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# Post Mortem of Press Releases of the First 300 COVID-19 Deaths in Sri Lanka

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### **Abstract**

Coronavirus Disease 2019 (COVID-19) had massive health, economic, social, and fiscal demands on governments. Communicating about the COVID-19 deaths to the general public by the governments is a challenging task. Department of Government Information (DOGI) communicated about the COVID-19 deaths in Sri Lanka by publishing daily press releases online and in other audio-visual media. The objective of this study was to examine the DOGI press releases of the first 300 COVID-19 deaths in Sri Lanka in retrospect. The information on COVID-19 deaths and associated factors were extracted and analyzed from the press releases. Eighty-nine press releases issued from 25.05.2020 to 30.01.2021 on the first 300 COVID-19 deaths were analyzed. Out of the 300 deaths, the information was available on 271 out of 300 deaths (90.33%) in the DOGI press releases we studied. For the large majority (264, 97.41%) of the deaths, the Director General of Health Services was stated as the source of information. The majority of the persons who died were over 60 (n = 191, 70.48%). Most of the persons who died from COVID-19 were males, n = 168, 61.99%, and were from the Colombo district (n = 165, 60.88%). Most of the deaths (n = 177, 65.31%) have occurred while the patient was taking treatment in a hospital. The most common comorbidity reported among the persons who died of COVID-19 was hypertension (n = 24, 8.86%). Publication of written press releases summarizing the information on COVID-19 deaths in Sri Lanka is a best practice in reporting mortality and communicating risk. The analysis of press releases of COVID-19 deaths can provide useful information about the mortality pattern, which is recommended to be carried out regularly.

Key words: COVID-19, deaths, mortality, risk communication, post-mortem, press releases

#### 1. Introduction

Coronavirus Disease 2019 (COVID-19) has made massive health, economic, social, and fiscal demands on governments (OECD 2020). As per 31.05.2021, a total of 170,075,692 cases and 3,540,604 deaths have been reported globally (WHO 2021b). The provision of health care to COVID-19 patients could be a nightmare for governments with increasing case numbers with relatively limited hospital beds and resources in developed and developing countries (Sen-Crowe et al. 2021).

While struggling with the operational aspects of providing care for the sick, there was a need to engage the community to adopt healthy behaviors through proper and effective risk communication strategies (Abrams and Greenhawt 2020). The World Health Organization has recognized risk communication as a critical component of the Strategic Preparedness and Response Plan adopted by the respective governments under the ten pillars to face the COVID-19 pandemic at the country level (WHO 2021a). Communicating to the general public on COVID-19 deaths had tested the risk communication abilities of the governments (Hyland-Wood et al. 2021; Radwan and Mousa 2020; Sjölander-Lindqvist et al. 2020). Despite the efforts by the governments to manage the pandemic, COVID-19 deaths have often been seen as "failures" of such efforts (Altman 2020; Ham 2021). Thus, communicating about deaths to the general public involved some level of the bad news. In addition, breaking communications were used to advocate the need for strict adherence to the health guidelines by the general public.

As per 31.05.2021, 183,452 cases and 1441 deaths have occurred in Sri Lanka (Epidemiology Unit 2021a). Even though the proportional mortality of COVID-19 has been relatively low in Sri Lanka compared to the rest of the world, communicating about COVID-19 deaths to the public by no means had been an easy task for the government of Sri Lanka (Health Promotion Bureau 2021).

The information on COVID-19 deaths is collected from the hospitals by the health sector. Next, the number of deaths is updated on the COVID-19 situational update by the Epidemiological Unit and its daily situational report (Epidemiology Unit 2021a). A

weekly report of COVID-19 deaths has been published since 15.05.2021(Epidemiology Unit 2021b). The information about the deaths is provided to the media by press conferences held daily, often jointly by the health and security sector (Department of Government Information 2021b). A press release containing the information of the deaths is published on the Department of Government Information (DOGI) website (Department of Government Information 2021a). The information about the COVID-19 deaths is also broadcast in the audiovisual, print and social media as news.

The analysis of press releases on COVID-19 deaths could provide a rapid and overall picture of the mortality associated with the pandemic. It can provide important information about the COVID-19 deaths and their associated factors. At times, this could be the only information that would be made publicly available on COVID-19 deaths within a reasonable time of their occurrence. In addition, press releases are an integral part of the public narrative of the government of Sri Lanka concerning the COVID-19 pandemic and its management (Ganz 2008). Thus, the analysis of the press releases of the COVID-19 deaths, when available, could provide valuable information about the mortality patterns of the disease.

This study's objective was to analyze the press releases of the first 300 COVID-19 deaths in Sri Lanka to understand the sociodemographic characteristics, source of information of the death, cause and setting of the death, and the associated comorbidities if any.

# Methodology

We analyzed the press releases of the first 300 COVID-19 deaths issued by the DOGI and published on its website (Department of Government Information 2021a). We downloaded all available press releases that carried information of COVID-19 deaths. We prepared a PowerPoint presentation containing all available such press releases.

We created a data collection format to extract the following information from the press release:

- Serial number of the death
- The date of death
- Date of announcement of the death
- The person who issued the information about the death
- Sociodemographic characteristics about the person who died
- Age
- Sex
- Ethnicity
- Geographic location
- Any special characteristics mentioned
- The cause of death
- The setting of death hospital or community
- Comorbidities reported in the press release (Diabetes, hypertension, heart disease, liver disease, kidney disease, lung disease, cancer, or any other disease that was stated).

The data were extracted by two investigators independently by reviewing the PowerPoint Presentations. Subsequently, the information was cross-checked by a third investigator. The data was entered and analyzed in Microsoft Excel and IBM SPSS Statistics Version 24. Numbers and percentages were calculated for each variable. In addition, the data for all 300 deaths were summarized as a series of color-coded matrices, allocating one square per death.

#### **Results:**

Eighty-nine press releases issued from 25.05.2020 to 30.01.2021 on the first 300 COVID-19 deaths were analyzed. The availability of details on the particular death was presented in Figure 2.

Out of the 300 deaths, the information was available on 271 out of 300 deaths (90.33%) in the press releases we studied.

	1	21	41	61	81	101	121	141	161	181	201	221	241	261	281
	2	22	42	62	82	102	122	142	162	182	202	222	242	262	282
	3	23	43	63	83	103	123	143	163	183	203	223	243	263	283
	4	24	44	64	84	104	124	144	164	184	204	224	244	264	284
	5	25	45	65	85	105	125	145	165	185	205	225	245	265	285
	6	26	46	66	86	106	126	146	166	186	206	226	246	266	286
	7	27	47	67	87	107	127	147	167	187	207	227	247	267	287
	8	28	48	68	88	108	128	148	168	188	208	228	248	268	288
	9	29	49	69	89	109	129	149	169	189	209	229	249	269	289
	10	30	50	70	90	110	130	150	170	190	210	230	250	270	290
	11	31	51	71	91	111	131	151	171	191	211	231	251	271	291
	12	32	52	72	92	112	132	152	172	192	212	232	252	272	292
	13	33	53	73	93	113	133	153	173	193	213	233	253	273	293
	14	34	54	74	94	114	134	154	174	194	214	234	254	274	294
	15	35	55	75	95	115	135	155	175	195	215	235	255	275	295
	16	36	56	76	96	116	136	156	176	196	216	236	256	276	296
	17	37	57	77	97	117	137	157	177	197	217	237	257	277	297
	18	38	58	78	98	118	138	158	178	198	218	238	258	278	298
	19	39	59	79	99	119	139	159	179	199	219	239	259	279	299
	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
1	1 Serial				Data				Data not						
	Number					available				available					

Figure 1: Availability of Information of First 300 COVID-19 Deaths as Reported in the Press Releases on Government Information Department Website

The source of information of the first 300 COVID-19 Deaths as reported in the press releases on DOGI is presented in Table 1.

Table 1: Source of Information of First 300 COVID-19
Deaths as Reported in the Press Releases on
Department of Government Information Website

Source of Information	Frequency	Percentage (%)
Director-General of Health Services (DGHS)	264	97.41
Chief epidemiologist	4	1.47
Secretary Health	2	0.73
Acting - DGHS	1	0.36
Total	271	100.0

For the large majority (264, 97.41%) of the deaths, the Director General of Health Services (DGHS) was stated as the source of information. The age distribution of the first 300 COVID-19 deaths by decile is shown in Figure 3.

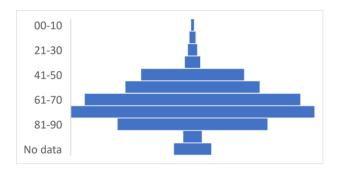


Figure 2: Distribution of Age by Deciles of First 300 COVID-19 Deaths as Reported in Press Releases on the Department of Government Information Website

As per Figure 3, it is evident that the largest number of deaths are reported from the 71-80 age decile. With decreasing age, the reported number of deaths decreased in a step-wise manner up to the 41-50 age decile. However, beyond that, the number of deaths steeply decreased, with only one being reported in the 0-10 age decile. An almost equal number of deaths were reported in the 51-60 and 81-90 age deciles. The distribution of the age by three age categories are shown in Table 2.

Table 2: Distribution of Age by Three Categories of First 300 COVID-19 Deaths as Reported in Press Releases on the Government Information Department Website

Age Category	Frequency	Percentage (%)
Less than 15	1	0.37
15 - 60	79	29.15
Above 60	191	70.48
Total	271	100.00

The majority of the persons who died were over 60 (n = 191, 70.48%). Around 29% of those who died were in the age group of 15 - 60. Only one person had died in the age category less than 15 years. The distribution of gender of the respondents of the deaths is shown in Figure 4.

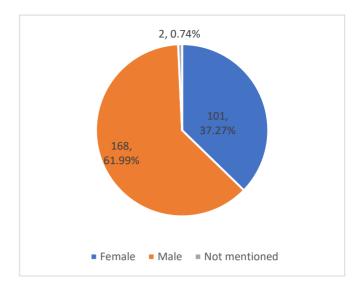


Figure 3: Distribution of Gender by of First 300 COVID-19 Deaths as Reported in Press Releases on the Government Information Department Website by Three Categories

Most of the persons who died from COVID-19 were males, n = 168, 61.99%. The distribution of first 300 COVID-19 deaths by Regional Director of Health Services (RDHS) area is shown in Table 4 and Figure 4.

Table 3: Distribution of First 300 COVID-19 Deaths as Reported in Press Releases on the Government Information Department Website by Regional Director of Health Services (RDHS) Area

RDHS Area	Frequency	Percentage (%)
Colombo	165	60.89
Kalutara	31	11.44
Gampaha	20	7.38
Ratnapura	9	3.32
Kurunegala	6	2.21
Kandy	5	1.85
Matale	4	1.48
Batticaloa	3	1.11
Galle	2	0.74
Kegalle	2	0.74
Matara	2	0.74
Nuwara Eliya	2	0.74
Puttalam	2	0.74
Ampara	1	0.37
Polonnaruwa	1	0.37
Vavuniya	1	0.37
Anuradhapura	0	0.00
Badulla	0	0.00
Hambantota	0	0.00
Jaffna	0	0.00
Kilinochchi	0	0.00
Moneragala	0	0.00
Mullaitivu	0	0.00
Trincomalee	0	0.00
Kalmunai	0	0.00
Mannar	0	0.00
Not identified	15	5.54
Total	271	100.00

NB: RDHS areas are equivalent to administrative districts, except for Ampara district being divided into Ampara and Kalmunai RDHS areas.

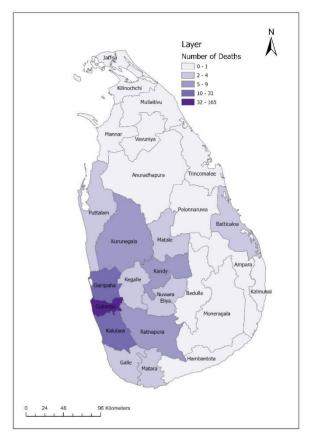


Figure 4: Distribution of First 300 COVID-19 Deaths as Reported in Press Releases on the Government Information Department Website by RDHS Area

Most of the persons who died were from the Colombo RDHS area (n = 165, 60.88%), followed by Kalutara (n = 31, 11.43%) and Gampaha (n = 20, 7.38%) RDHS areas.

Table 4: Distribution of First 300 COVID-19 Deaths as Reported in Press Releases on the Government Information Department Website by Place of Death

Place of Death	Frequency	Percentage (%)	
While receiving treatment	177	65.31	
At residence	54	19.92	
On admission death	34	12.54	
Not mentioned	5	1.84	
Under quarantine	1	0.36	
Total	271	100.0	

Most of the deaths (n=177, 65.31%) have occurred while the patient was taking treatment in a hospital. Around 20.0% (n = 54) of the deaths have occurred at the patient's residence. Thirty-four (12.54%) of the persons were dead on admission to a hospital. Only one person (0.36%) had died while being under quarantine. The distribution of comorbidities among the first 300 COVID-19 deaths is given in Table 5.

The most common comorbidity reported among the persons who died of COVID-19 was hypertension (n = 24, 8.86%). The next highest comorbidity was diabetes, n = 24, 8.86%. Heart disease, renal disease, and lung disease were present as comorbidities in around 5.0% of the persons who died of COVID-19.

Table 5: Distribution of Comorbidities among the First 300 COVID-19 Deaths as Reported in the Press Releases on the Government Information Department Website

Como del dite	Yes		No		Total	
Comorbidity	Frequency	%	Frequency	%	Frequency	%
Diabetes	22	8.12	249	91.88	271	100
Hypertension	24	8.86	247	91.14	271	100
Heart Disease	15	5.54	256	94.46	271	100
Renal Disease	14	5.17	257	94.83	271	100
Lung Disease	14	5.17	257	94.83	271	100
Cancer	10	3.69	261	96.31	271	100
Cancer	10	3.69	261	96.31	271	100
Chronic diseases (Unspecified)	7	2.58	264	97.42	271	100
Stroke	7	2.58	264	97.42	271	100
Liver Disease	2	0.74	269	99.26	271	100
Hyperlipidemia	1	0.37	270	99.63	271	100

Table 6 and Figure 6 summarizes the number of comorbidities reported among the first 300 COVID-19 deaths, as per the press releases.

Table 6:: Distribution of Number of Comorbidities
Factors Reported among the First 300 COVID-19
Deaths as Reported in the Press Releases on
Government Information Department Website

	1	
No. of Comorbidities	Frequency	%
None	198	66.0
One	77	25.7
Two	19	6.3
Three	6	2.0
Total	300	100

Among the deaths reported, not a single risk factor was mentioned in the majority (198, 66.0%). A single risk

factor was reported in 25.7% (n = 77) among the first 300 deaths. Two or three risk factors were found in 6.3% (n = 19) and 2.0% of the reports of the deaths respectively.

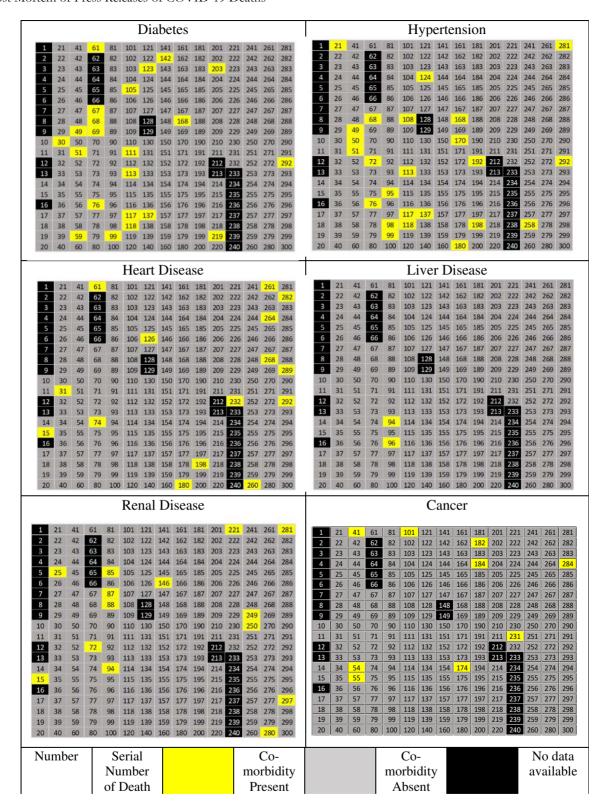


Figure 6: Distribution of Comorbidities among the First 300 COVID-19 Deaths as Reported in the Press Releases on Government Information Department Website

# Discussion

Analysis of press releases to understand the mortality associated with COVID-19 is a novel approach that characterizes this desk review. Information about over 90% of deaths among the first 300 being available online is a strength of the risk communication strategy adopted by the government of Sri Lanka. The availability of press releases on COVID-19 deaths has improved drastically following the first 20 deaths except for few small chunks of missing data. Such missing data could be due to failures to upload press releases, breaches of the chain of communication from the notification of death to the publication of press releases, or actual lack of data about the person who died.

In addition, it is interesting to note that as time passed by, the press releases on COVID-19 deaths started to get formalized and structured. Thus, with time, only an essential, pre-determined set of information was provided.

It is interesting to note that an official from the health sector has been quoted as the source of the first 300 COVID-19 deaths. For example, DGHS has been the source of information in 97.4% of the deaths, as stated in the press releases. Quoting health authorities as the source probably reflects their perceived legitimacy. Further, it should be noted that most of the deaths were reported while being treated in a hospital, n = 177, 65.31%.

The distribution of age of the deaths shows that 70.48% of the deaths for which information was available came from the above 60 age group. This finding is compatible with other studies of mortality of COVID-19 deaths from elsewhere. In a descriptive exploratory analysis conducted by the Centers for Disease Control, China (CDC, China) involving all diagnosed cases of Covid-19 cases in the country until February 2020, age of 60 years or more elicited the highest risk for mortality (OR=18.816,95% CI=7.1997-41.551) (Caramelo, Ferreira, and Oliveiros 2020). A similar finding has been found by the analysis of the weekly deaths occurring from 15.05.2021 to 21.05.2021 period by the Epidemiology unit, which reported a 76% of the CVODI-19 deaths belonging to the over sixty age group (Epidemiology Unit 2021b).

Over sixty percent of the deaths were reported to be among males, as per the current study results. This is similar to the results from the study mentioned above from CDC, China, where males had 1.8 times the risk of dying from Covid-19 compared to females (OR=1.851, 95% CI=1.599-2.127). In contrast, a case fatality rate of 3.3% among women was observed in India compared to 2.9 % among men (Dehingia and Raj 2021). Similar findings were elicited in few other countries like Nepal, Vietnam, and Slovenia as well. Although there was sufficient evidence to attribute male sex to increased mortality like behavioral risk factors including smoking and alcohol, this revelation has baffled many researchers. They have assumed that differences in case identification by sex and country's health profile might have contributed to the female predominance (Dehingia and Raj 2021).

When considering the geographic distribution of the deaths as reported in the press releases, most of the persons who died were from the Colombo RDHS area (n = 165, 60.88%), followed by Kalutara (n = 31,11.43%) and Gampaha (n = 20, 7.38%) RDHS areas. When comparing the geographical distribution of deaths, Colombo (374, 33%), Gampaha (149, 13%), and Kalutara (151, 13%) remained the highest deaths with reported deaths in the country even almost after one year as per the weekly analysis of deaths by the Epidemiology Unit for the period of 15.05.2021 to 21.05.2021 (Epidemiology Unit 2021b). However, the drop of death share could be explained by spill over into the other areas. Geographical distribution of COVID-19 deaths could provide a way of communicating the risk to the vulnerable communities regarding the progress of the disease.

When analyzing the information in the press releases of the first 300 COVID-19 deaths, the most common comorbidity reported was hypertension (n = 24, 8.86%). This finding is similar to the results of an analysis of 26 victims who died of COVID-19 in Berlin, where arterial hypertension was the comorbidity associated with the highest number of victims (n=17, 65.4%) (Elezkurtaj et al. 2021).

The next highest comorbidity was diabetes, n = 24, 8.86%. Heart disease, renal disease, and lung disease were present as comorbidities in around 5.0% of the

persons who died of COVID-19. In the above study in Berlin, chronic heart disease was identified in 34.6% of the persons who died following the review of their medical records (Elezkurtaj et al. 2021). Further, a history of cardiovascular disease was associated with 12.8 times (OR=12.83,95% CI=10.27-15.87) while the chronic respiratory disease was associated with 7.8 times (OR=7.79, 95% CI=1.59-2.17) risk of mortality compared to those who have not got such history in Wuhan China ) (Caramelo et al. 2020).

Largely comparable percentages of comorbidities were seen in the weekly analysis of COVID-19 deaths by the Epidemiology Unit for 15.05.2021 to 21.05.2021 (Epidemiology Unit 2021b). The highest morbidity reported was diabetes (n = 523, 46%), hypertension (n=488, 43%), and heart disease (n = 202, n = 18%). However, the top three comorbidities remain the same, indicating the similarities of the COVID-19 deaths covered by these two data sets.

Press releases on COVID-19 deaths could be used as a means of communicating risk to the public, especially to those with comorbidities, to take extreme precautions for not contracting the disease. It was probably intended that highlighting the comorbidities of those who died would prompt those with similar comorbidities and their family and friends to take extra precautions in the prevention of the disease.

In contrast, highlighting the comorbidities of the diseased could be seen as waving off the liability from the government for the deaths. Thus, this would probably have contributed to some degree of victimblaming. "The deaths occurred because they had other comorbidities, so they are responsible for their deaths; the government is not responsible for that." It is not possible with the limited evidence we have gathered from the current study to reject or accept the above narrative. However, it is pretty clear that such a narrative, if used, would have contributed to victim blaming and stigmatization of those who contracted the disease.

Contrary to the popular narrative, it is clear that out of the first 300 individuals who succumbed to COVID-19, most did not have any comorbidities. For example, 66.0% of the deaths did not report any risk factor, while only one risk factor was reported on 25.7% of the deaths.

In addition, the classification of deaths as COVID-19 seems to have been a challenging task. For example, a person who died following a home accident was initially declared a COVID-19 death since postmortem testing yielded a positive test. Subsequently, this death has been removed from the list of COVID-19 deaths (Refer Figure 7).



Figure 7: Press Release of Clarification of Cause of Death not as COVID-19

Nevertheless, these finding based on the analysis of the information extracted from press releases should be interpreted with care. Firstly, the findings are based on the publicly available data as press releases on the DOGI website. The completeness of the data set was only 90%. In addition, the data on the press releases were not cross-checked with subsequent detailed information obtained by the Epidemiology Unit. Further, such information would have changed following the issue of the press release.

# Conclusion and Recommendations:

In summary, the findings of this "Post Mortem" of the press releases of the first 300 COVID-19 deaths provide some valuable insights into the pattern of mortality associated with this pandemic. The approach adapted by communicating facts about COVID-19 deaths by written press releases by the Sri Lanka government appears to be a best practice that could be used in providing information about COVID-19 deaths. In addition, the approach of post mortem of press releases could be used as an innovative and complementary tool to obtain a quick and rough idea about the mortality trends and the COVID-19 pandemic. Hence, analysis of press releases on COVID-19 deaths through future studies and their comparison over time is recommended as a means of keeping track of the morbidity patterns amidst the pandemic.

#### References

- Abrams, Elissa M., and Matthew Greenhawt. 2020. "Risk Communication During COVID-19." *The Journal of Allergy and Clinical Immunology: In Practice* 8(6):1791–94. doi: 10.1016/j.jaip.2020.04.012.
- Altman, Drew. 2020. "Understanding the US Failure on Coronavirus—an Essay by Drew Altman." *BMJ* 370:m3417. doi: 10.1136/bmj.m3417.
- Caramelo, F., N. Ferreira, and B. Oliveiros. 2020. "Estimation of Risk Factors for COVID-19 Mortality Preliminary Results." *MedRxiv* 2020.02.24.20027268. doi: 10.1101/2020.02.24.20027268.
- Dehingia, Nabamallika, and Anita Raj. 2021. "Sex Differences in COVID-19 Case Fatality: Do We Know Enough?" *The Lancet. Global Health* 9(1):e14–15. doi: 10.1016/S2214-109X(20)30464-2.
- Department of Government Information. 2021a. "Covid-19 Press Releases." Retrieved January 5, 2021 (https://www.dgi.gov.lk/news/press-releases-srilanka/covid-19-documents).
- Department of Government Information. 2021b. "Youtube Channel of the Department of Government Information." Retrieved June 4, 2021 (https://www.youtube.com/c/DepartmentofGovernmentInformation/videos).
- Elezkurtaj, Sefer, Selina Greuel, Jana Ihlow, Edward Georg Michaelis, Philip Bischoff, Catarina Alisa Kunze, Bruno Valentin Sinn, Manuela Gerhold, Kathrin Hauptmann, Barbara Ingold-Heppner, Florian Miller, Hermann Herbst, Victor Max Corman, Hubert Martin, Helena Radbruch, Frank L. Heppner, and David Horst. 2021. "Causes of Death and Comorbidities in Hospitalized

- Patients with COVID-19." Scientific Reports 11(1):4263. doi: 10.1038/s41598-021-82862-5.
- Epidemiology Unit. 2021a. "National Epidemiological Report Sri Lanka." Retrieved May 31, 2021 (https://www.epid.gov.lk/web/images/pdf/corona\_vir us\_report/sitrep-sl-en-31-05\_10\_21.pdf).
- Epidemiology Unit. 2021b. "Weekly Corona Virus Deeath Analysis." Retrieved June 4, 2021 (https://www.epid.gov.lk/web/index.php?option=com\_content&view=article&id=233&lang=en).
- Ganz, Marshall. 2008. "What Is Public Narrative?" Retrieved April 6, 2021 (https://changemakerspodcast.org/wp-content/uploads/2017/09/Ganz-WhatIsPublicNarrative08.pdf).
- Ham, Chris. 2021. "The UK's Poor Record on Covid-19 Is a Failure of Policy Learning." *BMJ* 372:n284. doi: 10.1136/bmj.n284.
- Health Promotion Bureau. 2021. "Coronavirus (COVID-19) Sri Lanka - Analytics Dashboard." Retrieved June 4, 2021 (https://hpb.health.gov.lk/covid19-dashboard/).
- Hyland-Wood, Bernadette, John Gardner, Julie Leask, and Ullrich K. H. Ecker. 2021. "Toward Effective Government Communication Strategies in the Era of COVID-19." *Humanities and Social Sciences Communications* 8(1):1–11. doi: 10.1057/s41599-020-00701-w.
- OECD. 2020. "The Territorial Impact of COVID-19: Managing the Crisis across Levels of Government." *OECD*. Retrieved June 4, 2021 (https://www.oecd.org/coronavirus/policyresponses/the-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government-d3e314e1/).
- Radwan, Ahmed Farouk, and Sheren Ali Mousa. 2020.

  "Government Communication Strategies during
  Coronavirus Pandemic: United Arab Emirates Lessons."

  Journal of Health Management 22(4):516–27. doi: 10.1177/0972063420983091.
- Sen-Crowe, Brendon, Mason Sutherland, Mark McKenney, and Adel Elkbuli. 2021. "A Closer Look Into Global Hospital Beds Capacity and Resource Shortages During the COVID-19 Pandemic." *Journal of Surgical Research* 260:56–63. doi: 10.1016/j.jss.2020.11.062.
- Sjölander-Lindqvist, Annelie, Simon Larsson, Nadia Fava, Nanna Gillberg, Claudio Marcianò, and Serena Cinque. 2020.
  "Communicating About COVID-19 in Four European Countries: Similarities and Differences in National Discourses in Germany, Italy, Spain, and Sweden."

  Frontiers in Communication 5. doi: 10.3389/fcomm.2020.593325.
- WHO. 2021a. COVID-19 Strategic Preparedness and Response Plan (SPRP 2021).
- WHO. 2021b. "WHO Coronavirus Disease (COVID-19)

  Dashboard." Retrieved May 13, 2021

  (https://covid19.who.int).