Suicide among users of mental health and addiction services in the first 10 months of the COVID-19 pandemic: observational study using national registry data

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Summary
Although many studies have reported no rise in suicides in the general population following the COVID-19 pandemic, little is known regarding mental health and substance misuse services patients, groups who have reportedly faced substantial reductions in their access to care during phases of lockdown. However, in this observational study using national registry data, during the first 10 months of the pandemic we found no evidence of an increased risk among people in recent (within 12 months) contact with secondary care. Both long-term and differential effects on subgroups remain to be studied.

Method
This study used a national registry linkage. First, we identified all suicides (ICD-10 codes X60–X84; Y10–Y34; Y87.0; Y87.2) in Norway between 1 January 2016 and 31 December 2020 from the Norwegian Cause of Death Registry (NCDR). Second, we linked Norway between 1 January 2016 and 31 December 2020 from the Suicide; mortality; in-patient treatment; out-patient treatment; epidemiology.

The overall prevalence of contact with mental health and substance misuse services among all people who died by suicide in Norway was 45.5% in 2020, compared with a mean yearly prevalence of

Table 1

| Month     | Suicides, n | Observed | Expected | Ratio (95% CI) |
|-----------|-------------|----------|----------|---------------|
| March     | 32          | 28.3     | 1.13 (0.68–1.87) |
| April     | 19          | 30.4     | 0.63 (0.35–1.11) |
| May       | 23          | 30.2     | 0.76 (0.44–1.31) |
| June      | 28          | 28.2     | 0.99 (0.59–1.68) |
| July      | 21          | 26.3     | 0.80 (0.45–1.41) |
| August    | 39          | 26.3     | 1.48 (0.90–2.43) |
| September | 16          | 28.1     | 0.57 (0.31–1.05) |
| October   | 28          | 29.9     | 0.94 (0.56–1.57) |
| November  | 23          | 30.0     | 0.77 (0.45–1.32) |
| December  | 19          | 28.4     | 0.67 (0.38–1.20) |
| Total     | 248         | 286      | 0.87 (0.73–1.03) |

Results
The overall prevalence of contact with mental health and substance misuse services among all people who died by suicide in Norway...
45.0% between 2016 and 2019. The mean monthly number of suicides among people who had contact with mental health and substance misuse services was identical in the pre-pandemic (24.8, s.d. = 4.83) and the post-pandemic period (24.8, s.d. = 6.99). In the Poisson model of the pre-pandemic period, we found that suicide numbers were increasing among people using mental health and substance misuse services in the pre-pandemic period (rate ratio 1.0001; 95% CI 1.0000–1.0002; P = 0.303). The model fit was good ($P = 0.698$).

As shown in Table 1, we observed an overall decrease in the number of suicides in the first 10 months of the pandemic, with a rate ratio of 0.87 (95% CI 0.73–1.03). All months except August and March had estimated ratios of observed and expected numbers below 1, but with overlapping confidence intervals. In absolute numbers this is equal to an observed reduction of 38 suicides (13%) during the period.

### Discussion

We found no evidence of an increase of suicide in people who had contact with mental health and substance misuse services during the first 10 months of the COVID-19 pandemic in Norway. Rather, tendencies towards a reduction in the number of suicides in this group were observed in the context of no increase in suicide rates in the general population in Norway, where reduced rate ratios were found for March–May and October–December, and an increased rate ratio for June–September, all of which were non-significant differences well within the 95% prediction intervals. Additionally, no change in the overall prevalence of contact with services was found.

Our findings are well aligned with results from studies in the general population consistently finding no evidence of increased suicide mortality in the first period of the pandemic, although the long-term effects remain to be established. Also, whether this finding will be replicated in other countries and health systems is important to examine.

The universal health insurance of Norway and the comparatively high access to mental healthcare may, in part, help explain the observed absence of increases in suicides, in addition to the substantial governmental efforts that were implemented to mitigate the effects of the pandemic on society. Initial reductions in access to mental health and substance misuse services were of brief duration; great efforts were made by both governmental and other organisations to keep these services open and accessible, although research on actual performance of and possible disruptions to services are lacking. Increased use of video consultations was one of the main recommended compensatory actions. Some evidence shows that most general practitioners were technically able to provide this from early in the pandemic, and there is more preliminary data pointing in the same direction from mental health and substance misuse services.

We were not able to examine possible differential effects on suicidal mortality among subgroups of people in contact with services before suicide. One important area to study is whether there are differences in the effect on suicide risk connected with the pandemic between, for example, people with major psychiatric disorders and those with more stress-induced conditions.

There is growing evidence of the large and widespread impact of the COVID-19 pandemic on societies worldwide, including adverse economic effects, increased mental distress and an increase in suicidal thoughts. The seeming lack of association with suicide rates at both the general population level and clinical level in a short time perspective merits considerable interest and might provide an opportunity for further study of risk and protective factors for suicide. Since long-term effects of the pandemic on suicide mortality remain to be established, it is necessary to stay vigilant both to possible effects on vulnerable groups, such as patients in contact with mental health and substance misuse services, as well as to possible changes in the prevalence of important risk factors in society in general.