

The impact of infectious disease-related public health emergencies on suicide, suicidal behaviour, and suicidal thoughts: a systematic review

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Summary of key outcomes and implications

There is global concern that the COVID-19 pandemic may increase suicide rates. High-quality evidence is needed to guide both national and international responses to the pandemic, to mitigate any risk. The overall aim of this systematic review was to aggregate the existing evidence on the potential impact of infectious disease-related public health emergencies (referred to here as epidemics) on suicide-related outcomes (SRO).

The specific aims of this review were:

- 1) To facilitate dissemination of the best available knowledge to inform ongoing suicide prevention initiatives during the COVID-19 pandemic;
- 2) To identify key gaps in the literature to guide the research community in prioritising studies that could have maximum impact on suicide prevention.

Literature searches were conducted using all relevant bibliographic databases: MEDLINE, EMBASE, PsycInfo, CINAHL, Scopus, and Web of Science. In total, 3973 articles were identified through the main search of which 694 remained after duplicates were removed. After full text screening, eight primary articles and one preprint were ultimately selected for inclusion in the systematic review.

The eight primary studies were published between 1992 and 2017 and examined the effects of epidemics including the Great Influenza Epidemic, Russian influenza, Severe Acute Respiratory Syndrome (SARS) and Ebola Virus Disease (EVD). Five studies focused on suicide deaths¹⁻⁵, two on attempted suicide^{6,7} and one on both suicidal thoughts and attempts⁸. The studies were conducted in Hong Kong, Taiwan, Guinea, USA and the UK, and employed naturalistic observational designs, analysis of historical archives, case-comparison matched by demographics, and cross-sectional case-control methodologies. The preprint⁹ investigated the association between COVID-19 and suicidal thoughts and behaviours in the US.

The eight primary studies were of relatively low methodological quality, and with minimal previous evidence, in addition to challenges inherent in studying public health emergencies (i.e. absence of baseline data, lack of experimental controls), we cannot draw a firm conclusion regarding a direct relationship between epidemics and suicide related outcomes.

Evidence exists however to suggest a possible impact of the SARS epidemic on older adult suicide deaths in Hong Kong. More specifically, suicide rates among older adults (particularly women) increased both during and following the epidemic. Although of poorer quality, data from the Great Influenza Pandemic¹ and Russian influenza (1889-1893) also suggest an association with suicide deaths². Furthermore, Ebola infection history and influenza B seropositivity were both associated with attempted suicide⁷⁻⁸ and preprint data for the COVID-19 pandemic suggest increases in both suicidal thoughts and attempted suicides⁹.

Despite methodological limitations of the studies included in the review, synthesis of the outcomes supports an association between previous infectious disease-related public health emergencies and increased risk of suicide, self-harm and suicidal thoughts.

Four of the studies included in this review provided some, albeit limited, insight into the possible pathways leading to suicide-related outcomes. Several psychosocial mechanisms have been reported or hypothesised, including existential anxiety or 'dread' associated with media reports during the late 19th century 'Russian' influenza outbreak in the UK², and fear/worry of contracting the virus, pessimism, helplessness, isolation, loneliness and disconnectedness³⁻⁵ linked to the SARS outbreak.

Drawing on the wider literature on public health emergencies and the key features of typical government responses to such emergencies (including quarantine/physical distancing/self-isolation, restrictions on movement, travel and social interaction, and enforced closure of non-essential workplaces, educational establishments, places of worship and community meeting places), a more comprehensive list of likely negative psychosocial impacts in the exposed population can be developed. Among these constructs are several established risk factors for SRO, including depression, anxiety, post-traumatic stress disorder (PTSD), hopelessness, fear, unresolved anger, guilt, worthlessness, sleep problems, self-stigmatisation, feelings of entrapment and burdensomeness, substance misuse, loneliness, social isolation, disconnectedness, disruption of everyday routines, unemployment, financial strain/insecurity, domestic violence, and child neglect/abuse¹⁰⁻¹⁵.

The potential suicidogenic impact of public health emergencies may be greater in certain populations or professional groups, in particular older adults^{3-5, 13,16,17}, people who are or become unemployed or under-employed¹⁸, people with pre-existing mental health and/or substance misuse problems^{10,18-19}, and frontline health and social care staff^{10,17-18}. The articles identified by this review did not examine the effectiveness of interventions in mitigating the impact of pandemics on the incidence of SRO. This highlights the urgent need for primary studies of such interventions in the context of the COVID-19 pandemic which would inform suicide prevention policies and clinical practice. This review constitutes the most comprehensive current knowledge that can inform suicide prevention initiatives during the COVID-19 pandemic, as well as future infectious disease-related public health emergencies. This work also identifies gaps in the existing literature which can guide the planning and prioritisation of future research and interventions regarding suicide prevention.

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