



THE JOURNAL OF  
**CLINICAL PSYCHIATRY**

THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

## **Supplementary Material**

**Article Title:** Decrease in Suicide During the First Year of the COVID-19 Pandemic in Taiwan

**Authors:** Chien-Yu Lin, MSc; Shu-Sen Chang, MD, MSc, PhD; and Lih-Jong Shen, MD, PhD

**DOI Number:** 10.4088/JCP.21br14137

### **List of Supplementary Material for the brief report**

1. [Methods](#)
2. [Table 1](#) Whole-year and monthly suicide rate ratios (RRs) and 95% confidence intervals (CIs), overall (aged 15+ years) and by age group, in Taiwan during the COVID-19 pandemic (January–December 2020) relative to those expected based on pre-pandemic trends between January 2015 and December 2019, after accounting for long-term trends and seasonal variations in suicide
3. [Table 2](#) Whole-year and monthly number of suicides, and estimated changes in the number of suicide and their 95% confidence intervals (CIs) based on rate ratios (RRs), overall (aged 15+ years) and by age group, in Taiwan during the COVID-19 pandemic (January–December 2020). RRs are between the observed rates and the expected rates based on pre-pandemic trends in 2015–2019 from negative binomial regression models

### **Disclaimer**

This Supplementary Material has been provided by the author(s) as an enhancement to the published brief report. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

# Decrease in suicide during the first year of the COVID-19 pandemic in Taiwan: supplementary material

## Methods

A previous study showed that trends in suicide were stable across age groups in Taiwan over the period 2015-2018,<sup>1</sup> and therefore 2015 was chosen as the start year of the study period to provide stable estimates of pre-pandemic suicide trends.

The overall and age-specific monthly numbers of suicides were plotted for graphic examination. We used interpolation to estimate monthly population from the annual population data (2015-2020) from the Taiwan Ministry of the Interior.

A dummy variable for the year 2020 were included in the negative binomial regression models to estimate suicide rate ratios for the overall pandemic period, with log-transformed population as the offset. Separate models that included dummy variables for each of the 12 months in 2020 were also estimated to investigate changes in suicide rates over different periods of the pandemic. We controlled for age group in the all-age group model. Analyses stratified by age were also conducted. We controlled for pre-pandemic long-term suicide trends using fractional polynomials; seasonal variations were controlled using Fourier terms.<sup>2</sup> All statistical analyses were conducted using Stata version 15 (StataCorp, College Station, Texas).

## References

1. Chang Y-H, Liao S-C, Lin C-Y, Hsu C-Y, Chang S-S. Changing suicide trends in Taiwan: a joinpoint regression analysis from 1971 to 2018 (in Chin). *Taiwan J Public Health*. 2020;39(5):536-552.
2. Pirkis J, John A, Shin S, et al. Suicide trends in the early months of the COVID-19 pandemic: an interrupted time-series analysis of preliminary data from 21 countries. *Lancet Psychiatry*. 2021;8(7):579-588.

Supplementary Table 1. Whole-year and monthly suicide rate ratios (RRs) and 95% confidence intervals (CIs)<sup>a</sup>, overall (aged 15+ years) and by age group, in Taiwan during the COVID-19 pandemic (January-December 2020) relative to those expected based on pre-pandemic trends between January 2015 and December 2019, after accounting for long-term trends and seasonal variations in suicide.

	Aged 15+		Aged 15-24		Aged 25-44		Aged 45-64		Aged 65+	
	RR	(95% CI)	RR	(95% CI)	RR	(95% CI)	RR	(95% CI)	RR	(95% CI)
Whole-year	<b>0.93</b>	<b>(0.88 , 0.97)</b>	<b>0.73</b>	<b>(0.55 , 0.96)</b>	<b>0.91</b>	<b>(0.85 , 0.98)</b>	<b>0.89</b>	<b>(0.82 , 0.96)</b>	1.00	(0.90 , 1.12)
Jan	0.90	(0.77 , 1.04)	0.70	(0.41 , 1.20)	1.10	(0.89 , 1.35)	0.86	(0.69 , 1.08)	0.82	(0.60 , 1.13)
Feb	0.97	(0.84 , 1.12)	0.82	(0.49 , 1.35)	0.83	(0.66 , 1.05)	1.13	(0.93 , 1.38)	1.06	(0.80 , 1.40)
Mar	<b>0.84</b>	<b>(0.73 , 0.97)</b>	0.78	(0.47 , 1.31)	0.81	(0.64 , 1.01)	0.86	(0.69 , 1.06)	1.01	(0.77 , 1.34)
Apr	<b>0.86</b>	<b>(0.74 , 0.99)</b>	0.85	(0.51 , 1.40)	0.94	(0.76 , 1.15)	0.87	(0.70 , 1.07)	0.89	(0.67 , 1.17)
May	0.91	(0.79 , 1.04)	0.85	(0.51 , 1.40)	0.95	(0.77 , 1.17)	0.85	(0.69 , 1.06)	1.10	(0.85 , 1.43)
Jun	0.91	(0.79 , 1.04)	1.16	(0.74 , 1.79)	0.86	(0.69 , 1.07)	0.84	(0.68 , 1.04)	1.12	(0.86 , 1.46)
Jul	0.98	(0.85 , 1.12)	0.73	(0.43 , 1.24)	1.12	(0.92 , 1.36)	0.93	(0.76 , 1.15)	1.11	(0.84 , 1.46)
Aug	0.93	(0.81 , 1.06)	0.88	(0.54 , 1.44)	0.86	(0.69 , 1.06)	<b>0.80</b>	<b>(0.64 , 1.00)</b>	<b>1.41</b>	<b>(1.08 , 1.82)</b>
Sep	0.87	(0.75 , 1.00)	1.34	(0.88 , 2.04)	<b>0.76</b>	<b>(0.61 , 0.96)</b>	0.82	(0.66 , 1.02)	1.10	(0.83 , 1.45)
Oct	0.97	(0.84 , 1.11)	0.98	(0.60 , 1.58)	0.80	(0.64 , 1.01)	0.93	(0.75 , 1.15)	<b>1.44</b>	<b>(1.11 , 1.88)</b>
Nov	0.98	(0.85 , 1.13)	1.16	(0.74 , 1.81)	0.96	(0.77 , 1.19)	0.87	(0.70 , 1.08)	1.29	(0.97 , 1.71)
Dec	1.01	(0.87 , 1.16)	0.97	(0.60 , 1.56)	1.01	(0.81 , 1.25)	0.94	(0.75 , 1.17)	1.34	(1.00 , 1.80)

<sup>a</sup> 95% CIs that do not include one are highlighted in bold.

Supplementary Table 2. Whole-year and monthly number of suicides, and estimated changes in the number of suicide and their 95% confidence intervals (CIs)<sup>a</sup> based on rate ratios (RRs), overall (aged 15+ years) and by age group, in Taiwan during the COVID-19 pandemic (January-December 2020). RRs are between the observed rates and the expected rates based on pre-pandemic trends in 2015-2019 from negative binomial regression models.

	Aged 15+			Aged 15-24			Aged 25-44			Aged 45-64			Aged 65+		
	Number	Estimated changes based on RR	(95% CI)	Number	Estimated changes based on RR	(95% CI)	Number	Estimated changes based on RR	(95% CI)	Number	Estimated changes based on RR	(95% CI)	Number	Estimated changes based on RR	(95% CI)
Whole-year	3635	<b>-272</b>	<b>(-418 , -119)</b>	239	<b>-65</b>	<b>(-107 , -10)</b>	1068	<b>-92</b>	<b>(-158 , -22)</b>	1343	<b>-149</b>	<b>(-241 , -49)</b>	985	2	(-102 , 118)
Jan	263	-27	(-60 , 11)	15	-5	(-9 , 3)	98	10	(-11 , 34)	99	-14	(-31 , 8)	51	-9	(-20 , 6)
Feb	302	-10	(-49 , 35)	18	-3	(-9 , 6)	79	-13	(-27 , 4)	136	18	(-10 , 52)	69	4	(-14 , 28)
Mar	281	<b>-45</b>	<b>(-77 , -8)</b>	17	-4	(-9 , 5)	81	-16	(-29 , 1)	108	-16	(-34 , 7)	75	1	(-17 , 25)
Apr	300	<b>-43</b>	<b>(-77 , -4)</b>	18	-3	(-9 , 7)	96	-6	(-23 , 15)	113	-15	(-34 , 8)	73	-8	(-24 , 13)
May	320	-29	(-67 , 14)	18	-3	(-9 , 7)	96	-5	(-22 , 16)	113	-16	(-35 , 6)	93	9	(-14 , 40)
Jun	312	-29	(-66 , 14)	25	4	(-6 , 20)	86	-12	(-27 , 6)	111	-18	(-36 , 4)	90	11	(-13 , 41)
Jul	337	-7	(-50 , 41)	16	-4	(-9 , 4)	113	14	(-9 , 41)	124	-8	(-30 , 18)	84	9	(-13 , 38)
Aug	317	-23	(-62 , 21)	19	-2	(-9 , 8)	88	-13	(-27 , 6)	106	<b>-21</b>	<b>(-38 , 0)</b>	104	<b>42</b>	<b>(9 , 86)</b>
Sep	293	-38	(-72 , 1)	28	9	(-3 , 29)	78	<b>-18</b>	<b>(-31 , -3)</b>	106	-19	(-36 , 2)	81	8	(-14 , 37)
Oct	317	-10	(-50 , 36)	20	0	(-8 , 12)	78	-15	(-28 , 1)	116	-8	(-28 , 17)	103	<b>45</b>	<b>(11 , 90)</b>
Nov	298	-7	(-46 , 37)	24	4	(-6 , 20)	87	-4	(-20 , 17)	103	-13	(-31 , 9)	84	24	(-3 , 60)
Dec	295	2	(-37 , 48)	21	-1	(-8 , 12)	88	1	(-17 , 22)	108	-7	(-26 , 18)	78	26	(0 , 63)

<sup>a</sup> 95% CIs that do not include null are highlighted in bold.