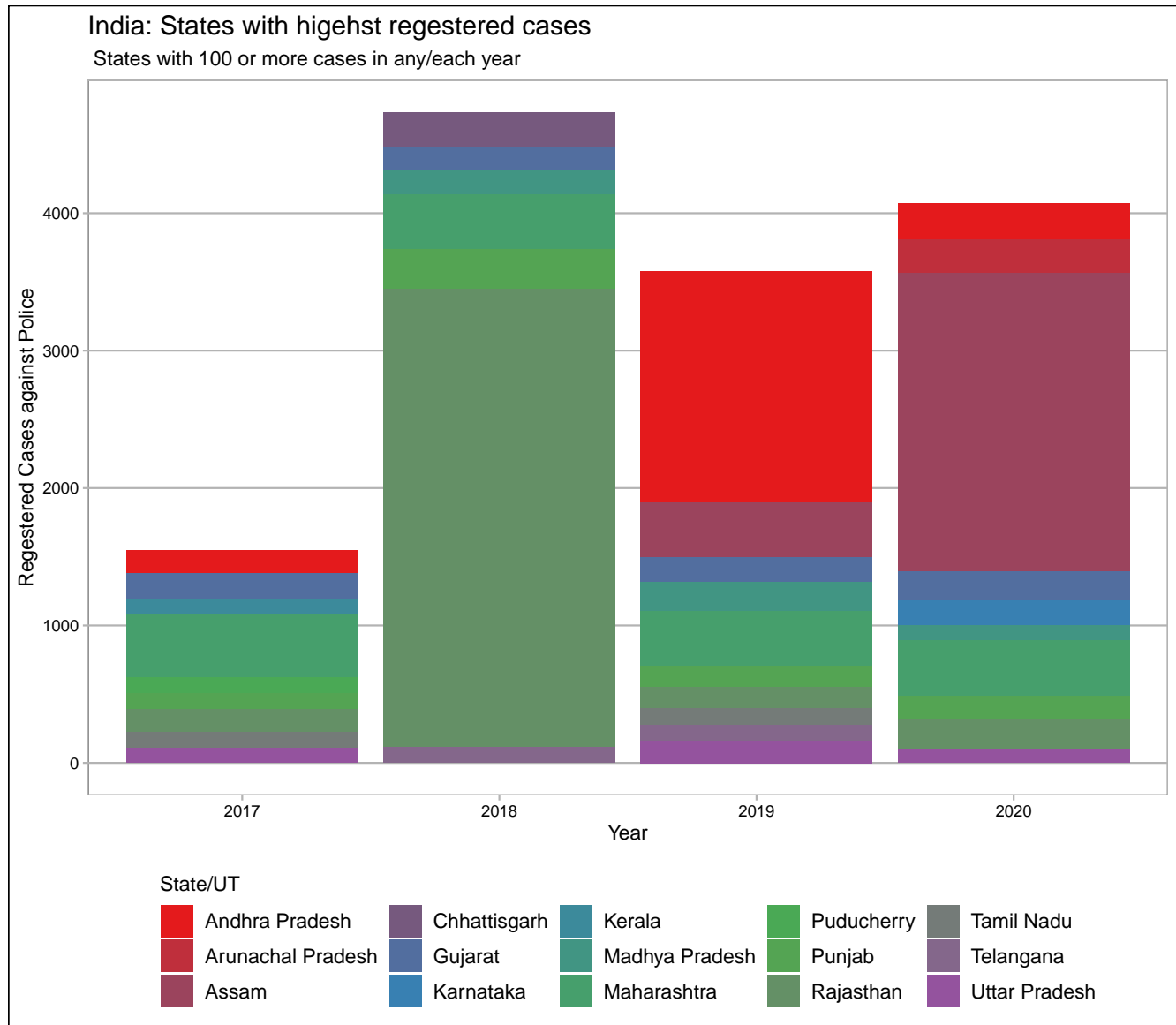
- Washinton Post
- Washinton Post Github
- Census data 2010-2020
- Census data 2020-2022
- Stats/States code data github

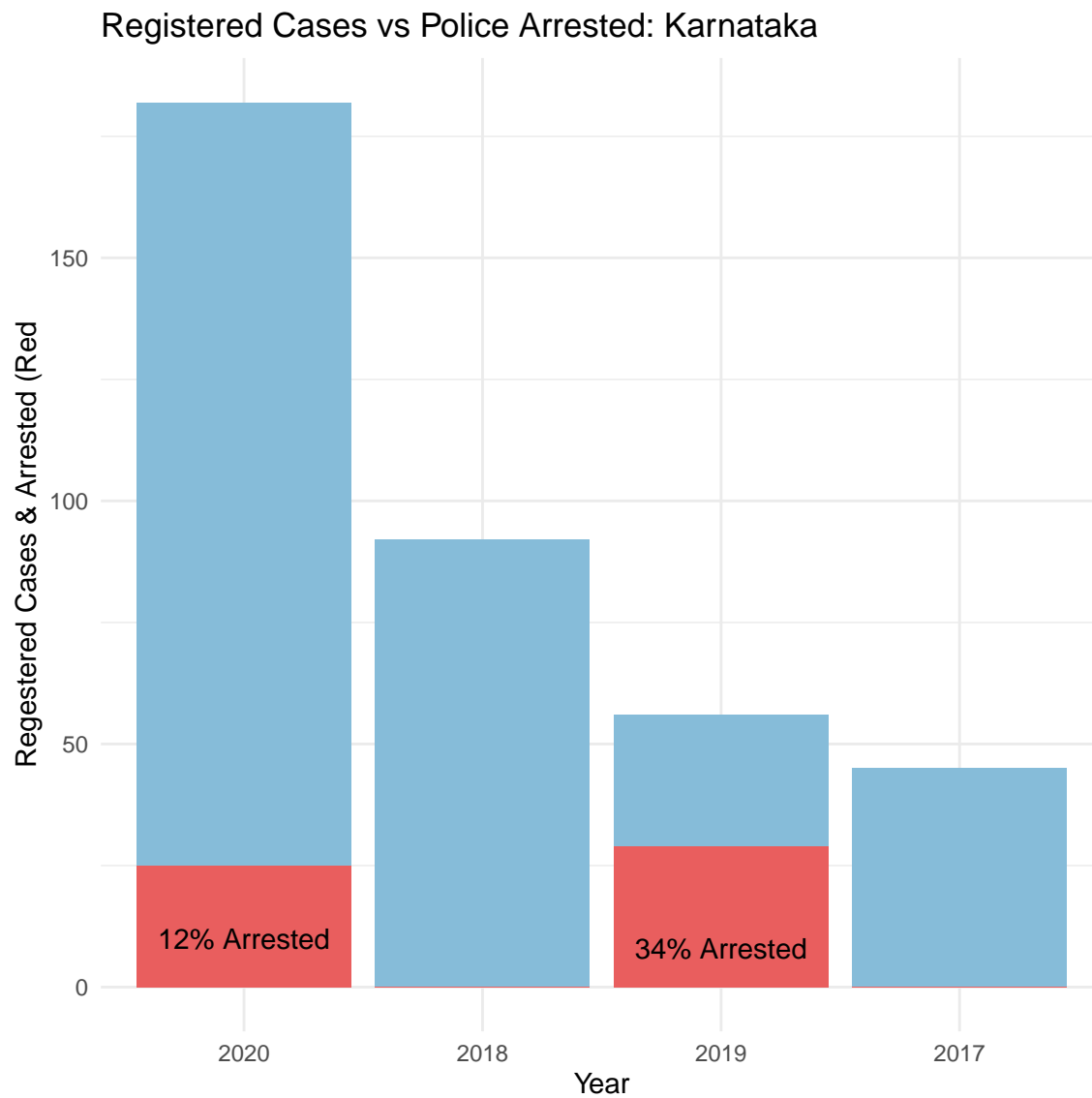


Visualizatio 5 & 6

Data Source:

- NCRB

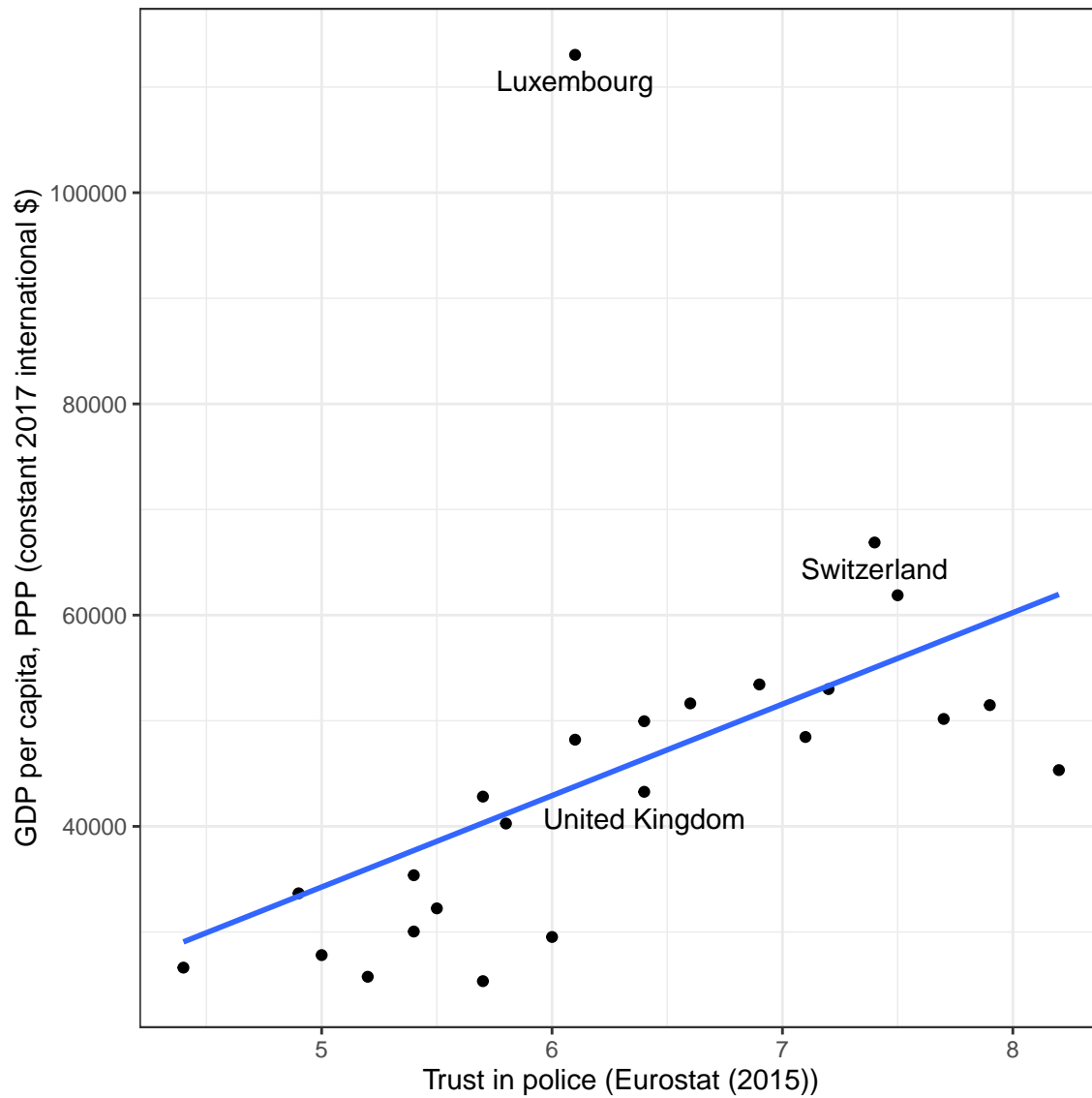




Visualization 7

Data Source:

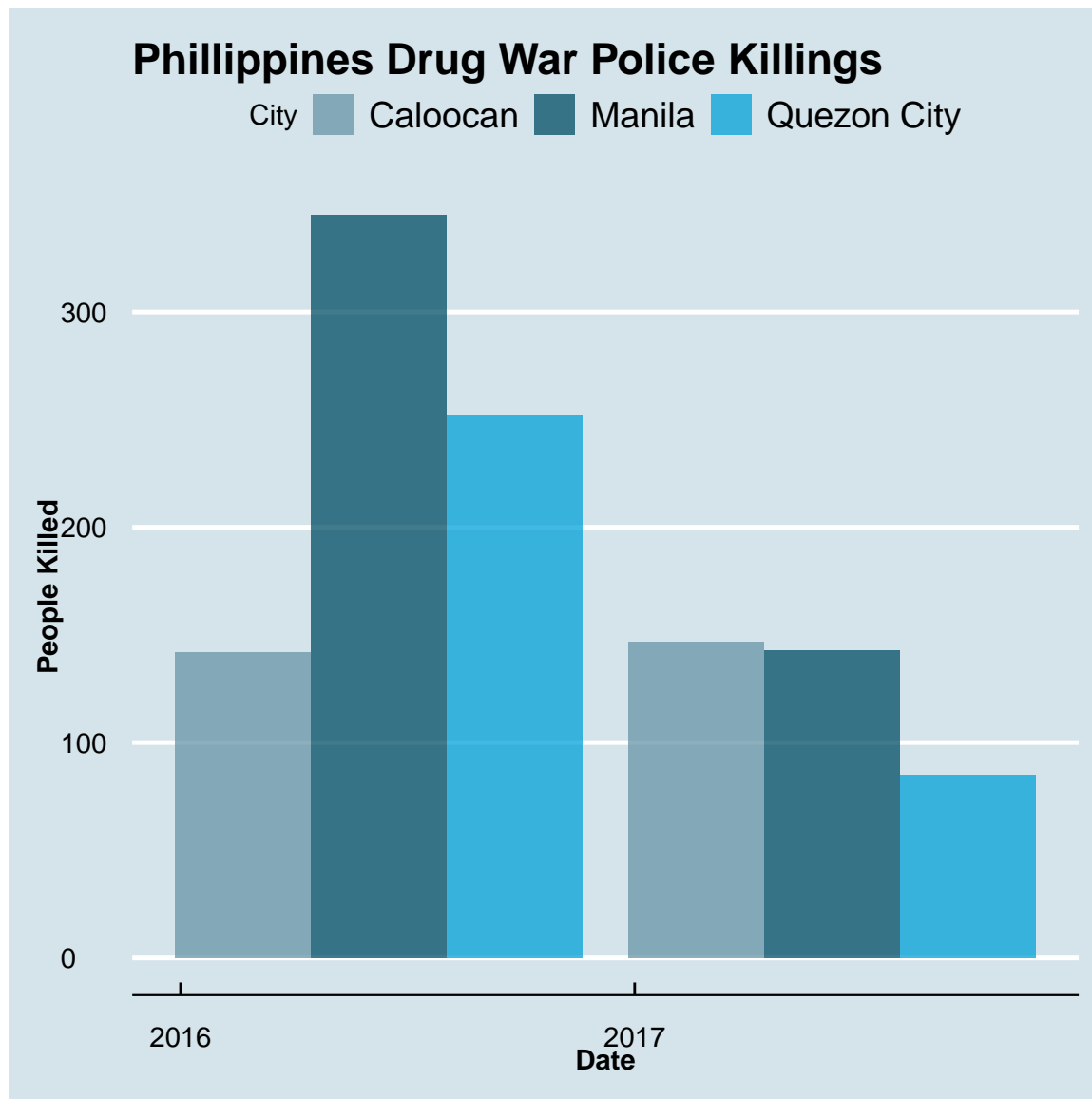
- OWID



Visualization 8

Data Source:

- Data.World



Short- Listed Visualizations

Visualization 9

Data Source:

- OWID

People Survey: High Corruption Scams

People believe Police to be the most corrupt, especially in the years 2013 & 2015

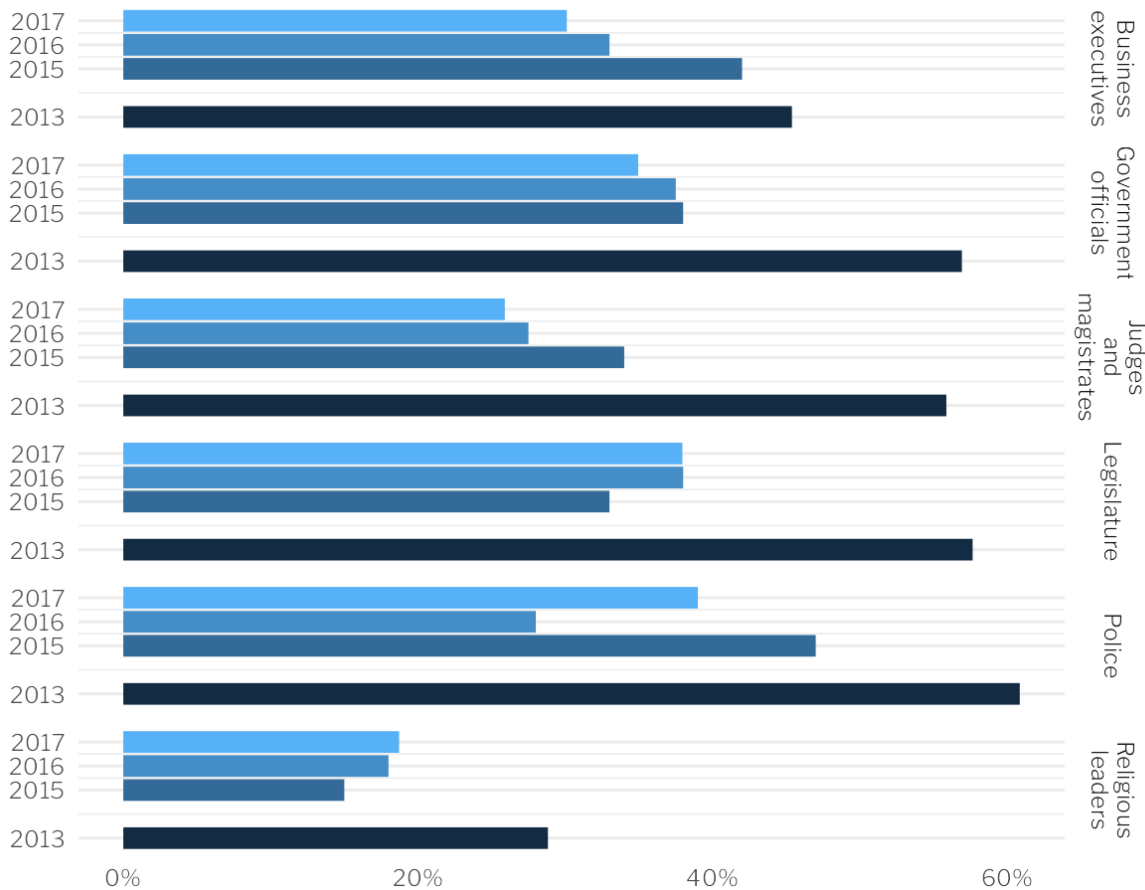
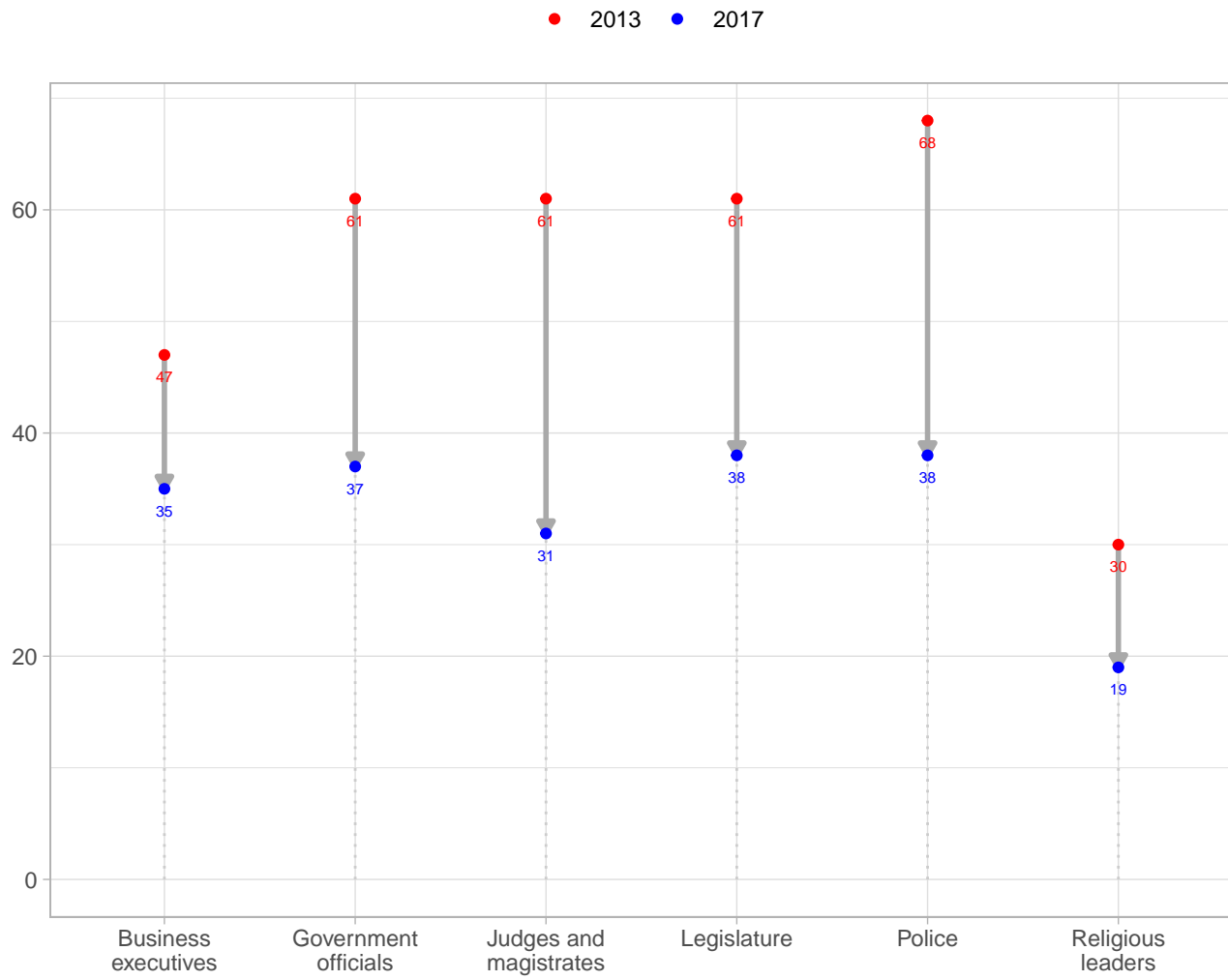


CHART: Nishtha Arora & James Goldie, 360info

DATA: Transparency International via Our World in Data



Visualization 10 - updating visualization 9



Selected Visualization

Visualization 11- updating visualization 10

CORRUPTION SURVEY

When asked which groups they perceived as corrupt, more people pointed to police than any other group.

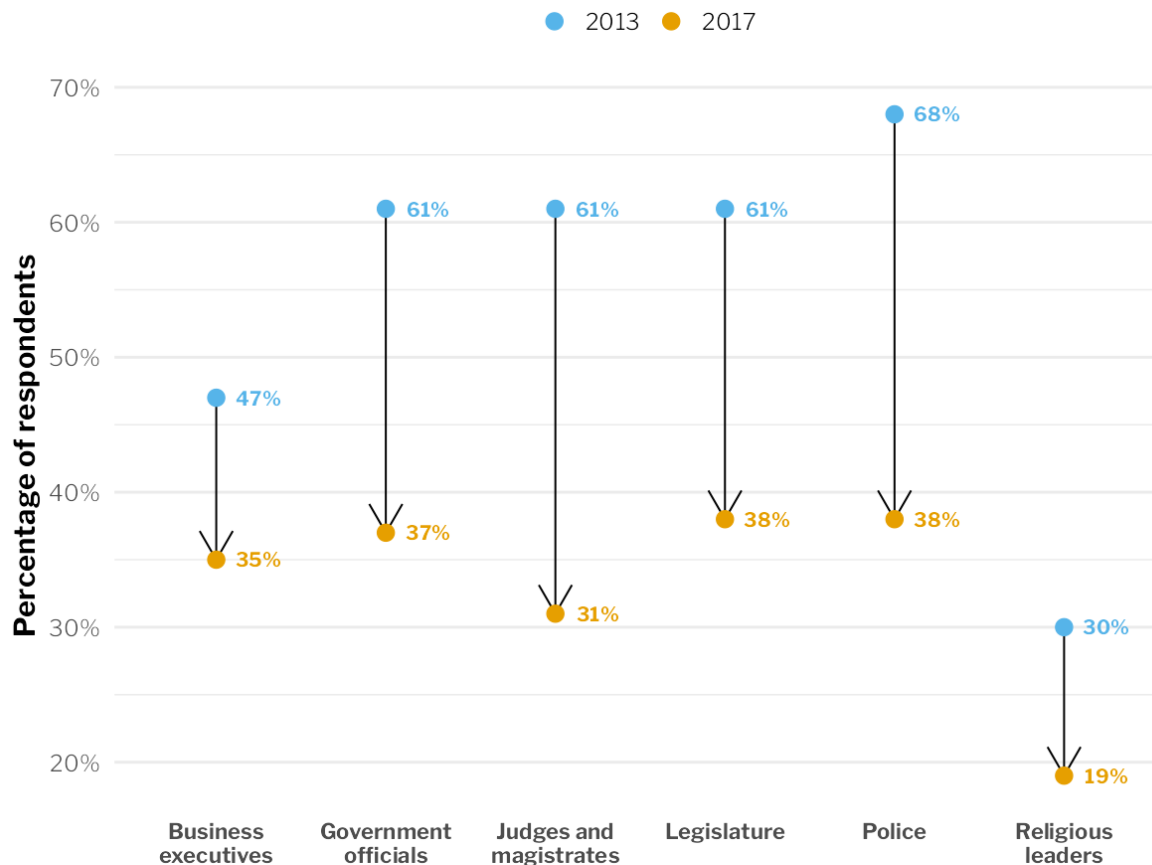


CHART: Nishtha Arora & James Goldie, 360info

DATA: Transparency International
via Our World in Data



Conclusion

References

- 360info. (n.d.). <https://360info.org>
- Assisted dying - Christianity. (n.d.). Christianity. <https://christianity.org.uk/article/assisted-dying>
- Dattani, S. (2023, April 2). Suicides. Our World in Data. <https://ourworldindata.org/suicide>
- G, E. (1987). Hawkins, D. M.: Identification of Outliers. Chapman and Hall, London – New York 1980, 188 S., £ 14, 50. Biometrical Journal, 29(2), 198. <https://doi.org/10.1002/bimj.4710290215>
- Ghana - Criminal Code 1960 (Act 29). (n.d.). https://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=88530
- Halevy, A., & McGregor, S. E. (2012). Data Management for Journalism. IEEE Data(Base) Engineering Bulletin, 35, 7–15. <http://sites.computer.org/debull/A12sept/p7.pdf>
- Jordans, M. J. D., Kaufman, A., Brenman, N. F., Adhikari, R. K., Kohrt, B. A., Tol, W. A., & Komproe, I. H. (2014). Suicide in South Asia: a scoping review. BMC Psychiatry, 14(1). <https://doi.org/10.1186/s12888-014-0358-9>
- Kenya - The Penal Code (Cap. 63). (n.d.). https://www.ilo.org/dyn/natlex/natlex4.detail?p_isn=28595&p_lang=en
- Lester, D. (2006). Suicide and Islam. Archives of Suicide Research, 10(1), 77–97. <https://doi.org/10.1080/13811110500318489>
- Lua filters in R Markdown. (n.d.). <https://rmarkdown.rstudio.com/docs/articles/lua-filters.html>
- Ochuku, B. K., Johnson, N. M., Osborn, T. L., Wasanga, C., & Ndeti, D. M. (2022). Centering decriminalization of suicide in low – and middle – income countries on effective suicide prevention strategies. Frontiers in Psychiatry, 13. <https://doi.org/10.3389/fpsyt.2022.1034206>
- Osborne, J. A., & Overbay, A. (2004). The power of outliers (and why researchers should ALWAYS check for them). Practical Assessment, Research and Evaluation, 9(1), 1–8. <https://doi.org/10.7275/qf69-7k43>
- Muiruri, P. (2022, October 19). Concern grows in Kenya after alarming rise in suicide cases. The Guardian. <https://www.theguardian.com/global-development/2021/aug/10/concern-grows-in-kenya-after-alarming-rise-in-suicide-cases>
- Ranjan, R., Kumar, S., Pattanayak, R. D., Dhawan, A., & Sagar, R. (2014). (De-) criminalization of attempted suicide in India: A review. Industrial Psychiatry Journal, 23(1), 4. <https://doi.org/10.4103/0972-6748.144936>
- Riederer, Y. X. C. D. E. (2022, November 7). 10.1 The function knitr::kable() | R Markdown Cookbook. <https://bookdown.org/yihui/rmarkdown-cookbook/kable.html>

Suicide Decriminalisation - United for Global Mental Health. (2022, July 4). United for Global Mental Health. https://unitedgmh.org/knowledge-hub/suicide-decriminalisation/?utm_campaign=SuicideDecrimReport&utm_medium=referral&utm_source=vip&utm_content=SuicideDecrimReport

World Health Organization. (2021). Comprehensive mental health action plan 2013–2030. <https://apps.who.int/iris/handle/10665/345301>

World Health Organization: WHO. (2021). Suicide. [www.who.int](https://www.who.int/news-room/fact-sheets/detail/suicide). <https://www.who.int/news-room/fact-sheets/detail/suicide>

Zhu, H. Z. (2021). Create Awesome LaTeX Table with knitr::kable and kableExtra. cran.r-project.org. Retrieved May 10, 2023, from https://cran.r-project.org/web/packages/kableExtra/vignettes/awesome_table_in_pdf.pdf