

## **The impact of the COVID-19 pandemic on health service utilisation following self-harm: a systematic review**

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## Abstract

### Background

Evidence on the impacts of the pandemic on healthcare presentations for self-harm has accumulated rapidly. However, existing reviews do not include studies published beyond 2020.

### Aims

To systematically review evidence on health services utilisation for self-harm during the COVID-19 pandemic.

### Methods

A comprehensive search of multiple databases (WHO COVID-19 database; Medline; medRxiv; Scopus; PsyRxiv; SocArXiv; bioRxiv; COVID-19 Open Research Dataset, PubMed) was conducted. Studies reporting presentation frequencies for self-harm published from 1<sup>st</sup> Jan. 2020 to 7<sup>th</sup> Sept. 2021 were included. Study quality was assessed using a critical appraisal tool.

### Results

Fifty-one studies were included. 59% (30/51) were rated as 'low' quality, 29% (15/51) as 'moderate' and 12% (6/51) as 'high-moderate'. Most evidence (84%, 43/51 studies) was from high-income countries. 47% (24/51) of studies reported reductions in presentation frequency, including all 6 rated as high-moderate quality, which reported reductions of 17-56%. Settings treating higher lethality self-harm were overrepresented among studies reporting increased demand. Two of the 3 higher quality studies including study observation months from 2021 reported reductions in service utilisation. Evidence from 2021 suggested increased use of health services following self-harm among adolescents, particularly girls.

### Conclusions

Sustained reductions in service utilisation were seen into the first half of 2021. However, evidence from low- and middle-income countries is lacking. The increased use of health services among adolescents, particularly girls, into 2021 is of concern. Our findings may

reflect changes in thresholds for help seeking, use of alternative sources of support and variable effects of the pandemic across different groups.

## Introduction

The COVID-19 pandemic has led to deterioration in population mental health and has placed considerable additional strains on health systems.<sup>1 2</sup> The pandemic has also heightened many of the risk factors for suicidal behaviour, such as job insecurity and unemployment, access to food, education and healthcare and the availability of family and community support.<sup>3</sup> Understanding and quantifying trends in help seeking for self-harm is a vital part of the public mental health response to COVID-19. It could help expound the apparent paradox observed during the early stages of the pandemic; while population mental health deteriorated,<sup>4</sup> fewer people sought help for their mental health from primary and secondary care services.<sup>5</sup> Examining self-harm presentations across health settings could help understand longer-term population impacts and inform planning of services and interventions in the future phases of the pandemic.

Numerous studies from high-income countries reported marked reductions in health service utilisation during the second quarter of 2020 following the start of the COVID-19 pandemic. For example, considerable reductions in diagnoses for acute physical and mental illnesses were found in the UK following introduction of the national lockdown in March 2020, with only partial recovery by July 2020.<sup>6</sup> In another UK study, reductions of around a third in health service contacts specifically for self-harm were found.<sup>7</sup> Focussing specifically on hospital admission for self-harm, overall reductions of just over 8% were reported in France, though increases in more serious potentially lethal acts of self-harm were observed.<sup>8</sup> Evidence relating to the indirect health impacts resulting from the pandemic in low- and middle-income countries also suggests care for non-communicable diseases and mental disorders has been severely disrupted.<sup>9</sup> A systematic review on the impact of the pandemic on suicide and self-harm in low- and middle-income countries found mixed evidence, with either a decrease or no discernible impact in reported self-harm episodes along with increases in certain age groups.<sup>10</sup>

In 2020, a living systematic review was established to provide an up-to-date resource and data synthesis of evidence on the impact of the COVID-19 pandemic on self-harm and suicidal behaviour.<sup>11</sup> The most recent update of the review included studies up to 19<sup>th</sup> October 2020 and included 20 health service utilisation studies, including 11 focussing specifically on health service contact following self-harm/suicide attempts.<sup>12</sup> The review reported that most studies reported a decrease in presentations to health services for self-harm during the early months of the COVID-19 pandemic.

However, all 20 studies were of high-income countries and the latest month of observation was August 2020.<sup>13-15</sup> In the subsequent months many health services adapted and ‘stay at home’ orders eased, although these restrictions later returned in many countries and regions. While studies suggest service utilisation had returned to expected volumes in some countries by the third quarter of 2020,<sup>12</sup> it is not known how subsequent restrictions and ongoing pressures on health systems in response to further waves of COVID-19 affected help-seeking and access to healthcare for self-harm. In this article we report on evidence concerning the frequency (reported incident or prevalent episode counts or rates) of health service utilisation for self-harm after the onset of the pandemic compared to before the pandemic. There has been no synthesis of studies published since October 2020, some of which would be expected to include the later observation periods covering the latter months of 2020 and first half of 2021, as the pandemic continued to affect populations globally. Our aim was to systematically identify, review and synthesise evidence relating to utilisation of health services for self-harm since the COVID-19 pandemic began in the first quarter of 2020.

## Methods

The protocol for the methodology applied in conducting the systematic review is registered within a living systematic review of the impact of the COVID-19 pandemic on self-harm and suicidal behaviour (PROSPERO ID CRD42020183326; registered on 1st May 2020).<sup>11 5 12</sup> Additional inclusion and exclusion criteria specific to our research question were applied and further screening, data extraction and study quality assessments were conducted. To address our research question, ‘did the frequency of health service presentation for self-harm during the pandemic change compared to antecedent periods?’, we applied the following inclusion and exclusion criteria:

### *Inclusion criteria*

- Published from 1<sup>st</sup> Jan. 2020 to 7<sup>th</sup> Sept. 2021.
- Written in any language.
- Investigation of health service utilisation among the general population
  - Including presentations to general hospital emergency departments (EDs), primary healthcare services, specialist mental healthcare services (accessible to general population), other secondary healthcare services that treat people who have self-harmed / attempted suicide (e.g. surgery) and admission to hospitals.

- Outcomes were presentations for self-harm, including:
  - broad definition of self-harm (defined as non-fatal intentional self-injury, intentional self-poisoning involving drugs or non-ingestible substances, including non-suicidal acts) or attempted suicide, including hospital attendance and/or admission for these reasons <sup>11</sup>
  - narrower definition, for example studies focussed only on suicide attempts or specific methods of self-harm.
- Comparisons:
  - health service presentation frequencies (including incident or prevalent episode counts or rates) for self-harm before and after the beginning of the COVID-19 pandemic, considering specific time periods separately; for example, both initial and subsequent lockdown periods.

#### *Exclusion criteria*

- Studies without pre-pandemic observation periods or measurements, including those reporting use of service initiatives implemented in response to the pandemic, with no pre-pandemic comparison period.
- Reports where only an abstract was available.
- Studies focussing on specific groups such as those with a specific physical or psychiatric diagnosis (including COVID-19) or where the baseline population was existing patients within a specialist service, such as psychiatric inpatients.
- Studies reporting self-harm and suicidal thoughts as a combined measure.
- Studies reporting proportions of self-harm presentations, without reporting absolute figures
- Studies of suicides.

#### *Data analysis*

The list of studies used for screening was obtained from the main living systematic review database. <sup>12</sup> This database is updated automatically using daily electronic searches of multiple databases (WHO COVID-19 database; Medline; medRxiv; Scopus; PsyRxiv; SocArXiv; bioRxiv; COVID-19 Open Research Dataset, PubMed) (see Supplement 2 for search strategy for each database). Screening was conducted in two stages: the citations returned by the automated searches were assessed by four screeners (CO, EE, DD, CM-H) to identify potentially relevant studies, then AJ, DG, DK or RW assessed the full text of the

studies to identify studies to be included in the main living systematic review. In addition, expert reviewers (AJ, DG, DK and RW) completed daily assessments of the automated results, which included basic data extraction and assigning studies manually to a study design category, along with a description of the study design.

Identification and screening of studies for the current review was conducted using a methodology developed as part of an existing living systematic review (Fig. 1).<sup>12</sup> Studies included publications identified in the living systematic review from 1<sup>st</sup> Jan. 2020 up to 7<sup>th</sup> Sept. 2021. Screening was conducted according to the inclusion and exclusion criteria for the current review. The list of studies was extracted from the main living systematic review database on 14<sup>th</sup> Sept. 2021. Categories assessed for inclusion in the current review were 'service utilisation', 'before/after studies', 'time trends analysis' and 'examination of electronic health records' (Fig. 1).<sup>16</sup>

As part of the identification and screening procedure, further screening and data extraction was completed for the current systematic review using a proforma designed to collect standardised information from each study (Table S1). Study quality and risks of bias were assessed using an adapted version of an existing National Institute for Health (NIH) quality assessment tool, designed specifically for studies using before and after designs.<sup>17</sup> The NIH tool was adapted by authors DK, JH and DG to include consideration of the pandemic and associated lockdown periods and other societal restrictions as the intervention of interest and to account for the use of health service data sources in the study designs. The overall assessment tool was used to judge the quality of studies, with predefined criteria established for studies to be rated as high or moderate quality. Screening, data extraction and quality assessments were conducted by SS. A second rater (DD) assessed eligibility for 20% of the studies sought for retrieval and conducted independent data extraction and analysis on 10% of the included studies. There was agreement on all eligibility assessments and study quality ratings. If a source was not available in English, data extraction was conducted by expert reviewers fluent in the language that the article was written in. Where included studies were preprints, searches for peer-reviewed version were conducted and the updated peer-reviewed version was used for data extraction where available. Data synthesis was conducted by extracting, assessing and tabulating key aspects of the studies, including setting, study design, data sources, outcome measures, follow-up and comparison periods, main findings and study quality. The main effect measure of interest was percentage difference in presentation frequency during a defined COVID-19 period compared to a pre-COVID-19 comparison period. If this data were missing, the overall direction of change (e.g.



increase/no change/decrease) was recorded. Higher quality studies were prioritised and reported separately during data synthesis and presentation of results.

## Results

### *Description of included studies*

Fifty-one studies were included. These were from healthcare settings including general hospital EDs (39%, 20/51), trauma and surgery admissions (22%, 11/51), children's hospitals (8%, 4/51), primary care (8%, 4/51), general hospital admissions (6%, 3/51), paediatric EDs (6%, 3/51), ambulance calls (4%, 2/51), liaison psychiatry referrals (4%, 2/51) paediatric trauma admissions (2%, 1/51) and a multiservice setting (2%, 1/51) (Table 1 and Table S1). Study quality was mixed; 59% (30/51) were rated as 'low' quality, 29% (15/51) as 'moderate' and 12% (6/51) as 'high-moderate'. Reasons for studies being rated as low quality commonly included small event counts, absence of clearly defined patient eligibility criteria, and poorly described data extraction/collection methodology. Most of the evidence (84%, 43/51 studies) was from investigations conducted in high-income countries (Table 1). Forty-two of the 51 studies were reported in peer-reviewed articles, four were preprints, four were letters or editorials and one was a report.

### *Findings of included studies*

Almost half (47%, 24/51) of the studies reported reductions in presentation frequency (Figure 2) for the duration of the period studied, the majority of which included months no later than August 2020. All 6 studies rated as high-moderate quality found decreases in service utilisation during the early months of the pandemic, with reductions of between 17 and 56% reported.<sup>6 7 18-21</sup> These studies were of primary and secondary care settings combined (4 studies), ED presentations among ages 18 to 25 years (1 study) and self-poisoning presentations to hospital (1 study). Four studies used healthcare records in the UK to compare expected vs. observed primary and secondary-care recorded episodes of self-harm, and found reductions of between 26 and 44%.<sup>6 7 19 21</sup> Another study based in Sri Lanka found a 32% reduction in hospital presentations for self-poisoning compared to pre-pandemic numbers. However, these estimates included months no later than August 2020.

Five studies used national or nationally representative data. Four of these were assessed as high-moderate quality and reported decreases in service utilisation of between 26 and 56%. One moderate quality study reported a 6% increase in ED presentations.<sup>22</sup> This US-based

study only included self-harm episodes classified as suicide attempts, therefore may not reflect service use for self-harm more broadly.

Increases were reported in 15/51 (29%) studies, none of which were assessed as being of high-moderate quality and 4 were rated as moderate quality. An examination of the number of people admitted to a surgical department following self-harm by ingestion of corrosive substances was found to increase by 55% in one Bangkok hospital, though numbers in the study were relatively low.<sup>23</sup> Other moderate quality studies reporting increased patient numbers included ED and surgery services, settings likely to be encountering patients with more medically severe episodes of self-harm.

Twelve out of 51 (24%) studies reported no change in service utilisation, including no high-moderate quality studies and 2 assessed as moderate quality. These were both conducted in ED settings, with one New Zealand ED reporting no change in self-harm presentations<sup>24</sup> and a UK-based study reporting no change in hospital admission following ED presentations for self-harm<sup>25</sup> A further 6 studies were conducted in trauma settings, though all were rated as low quality.

Most studies (46/51) included up to a maximum of 8 months of follow-up from the first wave of the pandemic (March to October 2020). Among the 4 studies including months from 2021 in their observation period (up to May 2021), 3 were rated as high-moderate quality. Among these, 2 studies of primary and secondary care-recorded self-harm reported longer-term reductions of between 8 and 30% respectively<sup>19,21</sup> and another study of ED presentations by young people aged 12 to 25 years found no overall change.<sup>18</sup> Studies including follow-up months beyond 2020 were limited to those originating from high-income countries.

#### *Findings by study settings and subgroups*

7/51 (14%) studies were conducted in upper-middle-income (3 studies), middle-income (1) and lower-middle income (3) countries, one of which was rated as high-moderate quality. Four studies found a decrease in service use and three reported an increase. The study rated as high-moderate quality reported on self-poisoning episodes in a lower-middle-income setting; using health record data from a toxicology unit in a Sri Lankan hospital, a 32% reduction in hospital presentations for self-poisoning was found compared to pre-pandemic numbers.<sup>20</sup> A study of moderate quality conducted in one Nepalese ED found an increase of 44% in presentations for self-harm during the lockdown period compared to the same period the previous year, with indications that severity of self-harm was higher, though

the numbers of presentations in both the lockdown and comparison periods were relatively small.<sup>26</sup>

Eighteen studies included examination of service use for self-harm specifically among children and/or young people, with five rated as high-moderate quality. One high-moderate quality study including approximately 71% of the US's EDs in 49 states examined presentations among ages 18 to 25 years and found reductions of 26% among ages 12-17 and 17% among ages 18-25 in April 2020. However, when examining presentation rates over the longer-term, through to March 2021, increases compared to equivalent weeks in 2019 were found for girls aged 12-17. Among boys aged 12-17 and all adults aged 18-25 years, rates through to March 2021 were in line with those in 2019.<sup>18</sup> Another high-moderate quality study, based in the UK, reported increased numbers of presentations to primary and secondary care among all adolescents aged 10-17 years up to May 2021.<sup>19</sup> These findings are in contrast to those reported in other moderate quality studies using earlier COVID-19 observation periods (up to June 2020) where younger people were found to have significantly fewer self-harm presentations than in the equivalent period in 2019.<sup>27 28</sup>

## **Discussion**

### *Main findings*

All of the studies assessed as high-moderate quality reported decreases in service utilisation following self-harm and were conducted in settings reflecting a broad spectrum of self-harm with higher frequency of presentations such as primary care. We found that settings treating episodes of self-harm with lower frequency and higher lethality, such as trauma admissions and ambulance calls, were overrepresented among studies that reported increased or no change in demand. Among higher quality studies that included months from 2021 in their observation period, numbers of people seeking help from health services were found to be either closer to pre-pandemic levels, though still lower than expected, or in line with expected numbers. Evidence from 2021 also suggested there was increased utilisation of health services following self-harm among adolescents, girls particularly so. However, studies including follow-up months from 2021 were limited to those originating from high-income countries.

### *Strengths and limitations*

This systematic review is the first to examine up-to-date evidence regarding associations between the COVID-19 pandemic and frequency of health service utilisation for self-harm. An established, peer-reviewed living systematic review methodology,<sup>11</sup> with ongoing data extraction by a panel of suicide prevention experts, was used as the basis for this review. This approach, along with a specific focus on studies comparing frequency in utilisation of health services following self-harm in different settings during the COVID-19 pandemic versus antecedent pre-pandemic periods, enables timely synthesis of the evolving evidence base.

The findings of our study should be interpreted with some important caveats in mind. We excluded 6 studies that reported self-harm and suicidal thoughts as a combined measure as it was not possible to make a like-for-like comparison with findings pertaining specifically to acts of self-harm. However, we included studies using a broad range of definitions of self-harm, including those that measured and reported on suicide attempts or self-poisoning methods only. We also did not include temporal trends in the proportion of all presentations that were for self-harm as a primary outcome, due to the limitation that this outcome would be affected by changes in the overall number of presentations for reasons other than self-harm.

We conducted a comprehensive narrative synthesis of the data rather than a meta-analysis due to heterogeneity in the pandemic and antecedent comparison periods, definitions of self-harm applied, and healthcare settings that studies were conducted in. Performing a meta-analysis will be considered for future updates of the living systematic review. The studies included in our review are of mixed quality and are greatly under-representative of middle- and low-income countries. While we have reported findings according to these characteristics, overall findings should be interpreted in light of these considerations.

#### *Implications and comparison with existing evidence*

Most studies came from high-income countries. Findings from higher quality studies suggested either there were continued reductions in health service utilisation into 2021, though to a lesser extent than earlier months of the pandemic, or that service use had broadly returned to pre-pandemic levels. However, these findings cannot necessarily be generalised to low- and middle-income countries. For example, allocation of COVID-19 vaccinations has been disproportionately skewed towards high-income countries.<sup>29</sup> Consequently, many low- and middle-income countries have experienced major subsequent waves of COVID-19 well into 2021.<sup>30</sup> The effects of these further waves of infection on

many of the factors associated with self-harm - for example, unemployment, mental and physical ill health, poor access to healthcare - are likely to be considerable.<sup>31</sup> Subsequent waves of COVID-19 have also been experienced by high-income countries into the latter half of 2021. For example, from November 2021, some European countries introduced further societal restrictions.<sup>32</sup> Continued surveillance is therefore needed in all settings.

Our findings are consistent with reports of increased acuity of presentations in some mental health services.<sup>33 34</sup> The increases in presentation frequency reported by studies that were conducted in healthcare settings treating more potentially lethal episodes of self-harm, such as ambulance calls and trauma admissions indicates that the pandemic has impacted the threshold for help seeking. Evidence also shows that non-statutory mental health services, such as charities, experienced increased demand in the months following the onset of the pandemic.<sup>35</sup> This may explain the apparent paradox observed during the first year of the pandemic, where deterioration in population mental health alongside reductions in health services utilisation was observed. This indicates that reductions seen in settings capturing a broader spectrum of self-harm do not simply reflect decreased incidence of self-harm or reduced clinical need. People who have harmed themselves non-fatally have a markedly elevated suicide risk subsequently, irrespective of self-harm method at the index episode, and degrees of suicidal intent can fluctuate between different self-harm episodes by the same person.<sup>36</sup> Therefore, it is vital that people harming themselves receive clinical intervention and that health services across the world work to ensure services are available to provide timely and accessible care.<sup>37 38</sup>

Studies examining changes in proportions of groups presenting with certain characteristics, and those examining combined 'suicidal thoughts and self-harm' outcomes, were not included in this systematic review as we were interested in absolute numbers of people using health services for self-harm. However, such studies can provide valuable information about help seeking behaviour in different groups. For example, a study of hospital attendance for suicidal ideation and self-harm in Australia's Gold Coast region identified a number of groups with particularly reduced likelihood of presentation during March to August 2020, including Indigenous Australians and individuals with less severe suicidal and self-harm, while people younger than 18 years had increased numbers of presentations.<sup>39</sup> Another study conducted in a paediatric ED in New York City, USA found that while overall there were significant decreases in emergency attendances, visits for suicidal ideation and self-harm among young people increased.<sup>40</sup> Increases in numbers of adolescents referred to mental health services in Ireland were found from September 2020, following initial decline in April 2020.<sup>41</sup> Our findings of increased utilisation of health services for self-harm

into the early months of 2021 among adolescents, particularly girls, within this context, are concerning and warrant urgent attention.

### *Conclusions*

All high-quality studies reported a fall in attendance frequency for self-harm during the early months of the pandemic. New evidence relating to the first and second quarters of 2021 indicated that longer-term impacts on health services were less marked than during the first wave of the pandemic, though reductions in frequency of presentation versus expected levels persisted. These patterns likely reflect changes in thresholds for help seeking, increases in frequency of higher acuity episodes of self-harm and increased use of non-statutory health services. The increased utilisation of health services among adolescents, particularly girls, into the early months of 2021 warrants particular attention. However, evidence from low- and middle-income countries is still limited. High-quality, multi-centre studies examining the longer-term impacts on health service utilisation for self-harm, particularly in low- and middle-income countries, including observation periods into 2021 and among children and young people, are urgently needed.

### *Declaration of Interest*

DG, KH and NK are members of the Department of Health and Social Care (England) National Suicide Prevention Strategy Advisory Group.

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### *Author contributions*

Conceptualisation and design of study: SS, AJ, DG, RTW

Initial screening: EE, DD, CMH, DK, AJ, RTW, DG

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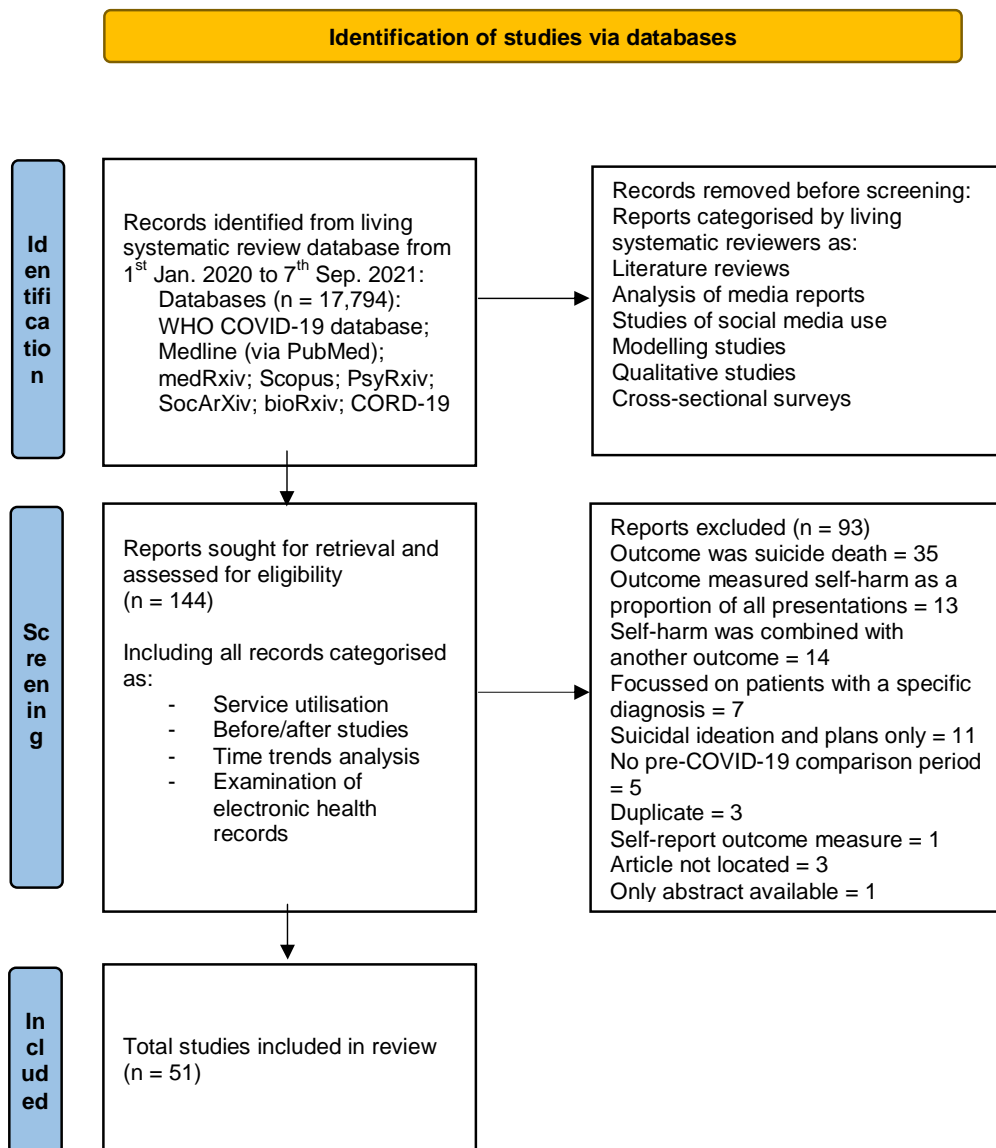
Quality assessments: SS, DD

Data analysis: SS, DD, LS

Writing manuscript: SS

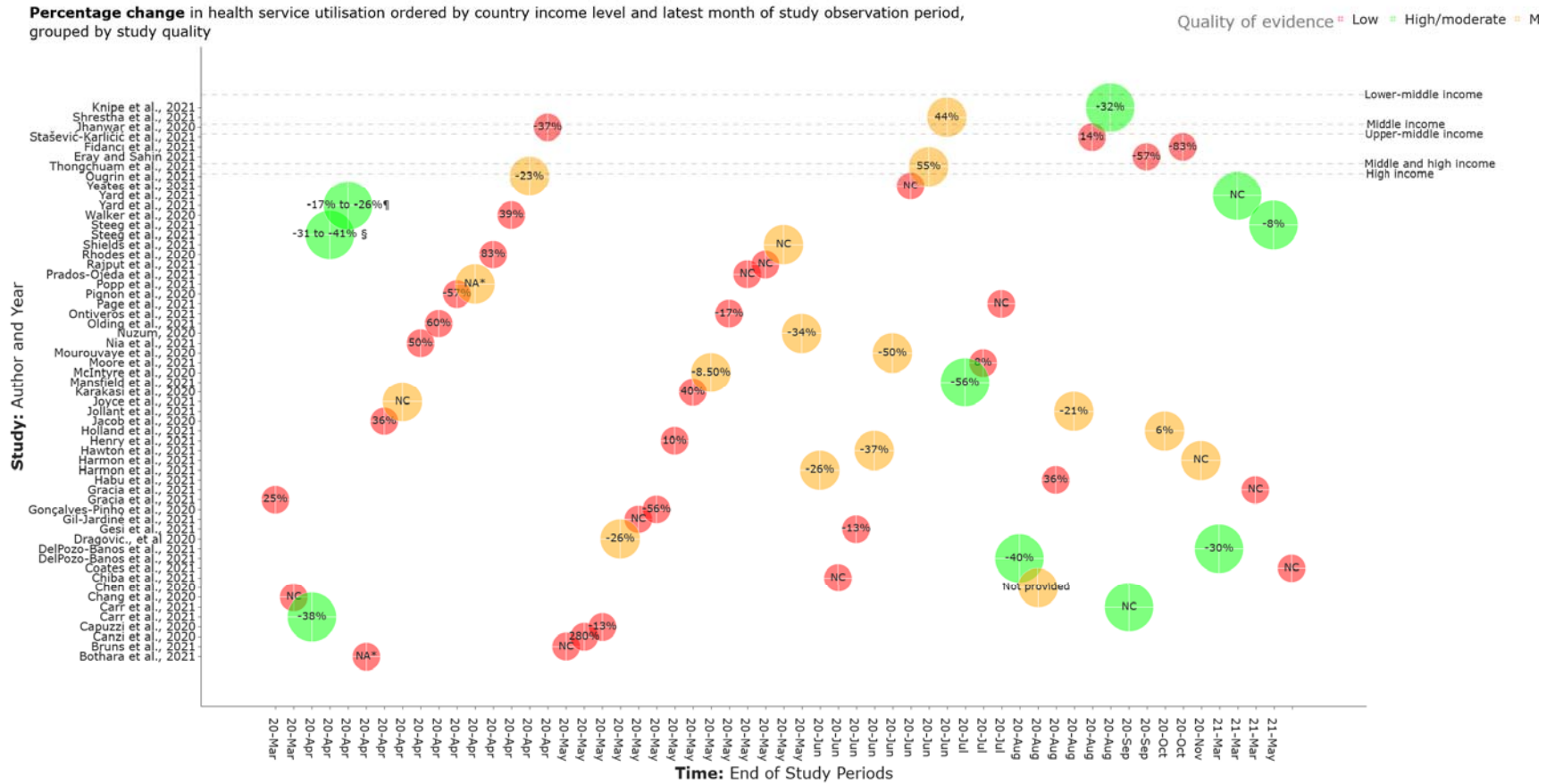
Critical reviewing and editing of manuscript: all authors

Figure 1: PRISMA flow diagram <sup>12</sup>





**Figure 2: Percentage change in health service utilisation ordered by country income level and latest month of study observation period, grouped by study quality.**



NC = no change  
 \*zero at baseline  
 ¶ -26% among ages 12-17 and by -17% among ages 18-25  
 § -31% for all episodes and -41% for incident episodes

**Table 1: Characteristics of included studies: 1<sup>st</sup> Jan. 2020 to 7<sup>th</sup> Sep. 2021**

Study ID	Authors	Healthcare setting	Increase, decrease or no change	Statistically significant change?	Approx. % change (95% CI if provided)	Latest month of study period	Change post-lockdown (if studied)	Additional, post-Sep. 2020 period examined	Quality of evidence	Global setting
1	Capuzzi et al., 2020 <sup>42</sup>	ED (psychiatric)	Decrease	Not reported	-13%	May-20			Low	High income
2	Carr et al., 2021 <sup>7</sup>	Primary and secondary	Decrease	Yes	-38% (CI 35% to 50%)	Apr-20	No change	Sep-20	High/moderate	High income
3	Chen et al., 2020 <sup>43</sup>	Liaison psychiatry referrals	Decrease	Yes	not provided	Aug-20			Moderate	High income
4	Dragovic., et al 2020 <sup>44</sup>	ED	Decrease	Yes	-26%	May-20			Moderate	High income
5	DelPozo-Banos et al., 2021 <sup>21</sup>	Primary and secondary	Decrease	Yes	-40%	Aug-20	-30%	Mar-21	High-moderate	High income
6	Gesi et al., 2021 <sup>45</sup>	ED	Decrease	Not reported	-13%	Jun-20			Low	High income
7	Gonçalves-Pinho., et al 2020 <sup>46</sup>	ED (psychiatric)	Decrease	Not reported	-56%	May-20			Low	High income
8	Harmon et al., 2021 <sup>47</sup>	ED	Decrease	No	-26%	Jun-20	No change	Nov-20	Moderate	High income
9	Hawton et al., 2021 <sup>48</sup>	ED	Decrease	Yes	-37%	Jun-20			Moderate	High income
10	Jollant et al., 2021 <sup>8</sup>	Hospital admissions	Decrease	Yes	-21%	Aug-20			Moderate	High income
11	Mansfield et al., 2021 <sup>6</sup>	Primary and secondary	Decrease	Yes	-56% <sup>#</sup>	Jul-20			High/moderate	High income
12	McIntyre et al., 2020 <sup>49</sup>	Liaison psychiatry referrals	Decrease	Not reported	-8.50%	May-20			Moderate	High income
13	Mourouvaye et al., 2020 <sup>28</sup>	Children's hospital	Decrease	Yes	-50%	Jun-20			Moderate	High income
14	Nuzum, 2020 <sup>50</sup>	ED	Decrease	Not reported	-34%	May-20			Moderate	High income

Study ID	Authors	Healthcare setting	Increase, decrease or no change	Statistically significant change?	Approx. % change (95% CI if provided)	Latest month of study period	Change post-lockdown (if studied)	Additional, post-Sep. 2020 period examined	Quality of evidence	Global setting
15	Ontiveros et al., 2021 <sup>51</sup>	Poison registry	Decrease	Yes	-17%	May-20			Low	High income
16	Pignon et al., 2020 <sup>52</sup>	ED (psychiatric)	Decrease	Not reported	-57%	Apr-20			Low	High income
17	Steege et al., 2021 <sup>19</sup>	Primary and secondary	Decrease	Yes	-31 to -41% <sup>§</sup>	Apr-20	-8% to -14%	May-21	High-moderate	High income
18	Walker et al., 2020 <sup>53</sup>	ED	Decrease	Not reported	-39%	Apr-20			Low	High income
19	Yard et al., 2021 <sup>18</sup>	ED (12-25 years)	Decrease	Yes	-17% to -26% <sup>¶</sup>	Apr-20	No change	Mar-21	High-moderate	High income
20	Bothara et al., 2021 <sup>54</sup>	ED	Increase	Yes	NA*	Apr-20			Low	High income
21	Canzi et al., 2020 <sup>55</sup>	Trauma admissions	Increase	Yes	280%	May-20			Low	High income
22	Gracia et al., 2021 <sup>56</sup>	Multi-service ages 12-18	Increase	No	25%	Mar-21	Change related to March 2020-March 2021	Mar-21	Low	High income
23	Habu et al., 2021 <sup>57</sup>	Ambulance calls	Increase	Not reported	36%	Aug-20			Low	High income
24	Henry et al., 2021 <sup>58</sup>	ED	Increase	Yes	10%	May-20			Low	High income
25	Holland et al., 2021 <sup>22</sup>	ED	Increase	Yes	6%	Oct-20			Moderate	High income
26	Karakasi et al., 2020 <sup>13</sup>	ED (psychiatric)	Increase	Not reported	40%	May-20			Low	High income
27	Moore et al., 2021 <sup>59</sup>	Ambulance calls	Increase	Not reported	8%	Jul-20			Low	High income
28	Nia et al., 2021 <sup>60</sup>	Trauma admissions	Increase	Yes	50%	Apr-20			Low	High income
29	Olding et al., 2021 <sup>14</sup>	Trauma admissions	Increase	Not reported	60%	Apr-20			Low	High income
30	Popp et al., 2021 <sup>61</sup>	Plastic surgery	Increase	Yes	NA*	Apr-20			Moderate	High income

Study ID	Authors	Healthcare setting	Increase, decrease or no change	Statistically significant change?	Approx. % change (95% CI if provided)	Latest month of study period	Change post-lockdown (if studied)	Additional, post-Sep. 2020 period examined	Quality of evidence	Global setting
31	Rhodes et al., 2020 <sup>15</sup>	Trauma admissions	Increase	Not reported	83%	Apr-20			Low	High income
32	Bruns et al., 2021 <sup>62</sup>	Children's trauma admissions	No change	No		May-20			Low	High income
33	Chang et al., 2020 <sup>63</sup>	Trauma admissions	No change	No		Mar-20			Low	High income
34	Chiba et al., 2021 <sup>64</sup>	Trauma admissions	No change	No		Jun-20			Low	High income
35	Coates et al., 2021 <sup>65</sup>	ED (up to 19 years)	No change	No		NA			Low	High income
36	Gil-Jardiné et al., 2021 <sup>66</sup>	Emergency health contact centre	No change	Not reported		May-20			Low	High income
37	Jacob et al., 2020 <sup>67</sup>	Trauma admissions	No change	Not reported	36%	Apr-20			Low	High income
38	Joyce et al., 2021 <sup>24</sup>	ED	No change	Not reported		Apr-20			Moderate	High income
39	Page et al., 2021 <sup>68</sup>	ED	No change	No		Jul-20			Low	High income
40	Prados-Ojeda et al., 2021 <sup>69</sup>	ED	No change	Not reported		May-20			Low	High income
41	Rajput et al., 2021 <sup>70</sup>	Trauma admissions	No change	no		May-20			Low	High income
42	Shields et al., 2021 <sup>25</sup>	ED	No change	No		May-20			Moderate	High income
43	Yeates et al., 2021 <sup>71</sup>	Trauma admissions	No change	No		Jun-20			Low	High income
44	Ougrin et al., 2021 <sup>27</sup>	ED (up to 18 years)	Decrease	Yes	-23%	Apr-20			Moderate	Middle and high income
45	Eray and Sahin 2021 <sup>72</sup>	Children's hospital	Decrease	Not reported	-57%	Sep-20			Low	Upper-middle

Study ID	Authors	Healthcare setting	Increase, decrease or no change	Statistically significant change?	Approx. % change (95% CI if provided)	Latest month of study period	Change post-lockdown (if studied)	Additional, post-Sep. 2020 period examined	Quality of evidence	Global setting
		admissions								income
46	Fidanci et al., 2021 <sup>73</sup>	Children's hospital	Decrease	Not reported	-83%	Oct-20			Low	Upper-middle income
47	Thongchuan et al., 2021 <sup>23</sup>	Surgery following self-poisoning	Increase	Yes	55%	Jun-20			Moderate	Upper-middle income
48	Stašević-Karličić et al., 2021 <sup>74</sup>	ED (psychiatric)	Increase	Yes	14%	Aug-20			Low	Middle income
49	Knipe et al., 2021 <sup>20</sup>	Hospital admissions (self-poisoning)	Decrease	Yes	-32% (CI 12% to 48%)	Aug-20			High-moderate	Lower-middle income
50	Jhanwar et al., 2020	ED	Decrease	Yes	-37%	Apr-20			Low	Lower-middle income
51	Shrestha et al., 2021	ED	Increase	Not reported	44%	Jun-20			Moderate	Lower-middle income

\*zero at baseline

¶ -26% among ages 12-17 and by -17% among ages 18-25

# Difference in weekly contacts per million population

§ -31% for all episodes and -41% for incident episodes

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**Supplement 1: Table S1: Details of included studies: 1<sup>st</sup> Jan. 2020 to 7<sup>th</sup> Sep. 2021**

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
1. Capuzzi et al., 2020 <sup>42</sup>	Peer-reviewed article	Italy (Lombardy)	Emergency psychiatric evaluations, including 'self-harm/suicide' attempts as a separate category, at psychiatric emergency rooms in two centres in Lombardy were compared in two equivalent periods pre-COVID-19 (22 Feb 2019-5 May 2019) and following the first COVID-19 case in Italy up to end of first phase of lock-down (21 Feb 2020 to 3 May 2020). Data were obtained from hospital registers.	Psychiatric emergency department consultations for suicide attempt/self-harm.	<p>In period A (2019) there were 68 attendances (17.5%) for self-harm/suicide attempt compared to 59 in period B (2020).</p> <p>The rate of self-harm consultations as a proportion of all consultations was higher during the COVID-19 period.</p>	<p>Low numbers of self-harm/suicide attempts included in the study.</p> <p>No definition of self-harm/suicide attempt was provided.</p> <p>Limited information about the methods for extracting data from electronic health records.</p> <p>Significance testing was only conducted for differences in self-harm as a proportion of total attendances, not for differences between absolute numbers.</p>	Low
2. Carr, Steeg et al. 2021 <sup>7</sup>	Peer-reviewed article	UK (nationwide)	Anonymised patient data from primary care records of patients from 1697 UK general practices registered in the Clinical Practice Research Datalink were	Primary care-recorded self-harm	The incidence of self-harm was 37.6% lower than expected in April, 2020 compared to expected rates and	The self-harm outcome was based on a broad definition which included episodes of varying suicidal intent.	High/moderate

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			included. Monthly incident and total episodes of primary care recorded self-harm for the period March-September 2020 were compared to expected counts based on data from 1 January 2010 to 29 <sup>th</sup> February 2020.		<p>the all episode event rate was 36.6% lower.</p> <p>In April 2020, incidence and event rates for self-harm were substantially lower than expected for women and people aged below 45 years. Self-harm incidence increased from August 2020, in the 10–17-year age group.</p>	It is not known how many of the primary care recorded self-harm episodes had resulted in hospital presentations.	
3. Chen et al., 2020 <sup>43</sup>	Peer-reviewed article	England (Cambridge)	Data were obtained from hospital clinical record systems. People using or referred to inpatient and community mental health services (including psychological therapy services) from liaison psychiatry in Cambridge and Peterborough. The study period included 11 March 2014 – 30 August 2020, with 23 March 2020 used as the event date for interrupted	Number of referrals following presenting problems involving intentional drug overdose and other forms of self-harm	A marked reduction ( $p < 0.001$ ) in liaison psychiatry referrals following intentional drug overdose and self-harm occurred after 23 March 2020. The percentage reduction was not specified.	<p>Liaison team referrals only (not all ED attendances) at a single hospital. Liaison psychiatry referral pathways may have changed as a result of COVID-19.</p> <p>Seasonal trends were accounted for in the analysis.</p>	Moderate

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			time series analysis.				
4. Dragovic et al., 2020 <sup>44</sup>	Peer-reviewed article	Australia (Western Australia)	Data from three EDs were extracted from the Western Australia North Metropolitan Health Services Emergency Department Data Collection database. Attendances over the period January to May 2020 were compared to those that occurred over the same calendar month during 2019.	Numbers of ED presentations for suicidal and self-harm behaviour.	Suicidality and self-harm presentations decreased by 26%, from 269 in the 2019 study period to 199 in 2020 (p<0.001).	The data collection methods lack contextual detail. The authors do not describe the behaviours included as 'suicidal and self-harm behaviours', though state that ICD-10 psychiatric diagnoses codes were used.	Moderate
5. DelPozo-Banos, Lee et al. 2021 <sup>21</sup>	Preprint	Wales (nationwide)	An existing databank of individual-level, linkable electronic health records from primary care, ED and hospital data was utilised.  Weekly healthcare contacts for self-harm were compared between Wave 1 (9 <sup>th</sup> March 2020 to 16 <sup>th</sup> August 2020) and Wave 2 (17 <sup>th</sup> August 2020 to 14 <sup>th</sup> March 2021) and the equivalent calendar periods in 2016 to 2019.	Number of self-harm contacts including primary care consultations, ED presentations and hospital admissions.	Across all healthcare settings, weekly self-harm contacts reduced by around 40% in Wave 1 compared to the equivalent periods in 2016 to 2019. Levels returned to before COVID-19 levels by July-August 2020, and in Wave 2 reduced by around 30%.  Disproportionate reductions in primary care contacts for	Nationwide coverage.  Fluctuations in previous years were accounted for in the trends during the COVID-19 periods.  Multiple healthcare settings were examined.	High/moderate

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					self-harm were observed.  Similar patterns were seen in each setting.		
6. Gesi, Grasso et al. 2021 <sup>45</sup>	Peer-reviewed article	Italy (Lombardy)	Electronic health records extracted from three EDs. The period 8 <sup>th</sup> March to 3rd June 2020 was compared to the equivalent calendar period in 2019.	Three categories of self-harm - suicide attempt, self-injuring, drug ingestion - were examined.	Suicide attempts: 1 in 2019 vs. 3 in 2020 Self-injury: 21 in 2019 vs. 14 in 2020 Drug ingestion: 54 in 2019 vs. 49 in 2020.	No statistical tests for absolute differences were reported.  No details about how the three self-harm categories were classified was provided.  Low event counts.	Low
7. Gonçalves-Pinho et al., 2020 <sup>46</sup>	Peer-reviewed article	Portugal (North Region)	People attending a Psychiatric ED in a tertiary hospital in North Portugal. Attendances between March 19 <sup>th</sup> and May 2 <sup>nd</sup> 2020 (the COVID-19 lockdown period in Portugal) were compared with the same dates in 2019.	'Suicide and self-inflicted presentations' to psychiatric ED.	A significant reduction was identified in numbers of presentations of suicide and intentional self-inflicted injury during the COVID-19 lockdown period compared to the same period in 2019: N=36 vs. 81, a 56% reduction.	The number of patients presenting with 'suicide and intentional self-inflicted injury' included in the study was relatively small.  While the study stated ICD-9 codes were used to identify diagnostic groups, the definition of 'suicide	Low

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						<p>and self-inflicted presentation' was not provided.</p> <p>Statistical tests were not presented for differences in numbers of visits between the two time periods.</p>	
8. Harmon, Fliss et al. 2021 <sup>47</sup>	Peer-reviewed article	USA (North Carolina)	State-wide hospital surveillance system of ED presentations from January to mid- November in 2019 and in 2020. Data were coded using ICD-10 codes and Centers for Disease Control and Prevention (CDC) keywords. Quarterly counts of ED presentations for self-harm. Quarter 2 (1 <sup>st</sup> April to 30 <sup>th</sup> June 2020) was identified as the period acutely affected by COVID-19.	ED presentation for self-harm	<p>A 26% reduction in presentations for self-harm (3167 in 2019 vs. 2352 in 2020) was observed.</p> <p>In the subsequent quarters of 2020, numbers of self-harm presentations almost reached 2019 levels.</p>	<p>Large, state-wide study based on existing data collection systems.</p> <p>No information on missing data was provided.</p>	Moderate
9. Hawton, Casey et al. 2021 <sup>48</sup>	Peer-reviewed article	England (Oxford and Derby)	Data were collected from EDs of two general hospitals. In one hospital data were extracted from monitoring forms completed by clinicians	Self-harm presentations to ED	There was a 37% reduction in mean number of weekly self-harm presentations during	A broad definition of self-harm was included. Only hospital presentations	Moderate



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			treating patients presenting with self-harm and, in the other hospital they were extracted from electronic health records. Mean number of weekly presentations during the lockdown period (23 <sup>rd</sup> March to 14 <sup>th</sup> June 2020) compared to the equivalent calendar period in 2019 as well as a pre-lockdown period (6 <sup>th</sup> January to 22 <sup>nd</sup> March 2020).		the lockdown period compared to the equivalent calendar period in 2019.	followed by an assessment were included, rather than all presentations.  There was a larger reduction for presentations involving self-poisoning.	
10. Jollant, Rousso et al. 2021 <sup>8</sup>	Peer-reviewed article	France (nationwide)	Data were from a national database of patients admitted to hospitals. All hospital stays for self-harm (based on ICD codes) were included. Monthly numbers of hospital stays for self-harm, from January to August 2020 compared to the same months in 2019, 2018 and 2017.	Hospitalisation for self-harm.	An overall decrease of 8.5% was found in the months of January to August 2020 compared to 2019, with a 21.1% reduction in April 2020 compared to 2019.  Increase in hospitalisations found among people aged 75 years and over.  Separate analysis was conducted on	Self-harm presentations not resulting in hospitalisation were not included.  Statistical tests were presented for monthly differences.	Moderate

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					more serious episodes (those leading to ICU admission and those using violent methods). Both increased in frequency during the 2020 period.		
11. Mansfield, Mathur et al. 2021) <sup>6</sup>	Peer-reviewed article	England and Northern Ireland	General practices contributing data to the Clinical Practice Research Datalink, including around 10 million individuals. Weekly primary care contacts among patients aged 11 years and over in a pre-COVID-19 period (1 <sup>st</sup> January 2017 to 7 <sup>th</sup> March 2020) were compared to the period with COVID-19 restrictions (28 <sup>th</sup> March to 18 <sup>th</sup> July 2020).	Primary care-recorded self-harm	Reductions in primary care contacts for self-harm during the COVID-19 period were observed: odds ratio 0.56 (CI 0.54–0.58).	This was a large study, using a broad definition of self-harm.  While the study states it is based in the UK, only data from English and Northern Irish practices were included. It is not known how many of the primary care recorded self-harm episodes led to hospital presentations.	High/moderate
12. McIntyre et al. 2021) <sup>75</sup>	Peer-reviewed article	Ireland (Galway)	The liaison psychiatry team hospital database, which includes self-harm referrals	Numbers of referrals to liaison	In the period March-May 2020, there were 119 referrals,	Incidence based on referrals to liaison psychiatry, which is	Moderate

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			from ED, medical and surgical wards and the critical care unit at one hospital. A COVID-19 study period of 1 March 2020–31 May 2020 was compared with the same period in 2017–2019.	psychiatry from ED, medical and surgical ward and critical care unit following self-harm.	<p>significantly lower than in the same period in 2019 (130), an 8.5% reduction.</p> <p>The reduction was greatest in the March-April period (-35%).</p> <p>An increase in lethality of presentations was observed.</p>	<p>likely to underestimate total hospital-presenting cases.</p> <p>Liaison psychiatry referral pathways may have changed as a result of COVID-19.</p> <p>Broad definition of self-harm provided, though details on how records involving self-harm were selected was not provided.</p> <p>Significance testing was only presented for differences in proportions of presentation types.</p>	
13. Mourou vaye, Bottemanne et al. 2020 <sup>28</sup>	Peer-reviewed article	France (Paris)	Data pertained to one paediatric hospital in Paris. This was a retrospective observational study, with outcome data obtained from discharge codes (ICD codes applied unspecified). The	ED and hospital admissions for suicidal behaviour	A 50% reduction in was observed during the lockdown period. There was no difference in observed characteristics of	The specific suicidal behaviours included in the outcome measure were not specified, though ICD-10 codes were used.	Moderate

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			study period was between 1 <sup>st</sup> January 2018 and 1 <sup>st</sup> June 2020. The French COVID-19 lockdown period (16 <sup>th</sup> March 2020 to 10 <sup>th</sup> May 2020) was compared to the study period before and after the lockdown. Numbers of ED and hospital admissions for suicidal behaviour among children aged 7-17 years were compared.		<p>patients (including proportion admitted to intensive care units) between the two periods.</p> <p>The incidence of admissions for suicidal behaviour was also lower during summer breaks.</p>	The overall number of admissions during the two time periods was stated (234 between 1 January 2018 and 1 June 2020), but the number of admissions during the lockdown period was not. Confidence intervals were relatively wide.	
14. Nuzum, 2020 <sup>76</sup>	Preprint	UK (4 boroughs in South London)	Researchers extracted data from ED and 'place of safety' electronic health records. Three periods in 2020 were compared: before (3 <sup>rd</sup> February), during (16 <sup>th</sup> March to 10 <sup>th</sup> May) and after lockdown (11 <sup>th</sup> May to 28 <sup>th</sup> June).	The outcome measures were self-harm and categories of self-harm including self-poisoning, self-injury and combined/other self-harm.	<p>Mean weekly presentations of self-harm were 34% lower during lockdown compared to the pre-lockdown period and 37% higher in the post-lockdown period compared to the lockdown period.</p> <p>Reductions in the lockdown period compared to the pre-lockdown were highest for</p>	There were small sample sizes when comparing self-harm attendance frequencies. The level of agreement between researchers coding self-harm from the electronic health records was high. Only episodes assessed by the mental health liaison team were included. However, it is not clear if the pandemic affected likelihood of	Moderate

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					presentations for self-injury, while increases in the post-lockdown period compared to lockdown were highest in this group.	assessment.	
15. Ontiveros, Levine et al. 2021 <sup>51</sup>	Peer-reviewed article	USA (California)	Retrospective review of data from the California Poison Control System. Monthly numbers of calls involving suicide attempts made to the California Poison Control System, from health services and residents. A 'pre-COVID era' (March, April, and May 2018 and 2019) was compared to the 'COVID era', defined as March, April, and May 2020.	Self-poisoning	The number of calls involving suspected suicide attempts was lower during the COVID era, compared with the pre-COVID era.  Reductions in all age groups were observed except for 70+ years	Only self-harm involving self-poisoning was included. The method for determining which calls related to poisonings that were 'suspected suicide attempts' was not described.	Low
16. Pignon et al. 2020 <sup>52</sup>	Letter	France (Paris)	Data on emergency psychiatric consultations from three psychiatric emergency centres. Numbers during the first four weeks of lockdown, from March 17 <sup>th</sup> 2020 were compared to the corresponding weeks in 2019.	Suicide attempts	During the four first weeks of lockdown, consultations for suicide attempts reduced to 32 from 75 in the same period in 2019, a 57% reduction.	This was a letter so was relatively brief with very little information on methods of data extraction, inclusion criteria, coding and pooling of data from the three centres.	Low

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						Significance testing was only presented for differences in proportions of presentation types.	
17. Steeg, Bojanić et al., 2021 <sup>19</sup>	Peer-reviewed article	England (Greater Manchester)	An integrated electronic health record database covering the whole GP-registered population of a large UK conurbation was utilised to examine frequencies of primary care-recorded self-harm episodes between 1 <sup>st</sup> January 2019 and 31 <sup>st</sup> May 2021. Frequency of self-harm episodes recorded in patients' primary care electronic health records were examined.	Primary care-recorded self-harm	Frequency ratios of incident and all episodes of self-harm were 0.59 and 0.69 respectively in April 2020 compared to February 2020.  Between August 2020 and May 2021 frequency ratios were 0.92 for incident episodes and 0.86 for all episodes compared to the same months in 2019.	Some of the primary care-recorded episodes are likely to have been hospital presentations.  The self-harm outcome was based on a broad definition that included episodes of varying suicidal intent.	High/moderate
18. Walker et al., 2020 <sup>77</sup>	Peer-reviewed article	USA (4 states)	Data from 18 EDs in four states (Minnesota, Florida, Arizona and Wisconsin) from electronic health records in an integrated health system.  The pandemic period (17	Numbers of presentations with a diagnosis of suicide attempt	Total ED attendances with 'suicide' diagnosis were 36 during the pandemic study period compared to 59 in the equivalent	Multi-site study using data from an integrated health system.  Not clear what the diagnosis 'suicide'	Low

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			March - 21 April 2020) was compared to the same period in 2019 as well as a pre-pandemic period in 2020 (9 Feb to 16 – March 2020).		2019 period, a reduction of 39%.	included.  The statistical tests compared suicide attempts as a proportion of total attendances, rather than changes in absolute numbers.	
19. Yard, Radhakrishnan et al. 2021 <sup>18</sup>	Report (National Center for Injury Prevention and Control)	USA (49 states – all except Hawaii)	Study included approximately 71% of the US's EDs in 49 states. The system is an established programme collecting data from ED electronic health records. ED presentations for suspected suicide attempts among people aged 12 to 25 years up to March 2021.	ED presentation for suicide attempt	<p>The average weekly number of ED visits for suspected suicide attempts fell by 26% among ages 12-17 and by 17% among ages 18-25 years during spring 2020 compared with the 2019 reference period.</p> <p>During summer 2020 through to winter 2021, increases compared to equivalent weeks in 2019 were found for girls aged 12-17. Among boys aged 12-17 and all adults</p>	<p>One of the few studies to examine longer-term impacts. Latest date of study period was 20<sup>th</sup> March 2021.</p> <p>Only EDs that consistently reported data to the surveillance programme were included to improve data quality.</p> <p>Outcome included 'some non-suicidal self-harm' presentations.</p>	High/moderate

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					aged 18-25 years, rates in summer 2020 through to winter 2021 were in line with those in 2019.		
20. Bothara, Raina et al. 2021) <sup>54</sup>	Peer-reviewed article	New Zealand (Christchurch)	Single hospital ED. Data were extracted from routinely collected electronic health records using the SNOMED CT classification system. Two cohorts were compared: before lockdown, 15 <sup>th</sup> February to 18 <sup>th</sup> March 2020, and during the 33 days of lockdown, 26 <sup>th</sup> March to 28 <sup>th</sup> April 2020. Numbers of self-harm presentations by children aged under 16 were examined, with 'self-harm' as one of the diagnostic subcategories.	Numbers of self-harm presentations by children aged under 16.	There were six presentations during the lockdown period and none in the period before the lockdown.	The self-harm episode frequencies were very low.  Data prior to 2020 were unavailable for comparison.	Low
21. Canzi, De Ponti et al. 2020 <sup>55</sup>	Peer-reviewed article	Italy (Milan)	A single maxillofacial trauma ED. Characteristics of included patients were added to a specific database. Admission with diagnosis of 'major trauma' (defined as	Self-harm requiring admission for major trauma	In 2020, 31 episodes of self-harm meeting the study inclusion criteria were recorded, an increase compared	The outcome was limited to self-harm resulting in major trauma.  The process for data	Low



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			trauma with potential or ongoing life-threatening injuries) or facial trauma. Suicide attempt was included as a category of this outcome. The COVID-19 lockdown period, 8 <sup>th</sup> March 2020 to 8 <sup>th</sup> May 2020, was compared to the equivalent calendar year periods in 2017 to 2019.		to 2017, 2018 and 2019.	<p>extraction from the clinical records to the database was not described.</p> <p>Numbers of self-harm outcome events were low.</p> <p>The increase in frequency of self-harm admissions leading to major trauma may indicate greater severity of self-harm during the COVID-19 period.</p>	
22. Gracia, Pamiás et al. 2021 <sup>56</sup>	Letter	Spain (Catalonia)	Population-based registry of presentations to health services for suicide attempts among adolescents aged 12-18 years. The first 12 months of the COVID-19 pandemic (March 2020 to March 2021) were compared to the previous 12 months (March 2019 to March 2020).	Suicide attempts among adolescents aged 12-18 years.	During the COVID-19 period, 690 suicide attempts were registered compared to 552 in the previous year. A significant increase in frequency was observed among girls only.	<p>Definition of suicide attempt not provided.</p> <p>Exact health services utilised are not detailed.</p> <p>Methodological details lacking (publication is a letter not a full article).</p>	Low
23. Habu, Takao	Peer-reviewed	Japan (Okayama)	Electronic health records from emergency ambulance	Ambulance dispatches	The number of emergency	No measure or definition of suicide	Low

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et al. 2021 <sup>57</sup>	article		calls during March to August in 2018, 2019, and 2020.	for suicide attempts.	<p>dispatches related to suicide attempts increased in 2020 (183) compared to 2018 (149) and 2019 (135).</p> <p>Increases were greater among women and persons aged 25-49. No change for ages 15-24 was observed.</p>	<p>attempt was provided -identified as recorded by ambulance crews</p> <p>No statistical testing was conducted.</p>	
24. Henry, Parthiban et al. 2021 <sup>58</sup>	Peer-reviewed article	England (Birmingham)	Data were extracted from coded electronic health records from one hospital. Numbers and proportions of self-harm presentations during the lockdown period (23 <sup>rd</sup> March 2020 to 1 <sup>st</sup> May 2020) and compared to the equivalent calendar period in 2019.	Total ED presentations involving self-harm.	<p>Increase in total number of self-harm presentations in the COVID-19 period compared to 2019 (113 vs. 103).</p> <p>More cases, and a larger proportion of the total, required hospital admission in the 2020 period.</p>	<p>The main focus of the study was on proportions of total presentations that involved self-harm.</p> <p>Only data from 2019 were included in the pre-COVID-19 comparison period.</p>	Low
25. Holland, Jones et al. 2021 <sup>22</sup>	Peer-reviewed article	US (48 states plus Washington, DC)	Electronic health records from more than 3,500 EDs contributing data to the US National Syndromic	ED visits for suicide attempts	Median ED presentation counts were significantly higher in weeks 12 to	Did not include self-harm not classified as a suicide attempt.	Moderate

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			Surveillance Program, capturing approximately 70% of US ED visits. Weekly ED visit counts for suicide attempts by patients aged over 10 years, identified using ICD and SNOMED diagnostic codes. Mean weekly ED visit counts were presented for weeks 1 to 11 (before the decrease in overall ED visits) and weeks 12 to 41 (after the decrease in overall ED visits and including the period during which the national 'stay-at-home' order was in place).		41 of 2020 than 2019 for suicide attempts (n = 4940 vs 4656, P = .02).	Broad coverage of the US population.	
26. Karakasi et al., 2020 <sup>13</sup>	Letter	Greece (Thessaloniki)	Numbers of psychiatric emergency presentations to the psychiatric emergency department of AHEPA University General Hospital of Thessaloniki. The comparison periods 1 March to 15-May 2019 and 15 November 2019 to 31 January 2020 were compared to 1 March to 15 May 2020. (the COVID-19 period).	Suicide attempts	During the restrictive measures in Greece (March – May 2020), the number of suicide attempts was higher in March - May 2020 (n=7) compared to the same period in 2019 (n= 5) and Nov 2019 -Jan 2020 (n=4)	Significance testing was only presented for differences in proportions of presentation types.  Small numbers.  Uncertain if peer-reviewed.  Definition of suicide attempt was not	Low

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						provided.	
27. Moore, Siriwardena et al. 2021 <sup>59</sup>	Peer-reviewed article	England (East Midlands region)	Electronic health records of ambulance paramedics attending mental health emergencies between 23 <sup>rd</sup> March and 31 <sup>st</sup> July 2020 compared to the equivalent calendar period in 2019.	Emergency calls for 'suicide attempt' and 'intentional drug overdose'.	The numbers of suicide attempts were 1232 in the lockdown period vs. 1339 in the equivalent period in 2019. Intentional drug overdoses were 3079 in 2020 vs. 3227 in 2019.	Categories of 'suicide attempt' and 'intentional drug overdose' were based on clinical impressions.  No tests for statistical significance of differences in numbers were presented.	Low
28. Nia, Popp et al. 2021 <sup>60</sup>	Peer-reviewed article	Austria (Vienna)	Data were from one trauma centre registry. Numbers of patient visits were compared between 15 <sup>th</sup> March 2020 and 30 <sup>th</sup> April 2020 (lockdown) and the equivalent calendar period in 2019 (baseline).	Trauma admission for suicide attempt.	There was a significant increase in the frequency of hospital admissions due to attempted suicide, though numbers were very small (5 in the comparison period vs. 10 in the lockdown period).	No definition of 'suicide attempt' was provided. No search terms of clinical codes were provided for identifying these presentations.	Low
29. Olding et al., 2021 <sup>14</sup>	Peer-reviewed article	England (London)	Data were from patient records. Numbers of presentations by trauma patients with penetrating injuries	Self-inflicted injuries requiring treatment for penetrating	The number of self-harm episodes increased from n=1 in 2018 to 5 in 2019 and 8 in 2020.	Number of self-harm cases was too small to draw any strong conclusions.	Low

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			who were treated at one hospital in London, 23rd March to 29th April 2020 were compared to the same period in 2018 and 2019.	trauma.		Significance testing was not conducted.  Very little information on methods of data extraction and coding was provided.	
30. Popp, Smolle et al. 2021 <sup>61</sup>	Peer-reviewed article	Austria (Graz)	Division of Plastic, Aesthetic and Reconstructive Surgery at Medical University Graz. Retrospective study of patient records. The number of surgery cases during the lockdown period plus two weeks before lockdown (16 <sup>th</sup> March 2020 to 27 <sup>th</sup> April 2020) were compared with the equivalent calendar periods in 2019. The number of 'self-inflicted injuries and suicide attempts' was examined as a subcategory.	Self-harm requiring surgery	The number of procedures following self-harm increased significantly (2019: 0, 2020: 16 cases, $p < 0.001$ ).	Numbers in both the lockdown and 2019 periods were low. Only self-harm requiring plastic, aesthetic or reconstructive surgery was included in the outcome measure.	Moderate
31. Rhodes et al. 2020 <sup>15</sup>	Peer-reviewed article	USA (South Carolina)	Data were from a registry of attendees at one Level 1 trauma centre. Numbers of admissions were compared between the period including the COVID-19 lockdown (January 1 - May 1 2020) and the January 1 - May 1	Suicide attempts requiring trauma treatment	There were 11 admissions for suicide attempt in the 2020 study period compared to 6 in the 2019 comparison period.	Most of the 2020 period studied (15 of the 18 weeks) preceded lockdown.  Small numbers.  The statistical tests	Low

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			period in 2019.			compared suicide attempts as a proportion of total attendances, rather than changes in absolute numbers.	
32. Bruns, Willem sen et al. 2021 <sup>62</sup>	Preprint	Germany (multiple regions)	Multicentre study of 37 paediatric intensive care units (ICUs). Patients under 18 years of age who presented with trauma or injuries during the period of the first German COVID-19 lockdown (16 <sup>th</sup> March to 31 <sup>st</sup> May) in the years 2017 to 2020. Data were manually entered into data collection forms from discharge summaries.	ICU admission following suicide attempt.	No statistically significant difference in standardised morbidity ratios between the lockdown period and the 2017-2019 reference period were observed.	Numbers were low: 29 in the lockdown period.  The German modified ICD system was used to identify admissions following suicide attempts.	Low
33. Chang, KM. et al. 2020 <sup>78</sup>	Peer-reviewed article	South Korea (Chungnam province)	Single-centre study in a trauma centre of one hospital. Data appears to be extracted from patients' hospital electronic health records. Episodes of self-harm referred to the trauma centre. Prevalence in March 2020 was compared to the pooled estimates for years 2015 to 2019 and for March	Episodes of self-harm referred to the trauma centre.	The number of self-harm episodes was higher in March 2020 compared to the annual five-year average, but not compared to the 2015-2019 average for March specifically.	The study only included 'violent' methods of self-harm and was limited to persons who presented to hospital and were treated by the trauma centre.  The study was underpowered, with	Low

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			2015 to 2019.		No change for ages 10-19 years.	9 episodes of self-harm observed during March 2020.	
34. Chiba, Lewis et al. 2021 <sup>64</sup>	Peer-reviewed article	USA (California)	Examination of trauma admissions from one hospital. Clinical data were extracted from routine hospital records. The lockdown period (20 <sup>th</sup> March to 30 <sup>th</sup> June 2020) was compared to the equivalent calendar period in 2019. Numbers of a range of trauma admissions, including 'suicide-related trauma admissions' examined.	'Suicide-related trauma admissions'	The number of 'suicide-related trauma admissions' increased by 38% from 26 in 2019 to 36 in 2020. This change was not statistically significant.	<p>The outcome only included trauma-related methods of self-harm and excluded other methods, notably self-poisoning, which is the method used in most hospital-admitted self-harm episodes. The exact definition of the self-harm outcome was not reported.</p> <p>The number of 'suicide-related trauma admissions' was lower (26 in 2019 vs. 36 in 2020).</p> <p>The method of data extraction from clinical records was not described.</p>	Low
35. Coates, Marsha	Preprint	USA (Portland, Oregon)	Data were extracted from electronic health records at	Hospital presentations	The number of admissions for	Methods of extracting data from	Low

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Il et al. 2021 <sup>65</sup>			one hospital. Monthly numbers of hospital and ED admissions for suicide attempts among children and adolescents (up to age 19) were examined.	for self-harm	suicide attempts was not significantly elevated during the COVID-19 pandemic (specific dates not provided).	<p>electronic health records were not described.</p> <p>Specific dates for comparisons were not clear.</p> <p>No clear definition of suicide attempt was provided.</p>	
36. Gil-Jardiné, Chenais et al. 2021 <sup>66</sup>	Peer-reviewed article	France (Gironde)	Free-text information held in electronic health records at an emergency medical contact centre were classified using a natural language processing neural network. Trends in reasons for calls in 2020, before, during and after the lockdown (17 <sup>th</sup> March to 11 <sup>th</sup> May 2020) were examined.	Calls relating to self-harm	No discernible trends were found in frequency of calls relating to self-harm.	<p>No definition of self-harm was provided.</p> <p>Statistical tests were not reported.</p>	Low
37. Jacob et al., 2020 <sup>67</sup>	Peer-reviewed article	Australia (Westmead)	Study of a single trauma centre in Australian hospital with data collected from a prospective trauma registry. Mean monthly number of trauma admissions among patients aged 16 years and over during March and April	Self-harm admissions to the trauma unit.	During March and April 2020, no difference in admissions following self-harm was seen (7 in 2020 vs. an average of 3 to 6 in 2016 to 2019).	<p>The methods of data collection were not described.</p> <p>The study was under-powered for examination of mean monthly self-harm</p>	Low



Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			2020 were compared to the mean during the same months in 2016 to 2019.			admissions. Significance testing was not presented due to small numbers.	
38. Joyce, Richard son et al. 2021 <sup>24</sup>	Peer-reviewed article	New Zealand (Christchurch)	Electronic health records at the ED at Christchurch Hospital. Two cohorts consisted of 'pre-lockdown' (15 <sup>th</sup> February to 18 <sup>th</sup> March 2020 and 'lockdown' (26 <sup>th</sup> March to 28 <sup>th</sup> April 2020). SNOMED codes were extracted, followed by detailed review of records by the research team.	Self-harm presentations to the ED	<p>Absolute numbers of self-harm and overdose presentations before lockdown were reported as similar to during lockdown: self-harm: 35 before lockdown vs. 36 after; overdose: 158 vs. 128.</p> <p>Though only reported as a proportion of all presentations, the number of overdoses involving paracetamol with or without ibuprofen increased (22 pre-lockdown vs. 35 during lockdown).</p>	<p>The study mainly reports differences in proportions of presentations involving self-harm and overdose as a proportion of overall presentations. Absolute differences were reported in the text.</p> <p>The main comparisons were based on a pre-lockdown period in 2020, and therefore seasonal variations in presentation rates were not accounted for in the analyses.</p>	Moderate
39. Page, Bandar	Letter	Australia (Sydney)	Data were extracted from one ED using hospital	Number of self-harm	No significant increase in	Limited methodological detail	Low

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
a et al. 2021 <sup>68</sup>			records. An established self-harm field and text searches were used to identify self-harm. The period 1 <sup>st</sup> March to 31 <sup>st</sup> July 2020 was compared to the period 1 <sup>st</sup> March 2018 to 28 <sup>th</sup> February 2020).	presentations to the ED.	intentional self-harm in the period from March 2020 among males or females.  An increase was found for males from the lowest socioeconomic position group.	reported. Publication is correspondence rather than full article.	
40. Prados-Ojeda, Gordillo - Urbano et al. 2021) <sup>69</sup>	Peer-reviewed article	Spain (Cordoba)	The data were extracted from an electronic health record system. The lockdown period, 15 <sup>th</sup> March to 15 <sup>th</sup> May 2020 was compared with the equivalent calendar period in 2019. The main outcome was 'suicide-related' ED presentations which coalesced 'suicide attempts' and 'suicidal ideation'. The number of suicide attempts was, however, reported separately for each comparison period.	ED presentations for suicide attempt	The number of suicide attempts was similar: 86 in the 2019 study period vs. 73 in the COVID-19 period.  A higher proportion of suicide attempts required ICU admission during the COVID-19 period, although event counts were very small.	Self-harm presentations not recorded as 'suicide attempt' were not included.  No information on methods used to increase reliability of data extraction was provided.  Numbers of suicide attempts were low.	Low
41. Rajput et al. 2020 <sup>70</sup>	Peer-reviewed article	England (Merseyside)	Data on trauma admissions to a single level 1 trauma centre in Liverpool were collected from a trauma	Numbers of admissions to trauma centre	No change in total numbers of trauma centre attendances for self-harm in the	Small sample size, though 95% confidence intervals were presented.	Low

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			research network database. Three 7-week periods were compared: (1) Lockdown: 23 March 2020–10 May 2020; (2) Pre-lockdown: 7 weeks prior to lockdown (27 January 2020–15 March 2020); (3) Pre-lockdown 2019: equivalent 7-week period in 2019 (25 March 2019–12 May 2019).	following self-harm	lockdown study period (n=14) compared to the equivalent 2019 period (n=20).	No definition of self-harm was provided, nor were details about how data were extracted.	
42. (Shields, Bernard et al. 2021 <sup>25</sup> )	Peer-reviewed article	England (Manchester)	ED codes and electronic health records were used to collect data on admissions from one adult ED. Numbers of patients with a recorded episode of self-harm aged 16 years and over were compared between the COVID-19 lockdown period (1 <sup>st</sup> March to 31 <sup>st</sup> May 2020) and the equivalent calendar periods in 2019 and 2020.	Hospital admission for self-harm	Admission frequencies for self-harm during the 2020 COVID-19 period did not differ significantly from those for years 2018 and 2019.	Broad definition of self-harm used.  ED presentations not resulting in hospital admission were not included.  The outcome measure relied on accurate coding within the ED.	Moderate
43. Yeates, Grigorian et al. 2021 <sup>71</sup>	Peer-reviewed article	USA (Southern California)	Multicentre study including 11 trauma centres. Retrospective analysis of registry data in each centre. Suicide attempts were included as a secondary	Suicide attempts requiring trauma admission	No statistically significant change in frequency of suicide attempts leading to treatment in trauma centres.	The study only examined suicide attempts leading to treatment in a trauma centre, which would be a minority of all	Low

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			outcome in the study. A COVID-19 period (19 <sup>th</sup> March to 30 <sup>th</sup> June 2020) was compared to both a 'pre-COVID-19' period (1 <sup>st</sup> January 2020 to 18 <sup>th</sup> March 2020) and an antecedent period (19 <sup>th</sup> March to June 30 <sup>th</sup> 2019).			suicide attempts presenting to general hospital EDs. Details about the specific methods used in the suicide attempts examined were not provided.	
44. Ougrin, Wong et al. 2021 <sup>27</sup>	Peer-reviewed article	10 high/middle income countries: England, Scotland, Ireland, Austria, Italy, Hungary, Serbia, Turkey, Oman, and the United Arab Emirates	Electronic health records of 23 hospital EDs in 10 the study countries. Hospital presentations for self-harm among children and adolescents aged up to 18 years were compared between the period 1 <sup>st</sup> March to 30 <sup>th</sup> April 2020 to the same period in 2019. Two self-harm outcomes were measured: a broad definition based on the UK NICE clinical guidelines and severe self-harm, defined as meeting criteria for high lethality. However, differences in incidence were only reported for the broad definition of self-harm.	Hospital presentation for self-harm	All study centres reported significantly fewer children and adolescents with self-harm presentations during the COVID-19 observation period. Monthly incidence of children and adolescents presenting with self-harm to EDs (aggregated across centres) during the covid-19 pandemic (2020: n = 470) was lower than in 2019 (n = 612).	Interrater agreement was assessed in the coding of severe self-harm presentations.  Much of the reporting is focussed on differences in the proportions of total psychiatric emergencies due to self-harm between the two time periods, rather than differences in presentation frequencies.	Moderate
45. Eray and	Peer-reviewed	Turkey (Bursa)	Data were from one paediatric emergency service	Numbers of children and	There were 21 admissions in 2019	Details of data extraction were not	Low

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
Sahin 2021 <sup>72</sup>	article		during the COVID-19 period (11 <sup>th</sup> March to 30 <sup>th</sup> September 2020) were compared to those admitted during the equivalent calendar period in 2019.	adolescents admitted following a suicide attempt.	vs. 9 in 2020, a 57% reduction.	<p>provided.</p> <p>Suicide attempt was not defined.</p> <p>Low event counts.</p> <p>No statistical test for the absolute difference was reported.</p>	
46. Fidancı, Taşar et al. 2021 <sup>73</sup>	Peer-reviewed article.	Turkey (Ankara)	Data were extracted from electronic health records from one paediatric ED. Numbers of consultations for patients aged 18 years and under during 1 <sup>st</sup> April to 31 <sup>st</sup> October 2020 were compared to the equivalent calendar period in 2019.	ED visits for suicide attempts.	During the antecedent April to October 2019 period there were 187 visits for suicide attempts vs. 31 for the equivalent COVID-19 period in 2020.	<p>No information on the definition of suicide attempt applied was given.</p> <p>No statistical test for the absolute difference was reported.</p>	Low
47. Thongchhuam, Mahawongkajit et al. 2021 <sup>23</sup>	Peer-reviewed article	Thailand (Northern Bangkok)	Data were extracted from electronic health records of one university teaching hospital between June and December 2019 (pre-COVID-19) and January to June 2020 (COVID-19 period). Numbers of adult patients aged 18 years and	Self-poisoning with corrosive substances	More patients were admitted during the COVID-19 period: 20 vs. 9 in the pre-COVID-19 period.	<p>Analysis did not account for seasonal variation.</p> <p>Low event counts.</p> <p>Focussed only on self-harm involving corrosive substances requiring surgery,</p>	Moderate

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			over who had ingested a corrosive substance and been admitted to surgical department were compared between the two time periods.			though this is a common method of self-harm in Asian countries.	
48. Stašević-Karličić, Đorđević et al. 2021 <sup>74</sup>	Peer-reviewed article	Serbia (Belgrade)	Data were extracted from electronic health records at a psychiatric ED. The study compared two periods: the period from March to August 2020 (the COVID-19 period) and the same period in 2019.	Number of patients examined at a psychiatric ED due to suicide attempts.	A statistically significant increase in the number of suicide attempts during the COVID-19 period was observed (159 persons during COVID period and 139 persons during the non-COVID period).	The definition of 'suicide attempt' was not provided, though the authors stated it included self-poisoning, self-injury, jumping from height and self-ignition. Methods of identifying patients meeting the inclusion criteria were not described and data collection methods were not provided.	Low
49. Knipe, Silva et al. 2021 <sup>20</sup>	Peer-reviewed article	Sri Lanka (Kandy)	Electronic health record data from a toxicology unit at one hospital were used to identify presentations of self-poisoning. Additional data was then collected from routinely collected clinical records. Numbers of self-poisoning presentations to hospital were compared	Self-poisoning presentations to hospital	There was a 32% reduction in hospital presentations for self-poisoning in the pandemic period compared with pre-pandemic trends.	Pre-pandemic trends were accounted for.  Proportions of missing data in the pre-pandemic and pandemic periods were compared.	High/moderate

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			between a pre-pandemic period (1 <sup>st</sup> January 2019 to 19 <sup>th</sup> March 2020) and the pandemic period (20 <sup>th</sup> March to 31 <sup>st</sup> August 2020).				
50. Jhanwar et al., 2020 <sup>79</sup>	Peer-reviewed article	India (Rishikesh)	Before and after cross-sectional prevalence study. Liaison psychiatry case records of all patients admitted to the emergency department (ED) of a government tertiary care teaching hospital comparing before lockdown (February 24 to March 23, 2020) to lockdown: March 24 to April 23, 2020).	Suicide attempt/self-harm identified from electronic health records.	Reduced total attendances: 51 before lockdown vs. 32 during lockdown.	The study included only a short timeframe and the numbers of patients included was relatively small.  The definitions of 'self-harm and 'suicide attempt' applied are unclear. Methods of data extraction, for example, the between-rater reliability of identifying 'suicide attempt' was not discussed.	Low
51. Shrestha, Siwakoti et al. 2021 <sup>26</sup>	Peer-reviewed article	Nepal (Dhulikhel)	One ED in a university teaching hospital. Electronic health records were used to conduct this study of presentations involving fatal and non-fatal episodes of	Frequency of self-harm presentations, referral status and in-hospital and	The number of self-harm presentations in the lockdown period increased by 44% compared to the equivalent period in	The keywords used to search the electronic health records were provided and included a broad	Moderate

Authors	Report type	Country (region) of study setting	Study design and data used	Outcome	Findings	Comments/limitations including considerations from JBI checklist	Quality rating of evidence relating specifically to self-harm <sup>1</sup>
			self-harm. The lockdown period (24 <sup>th</sup> March to 23 <sup>rd</sup> June 2020) was compared to the equivalent calendar period in 2019 and the period prior to the lockdown (24 <sup>th</sup> December 2019 to 23 <sup>rd</sup> March 2020).	overall mortality.	2019.	definition of self-harm.  The numbers of presentations in were relatively small (55 in the lockdown period and 38 in the 2019 comparison period) and the comparison periods were also brief.	

<sup>1</sup> high/moderate quality if risk of bias is considered low (i.e. Q3, Q6, Q7 & Q8 on adapted JBI for before/after studies all scored “yes”).



## Supplement 2: Search strategies for “The impact of the COVID-19 pandemic on self-harm and suicidal behaviour: update of living systematic review” and associated publications

### Scopus

TITLE-ABS-KEY("selfharm\*" OR "self harm\*" OR "self-harm\*" OR "self injur\*" OR "selfinjur\*" OR "self-injur\*" OR "selfmutilat\*" OR "self mutilat\*" OR "self-mutilat\*" OR "suicid\*" OR "parasuicid\*" OR "suicide" OR "suicidal ideation" OR "attempt\* suicide" OR "suicide attempt\*" OR "drug overdose" OR "selfpoisoning" OR "self poisoning" OR "self-poisoning" OR "self-injurious behavi\*" OR "selfmutilation" OR "self mutilation" OR "self-mutilation" OR "automutilation" OR "suicidal behavi\*" OR "selfdestructive behavi\*" OR "self destructive behavi\*" OR "self-destructive behavi\*" OR "selfimmolat\*" OR "self-immolat\*" OR "self immolat\*" OR "cutt\*" OR "headbang" OR "head-bang" OR "head bang" OR "overdose" OR "selfinflict\*" OR "self-inflict\*" OR "self inflict\*" OR "hopelessness" OR "powerlessness" OR "helplessness" OR "negative attitude\*" OR "emotional negativism" OR "pessimism" OR "depress\*" OR "hopelessness depression" OR "passivity" OR "sad-affect" OR "sadness" OR "decreased affect" OR "cognitive rigidity" OR "suicidality" OR "suicide ideation") AND TITLE-ABS-KEY("nCoV" OR "HCoV" OR "covid 19" OR "covid-19" OR "covid19" OR "coronavirus" OR "19 ncov" OR "19-ncov" OR "2019 ncov" OR "2019-ncov" OR "2019ncov" OR "n-cov" OR "ncov" OR "coronavirus disease\*" OR "sars-cov-2" OR "sars cov 2" OR "sars-cov 2" OR "mers-cov" OR "mers cov") AND PUBYEAR > 2020

☒ *The filter 'PUBYEAR > 2020' corresponds to the 2021 version of this search, in previous years we used 'PUBYEAR > 2018' and 'PUBYEAR > 2019' respectively*

### Medline via PubMed

((mental health[TIAB] OR selfharm\*[TIAB] OR self-harm\*[TIAB] OR selfinjur\*[TIAB] OR self-injur\*[TIAB] OR selfmutilat\*[TIAB] OR self-mutilat\*[TIAB] OR suicid\*[TIAB] OR parasuicid\*[TIAB] OR (suicide[TIAB] OR suicidal ideation[TIAB] OR attempted suicide[TIAB]) OR (drug overdose[TIAB] OR self?poisoning[TIAB]) OR (self-injurious behavio?r[TIAB] OR self?mutilation[TIAB] OR automutilation[TIAB] OR suicidal behavio?r[TIAB] OR self?destructive behavio?r[TIAB] OR self?immolation[TIAB])) OR (cutt\*[TIAB] OR head?bang[TIAB] OR overdose[TIAB] OR self?immolat\*[TIAB] OR self?inflict\*[TIAB]) OR (hopelessness[TIAB] OR powerlessness[TIAB] OR helplessness[TIAB] OR negative attitude\$[TIAB] OR emotional negativism[TIAB] OR pessimism[TIAB] OR depress\*[TIAB] OR hopelessness depression[TIAB] OR passivity[TIAB] OR sad-affect[TIAB] OR sadness[TIAB] OR decreased affect[TIAB] OR cognitive rigidity[TIAB] OR suicidality[TIAB] OR suicide ideation[TIAB])) AND ((coronavirus disease?19[TIAB] OR sars?cov?2[TIAB] OR mers?cov[TIAB]) OR (19?ncov[TIAB] OR 2019?ncov[TIAB] OR n?cov[TIAB]) OR ("severe acute respiratory syndrome coronavirus 2"[Supplementary Concept] OR "COVID-19"[Supplementary Concept] OR COVID-19 [tw] OR COVID 2019 [tw] OR coronavirus [tw] OR nCoV[TIAB] OR HCoV))

Psy- and SocArXiv (both same query)

"(mental health OR selfharm\* OR self-harm\* OR selfinjur\* OR self-injur\* OR selfmutilat\* OR self-mutilat\* OR suicid\* OR parasuicid\* OR suicide OR suicidal ideation OR attempted suicide OR drug overdose OR self?poisoning OR self-injurious behavior OR self?mutilation OR automutilation OR suicidal behavior OR self?destructive behavior OR self?immolation OR cutt\* OR head?bang OR overdose OR self?immolat\* OR self?inflict\* OR hopelessness OR powerlessness OR helplessness OR negative attitude OR emotional negativism OR pessimism OR depress\* OR hopelessness depression OR passivity OR sad-affect OR sadness OR decreased affect OR cognitive rigidity OR suicidality OR suicide ideation) AND (coronavirus disease?19 OR sars?cov?2 OR mers?cov OR 19?ncov OR 2019?ncov OR n?cov OR COVID-19 OR COVID 2019 OR coronavirus OR nCoV OR HCoV)"

☒ No date/content filters applied

Med and BioRxiv, WHO Covid-19 database

We directly retrieve ALL new publications related to Covid-19 from these sources, see <http://connect.biorxiv.org/relate/content/181> for Bio- MedRxiv Covid feed and <https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/> for WHO on a daily basis. There is no date filter, we retrieve each new report as it becomes available.

We then apply our systematic search to those results, as described here:

McGuinness et al., (2020). medrxiv: Accessing and searching medRxiv and bioRxiv preprint data in R. *Journal of Open Source Software*, 5(54), 2651. <https://doi.org/10.21105/joss.02651>

The search strategy is below, please note that the syntax is RegularExpression, but it was designed to correspond to the PubMed query you see above, with new lines being joined with 'OR' statements. The only exception is the removal of the AND statement relating to COVID-19 itself, because those 3 sources only include COVID-specific information.

```
[Ss]elf[- ]?[li]njur(y|ious)[- ]?[Bb]ehavio?r  
[Ss]elf[- ]?([Mm]utilat~[li]mmolat)(ion|ed)  
[Aa]uto[- ]?[Mm]utilat(ion|ed)  
[Ss]uicidal[- ]?[Bb]ehavio?r  
[Ss]elf[- ]?[Dd]estructive)[- ]?[Bb]ehavio?r  
[Ss]uicide  
[Aa]tttempted[- ]?[Ss]uicide  
[Ss]uicidal[- ]?[li]deation  
[Ss]elf[- ]?[Hh]arm  
[Ss]elf[- ]?[Mm]utilat  
[Ss]elf[- ]?[li]njur  
[Pp]ara[- ]?[Ss]uicid  
[Dd]rug[- ]?[Oo]verdose  
[Ss]elf[- ]?[Pp]oison(ing|ed)
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[Ss]elf[- ]?[i]nflict  
[Ss]elf[- ]?[i]mmolat  
[Cc]utt  
[Hh]ead[- ]?[Bb]ang  
[Oo]verdos  
[Hh]opelessness  
[Pp]owerlessness  
[Hh]elplessness  
[Nn]egative[- ]?[Aa]ttitude  
[Ee]motional[- ]?[Nn]egativism  
[Pp]essimism  
[Dd]epress  
[Pp]assivity  
[Ss]ad[- ]?[Aa]ffect  
[Ss]adness  
[Dd]ecreased[- ]?[Aa]ffect  
[Cc]ognitive[- ]?[Rr]igidity  
[Ss]uicidality  
[Ss]uicide[- ]?[l]ideation  
[Mm]ental[- ]?[Hh]ealth  
[Mm]ental[- ]?[Hh]ealth[- ]?([Cc]ris[ei]s|emergenc)  
([pP]sychiatric| [Pp]sychotic| [Ss]chizophren\w\*| [Bb]ipolar| [Mm]ental\w\* ([l]i\w\*| [Dd]isorder))[-  
]?([Cc]ris[ie]s| [Ee]mergenc| [Aa]cute)  
([Cc]ris[ie]s| [Ee]mergenc\w\*| [Aa]cute)[-  
]?([pP]sychiatric| [Pp]sychotic| [Ss]chizophren\w\*| [Bb]ipolar| [Mm]ental\w\* ([l]i\w\*| [Dd]isorder))