

Self-harm in Young People and COVID-19

A retrospective cohort study on
emergency unit data from 10 countries

Dr Dennis Ougrin, KCL and SLaM

Mr Hoi Ching Ben Wong, KCL



Learning Objectives

- **Identify** the general trends in self-harm and suicide
- **Recognise** the risk factors for self-harm in children and adolescents
- **Analyse** the changes in hospital emergency psychiatric and self-harm presentations following the pandemic outbreak
- **Examine** the mediating and predicting roles of stringency in lockdown policies
- **Discuss** implications to the mental health services during COVID-19 and prepare for future pandemic and lockdown

Suicide worldwide

NEWS | FEATURES | UNRAVELING SUICIDE

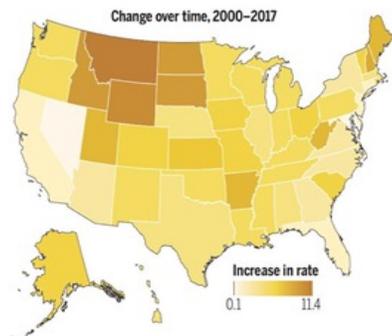
GEOGRAPHY OF LOSS

By Meagan Weiland. Graphics by Nirja Desai

Suicide is a worldwide problem, but its effects are uneven. Although suicide rates—all rates noted here are annual deaths per 100,000 people—are rising in some countries, including the United States, most countries are seeing declines, for reasons that include restrictions on access to lethal means and improved mental health care. According to the World Health Organization (WHO), most countries do not collect detailed data on suicide; data for many countries here were drawn from rates estimated by organizations such as WHO and the Institute for Health Metrics and Evaluation's Global Burden of Disease project.

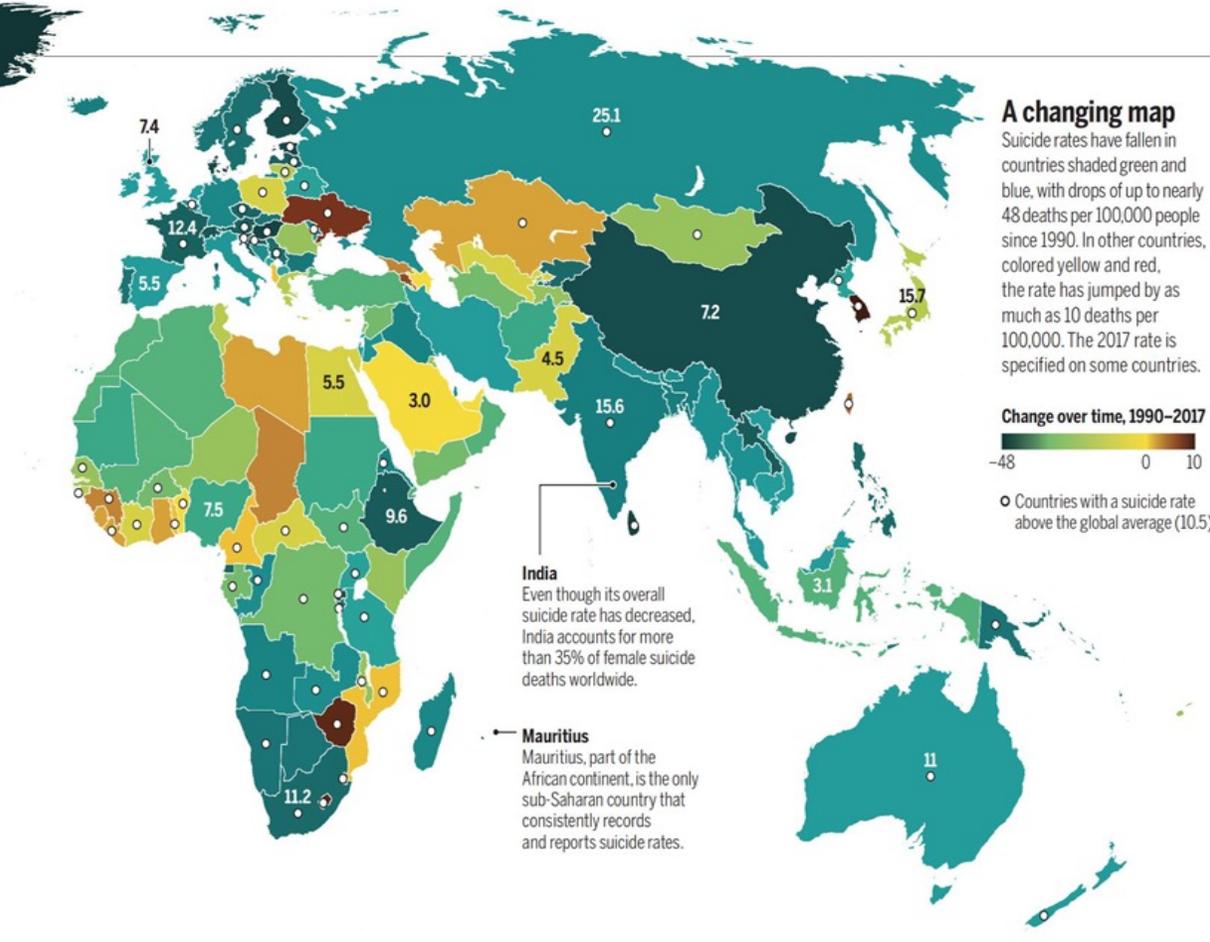
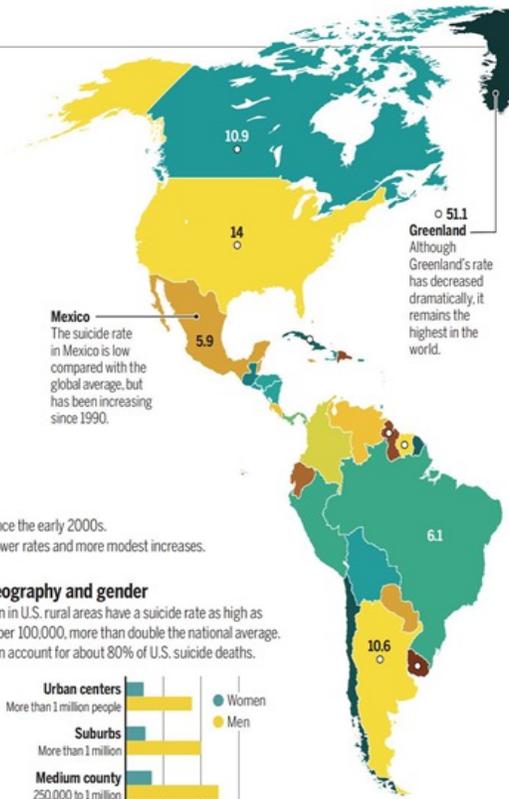
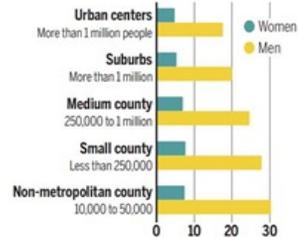
A nation's struggles

The United States is one of the world's outliers, with suicide rates climbing since the early 2000s. Every state has seen a rise but some, such as California and New York, have lower rates and more modest increases.



Geography and gender

Men in U.S. rural areas have a suicide rate as high as 31 per 100,000, more than double the national average. Men account for about 80% of U.S. suicide deaths.

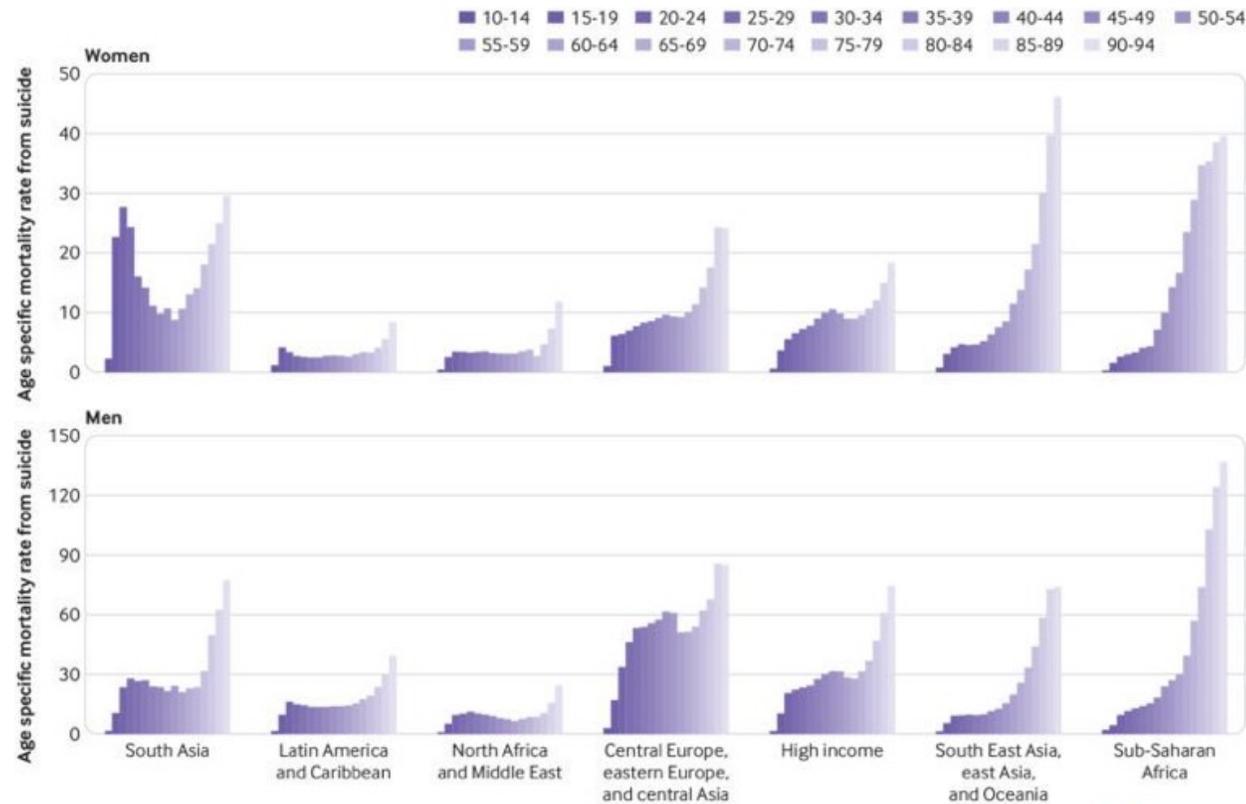


A changing map

Suicide rates have fallen in countries shaded green and blue, with drops of up to nearly 48 deaths per 100,000 people since 1990. In other countries, colored yellow and red, the rate has jumped by as much as 10 deaths per 100,000. The 2017 rate is specified on some countries.

Suicide worldwide: Gender and age distribution

Age specific mortality rate from suicide by Global Burden of Disease super region and five year age groups for women and men, 2016.



Mohsen Naghavi *BMJ* 2019;364:bmj.i94

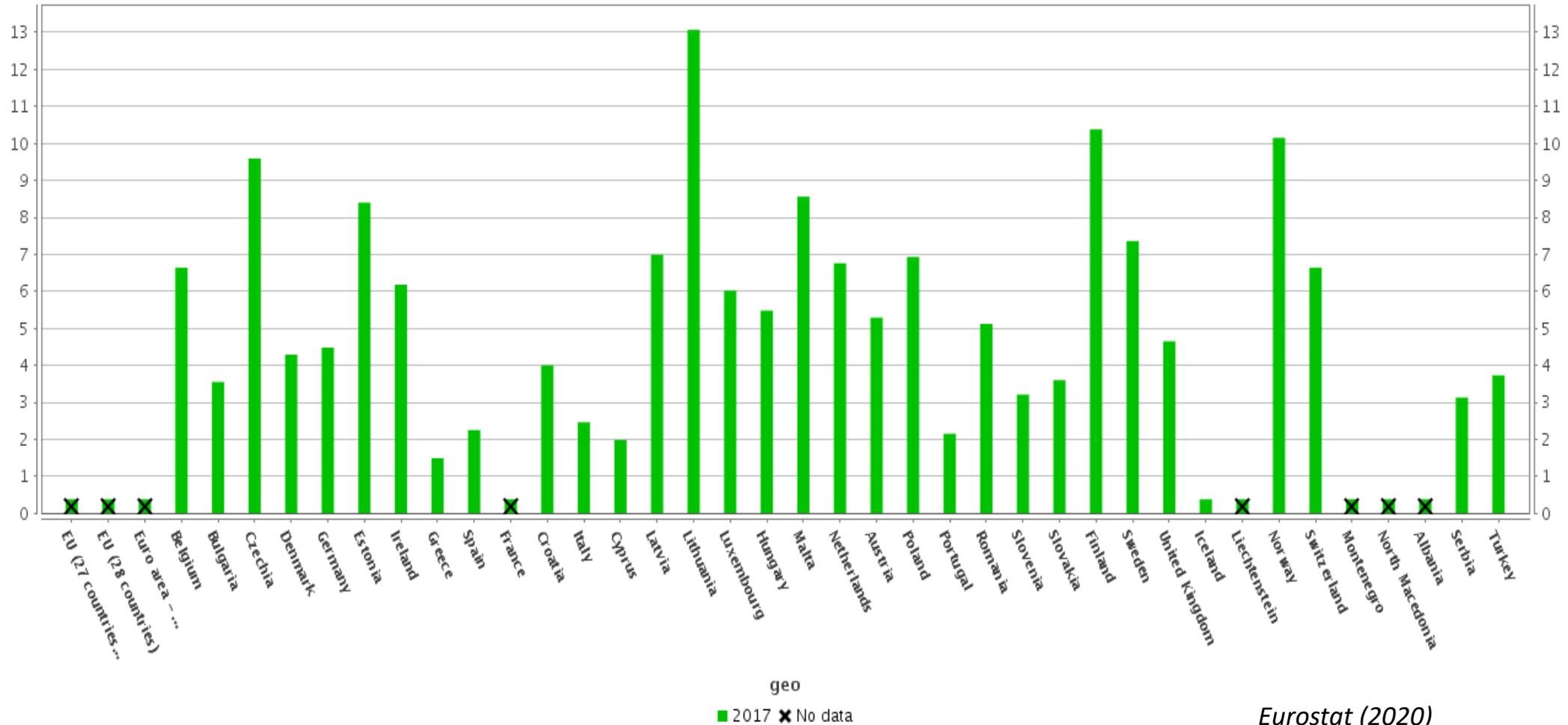


Suicide in Europe

Suicide death rate by age group

Crude death rate per 100 000 persons

From 15 to 19 years

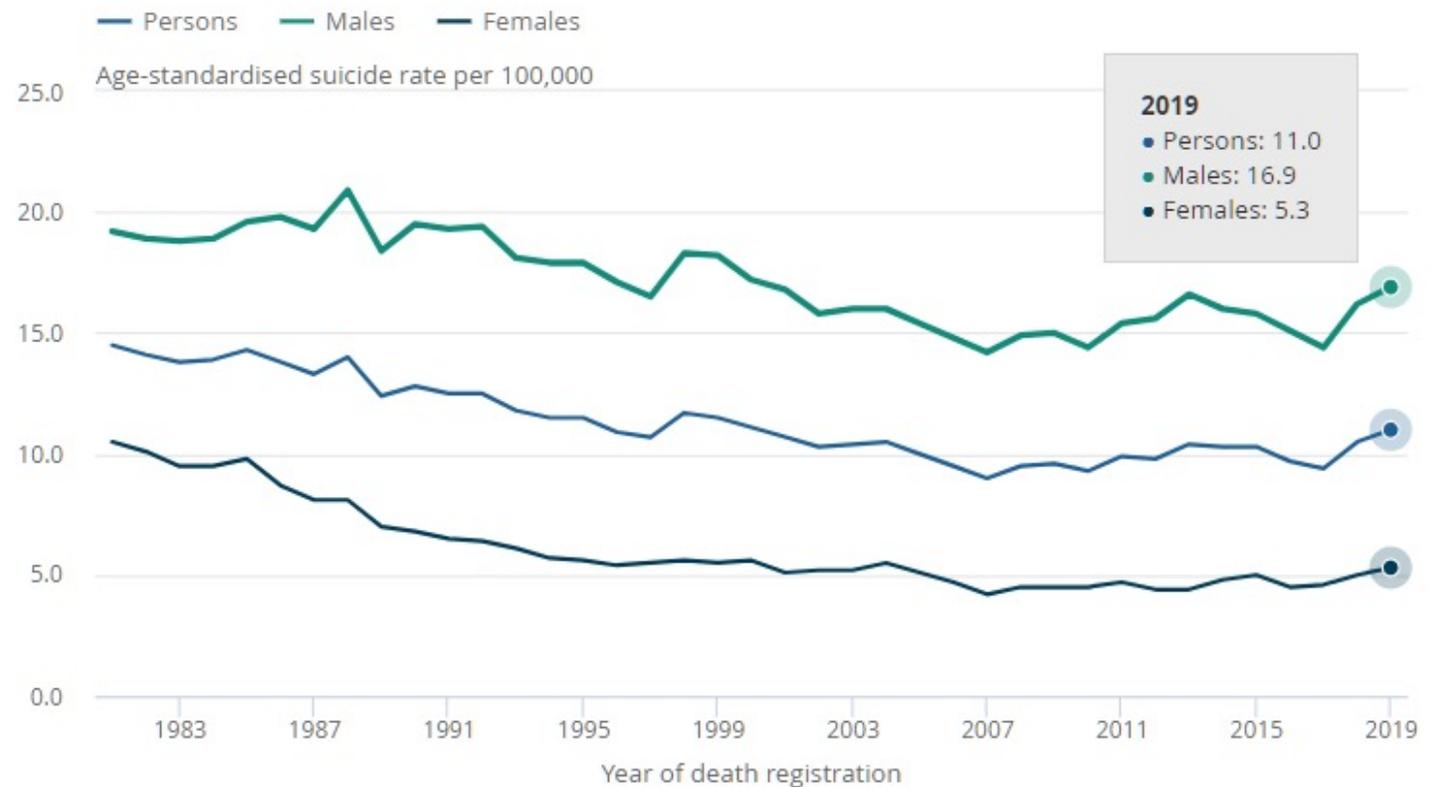


Eurostat (2020)

Suicide in the UK

- Suicide rates in all persons, males and females increased in the past year
- Male suicide rate in 2019 is the highest since 2000
- Females suicide rate is the highest since 2004.

Age-standardised suicide rates by sex, England and Wales, registered between 1981 and 2019

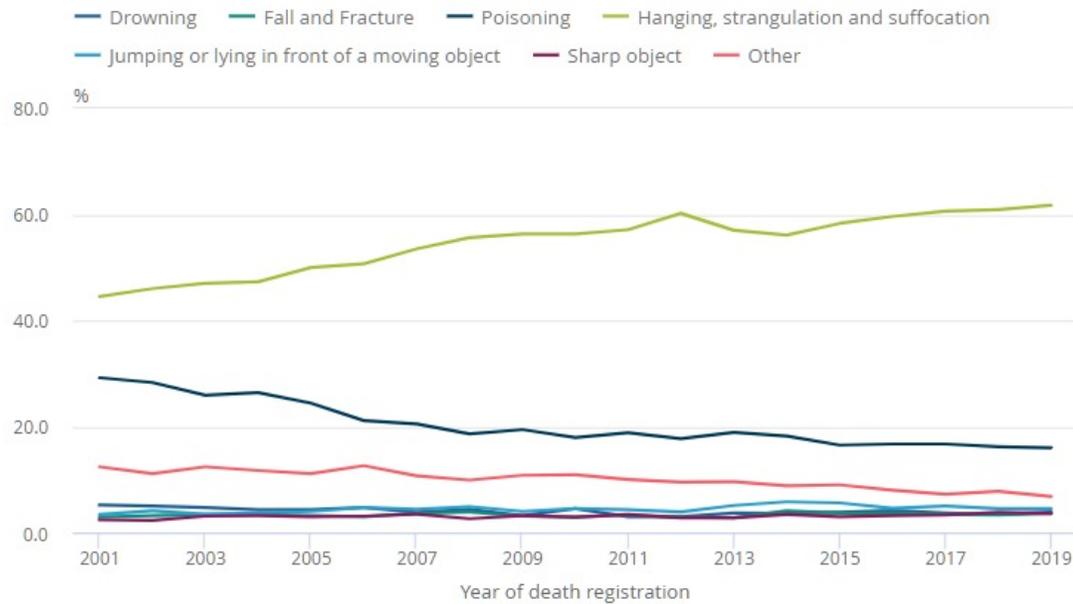


Source: Office for National Statistics – Suicides in England and Wales: 2019 registrations

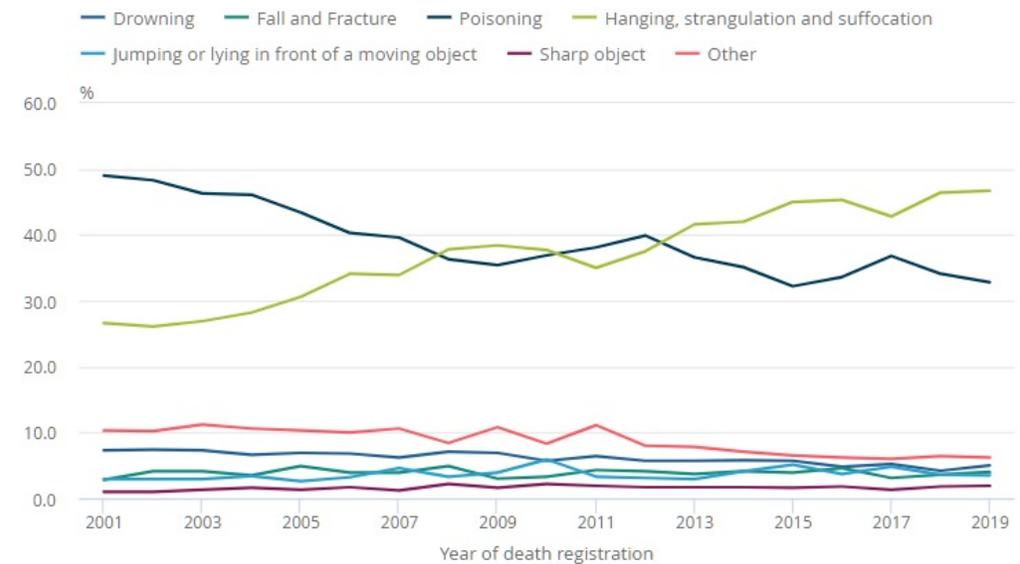
Suicide in the UK: Suicide methods

Hanging, strangulation and suffocation (all grouped together) continued to be the most common method of suicide for both gender in England and Wales, followed by poisoning.

Proportion of suicide by method, males, England and Wales, 2001 to 2019



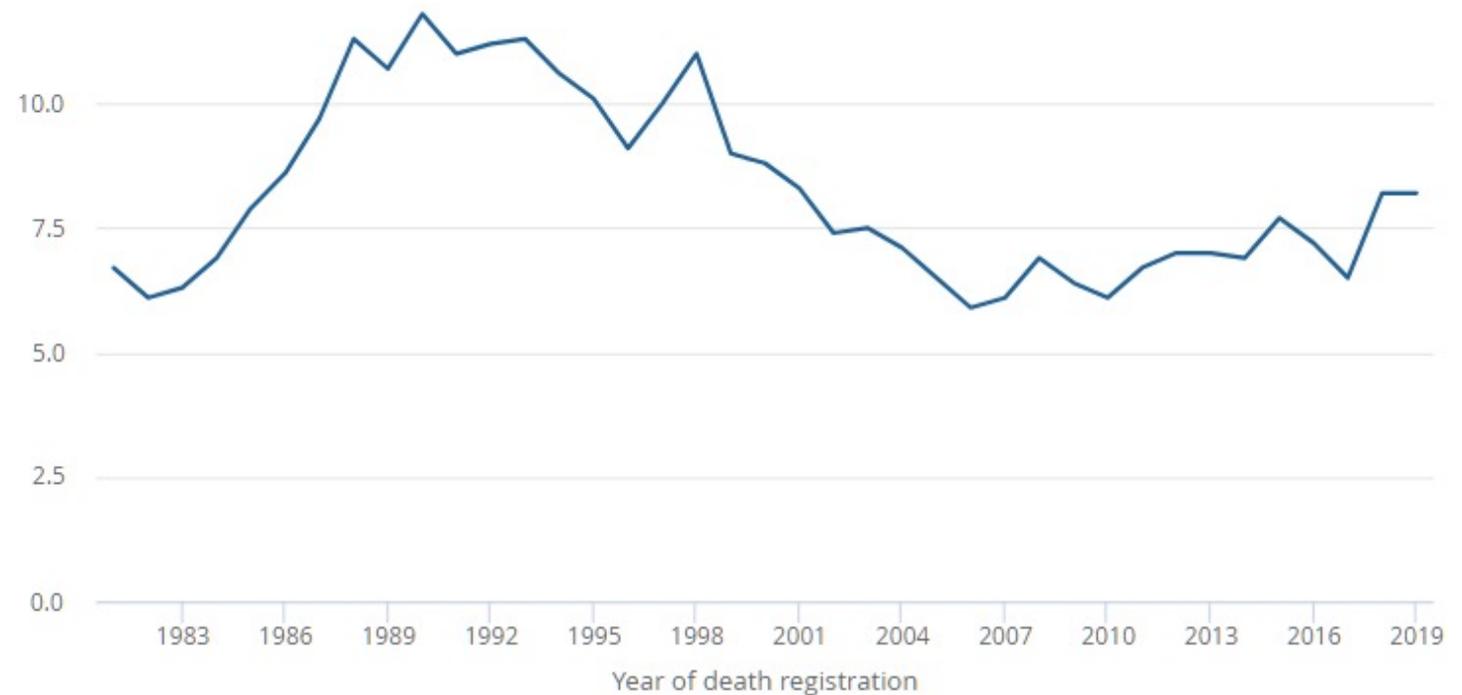
Proportion of suicide by method, females, England and Wales, 2001 to 2019



Source: Office for National Statistics – Suicides in England and Wales: 2019 registrations

Suicide in the UK: Males aged 10-24 years

Suicide rate of males aged 10-24 in England and Wales, registered between 1981 and 2019



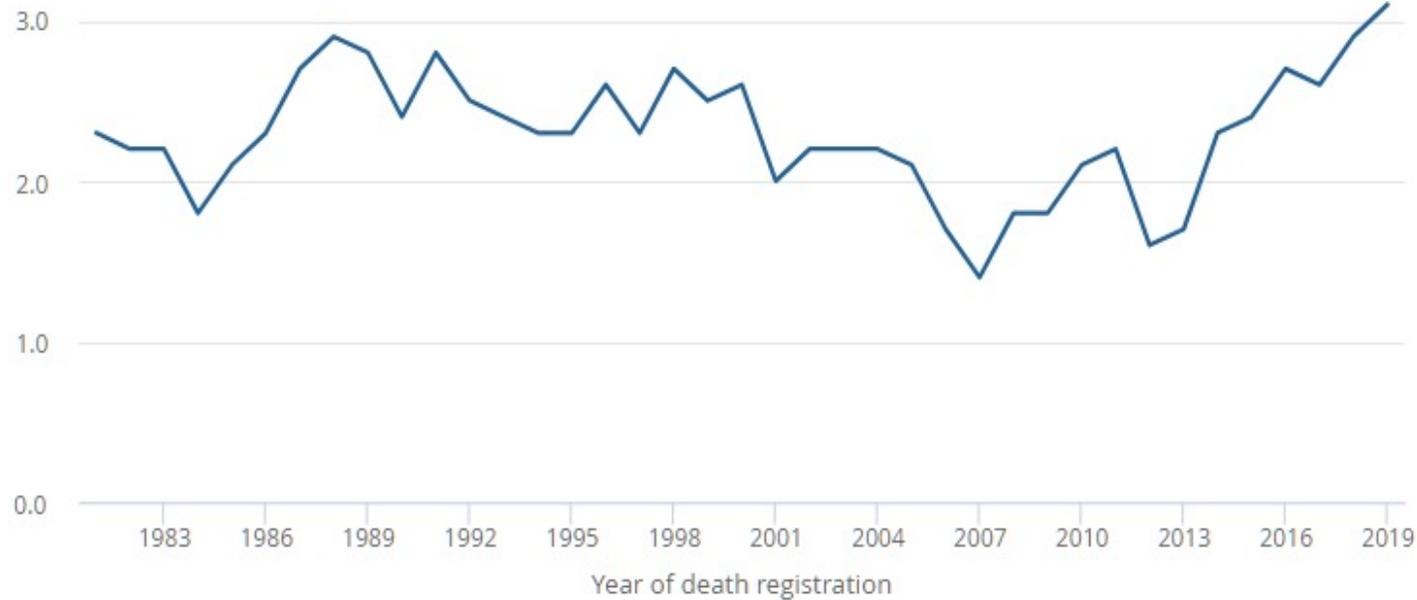
2018: 440 deaths (8.2 per 100,000)

2019: 442 deaths (8.2 per 100,000)

Source: Office for National Statistics – Suicides in England and Wales: 2019 registrations

Suicide in the UK: Females aged 10-24 years

Suicide rate of females aged 10-24 in England and Wales, registered between 1981 and 2019



- In 2019, 159 deaths were recorded (3.1 per 100,000) – the highest recorded rate since 1981
- Suicide rate in females aged 10 to 24 years in England and Wales has increased continuously since 2012

Source: Office for National Statistics – Suicides in England and Wales: 2019 registrations

Self-harm in the UK: In primary care

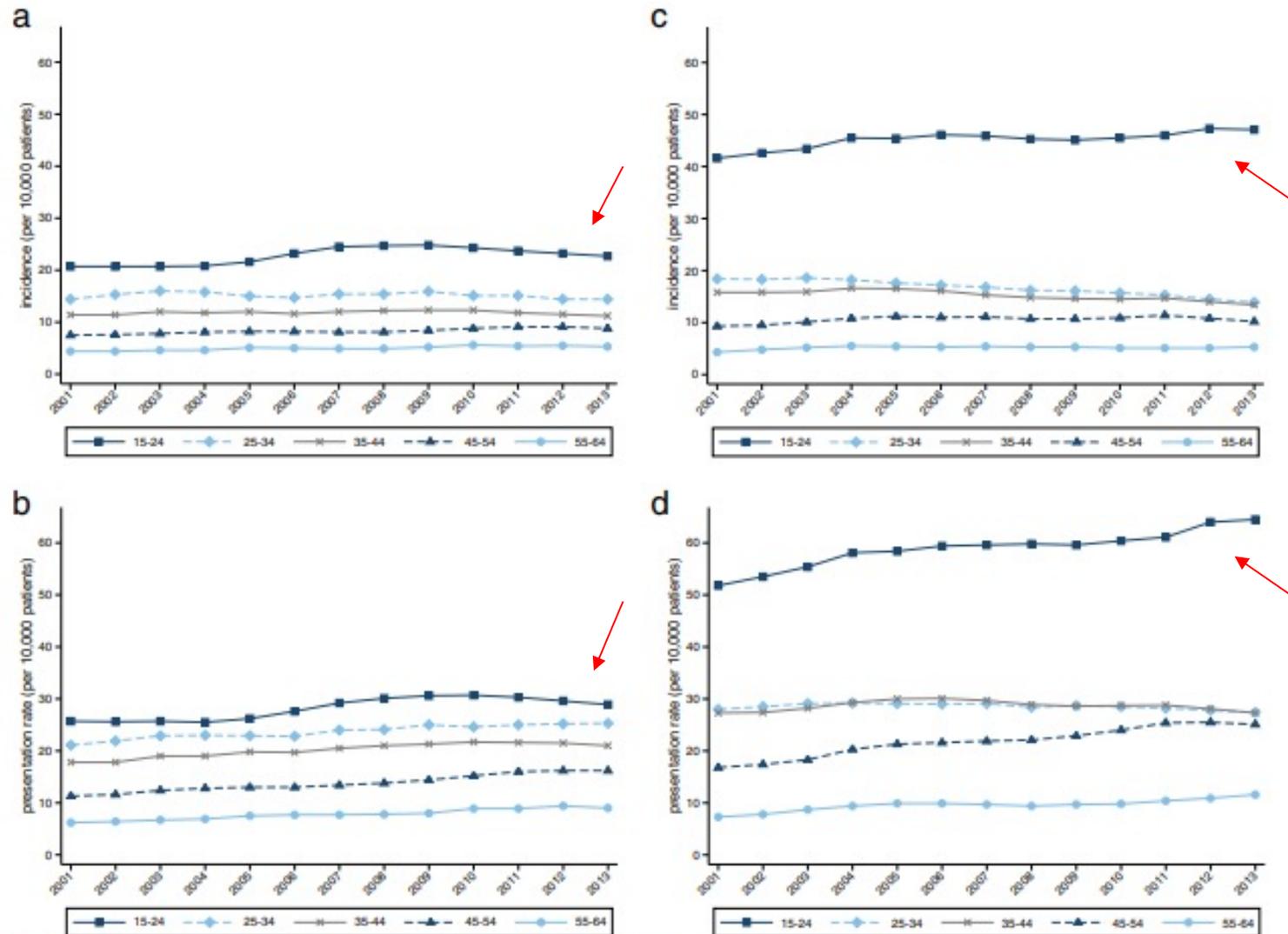
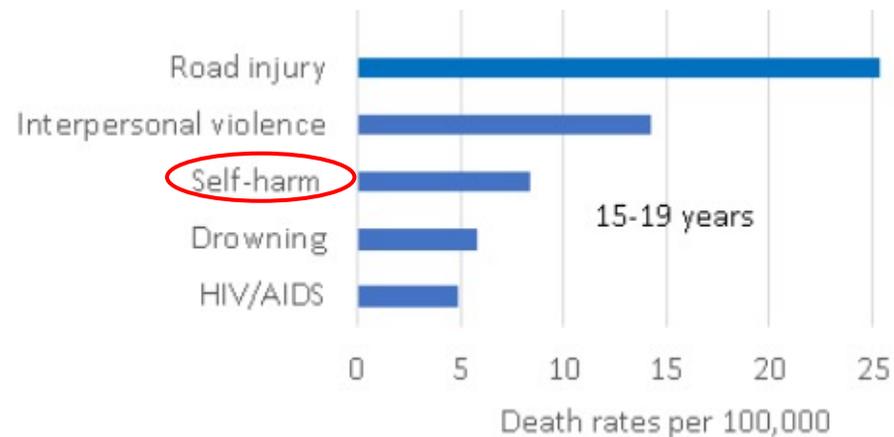
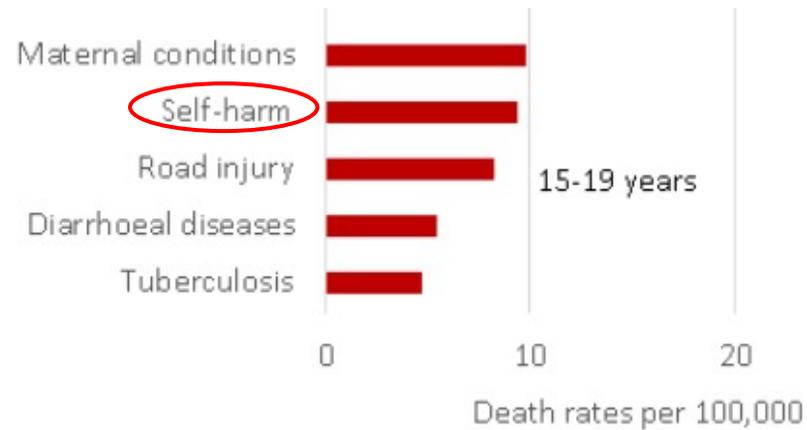


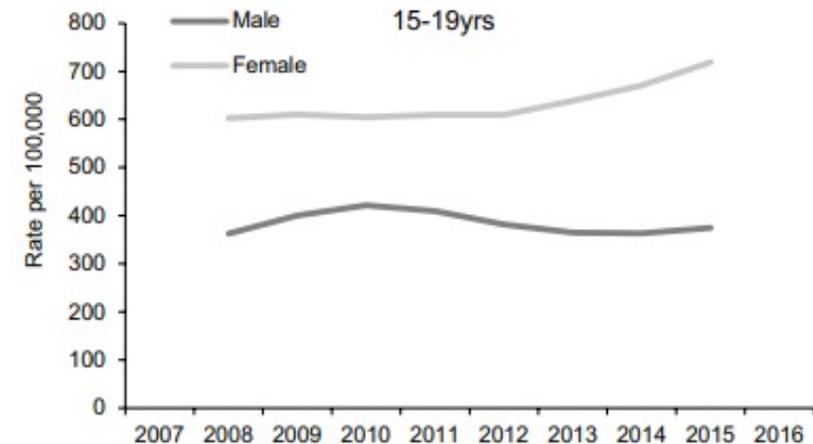
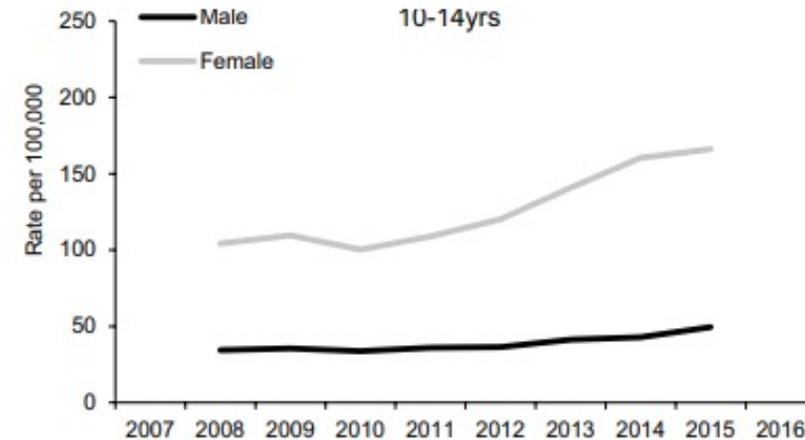
Fig. 2 Incidence and annual presentation rates by age band. **a** Incidence in male patients by age band. **b** Annual presentation rates in male patients by age band. **c** Incidence in female patients by age band. **d** Annual presentation rates in female patients by age band

Self-harm in children and young people



Top 5 estimated causes of death in female (top) and male (bottom) adolescents worldwide

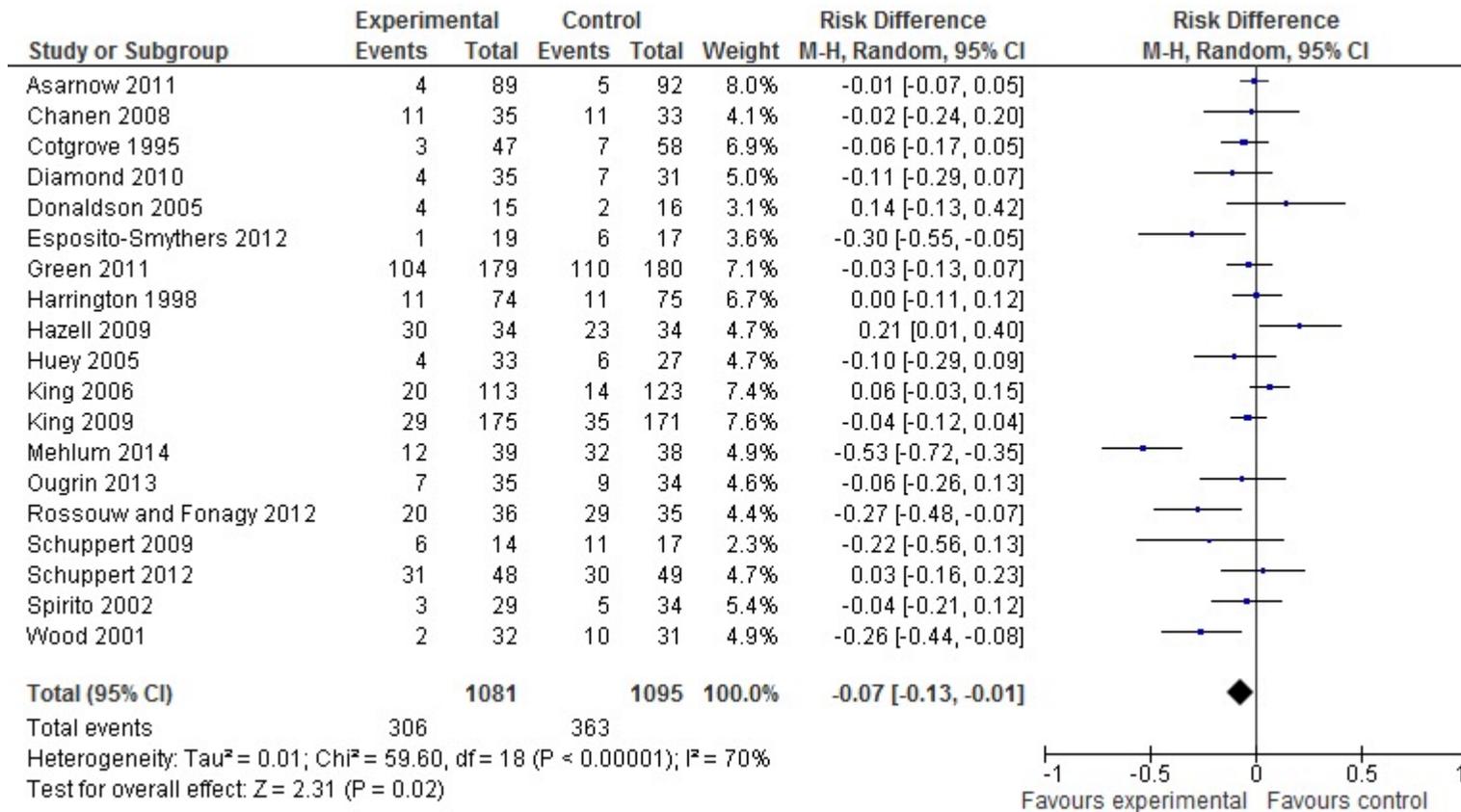
WHO (2016)



Rates of self-harm 2007–2016

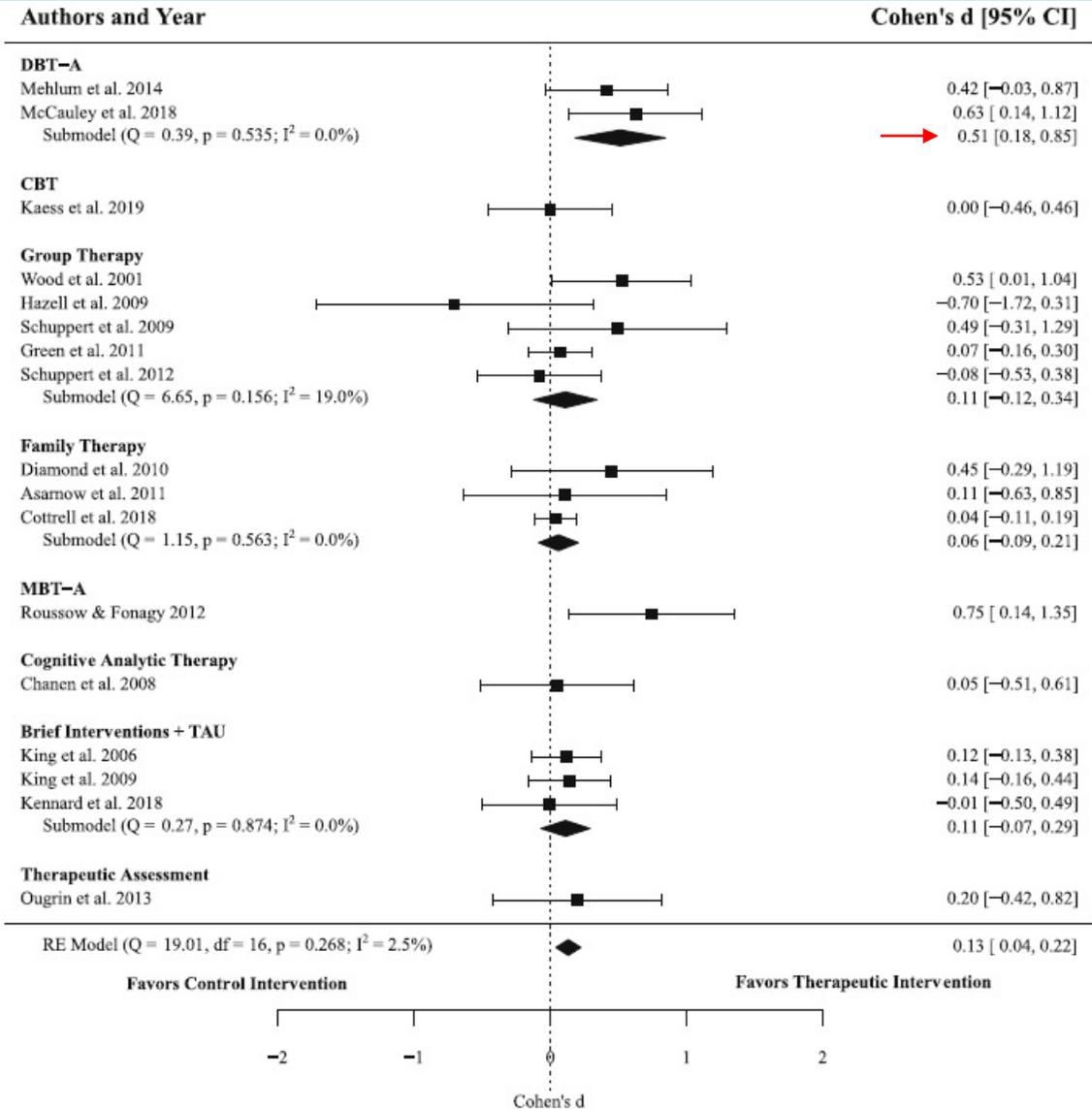
Griffin et al. (2018)

Self-harm: treatment



Largest effect sizes: dialectical behaviour therapy (DBT), cognitive-behavioural therapy (CBT), and mentalization-based therapy (MBT)

Self-harm: treatment



- Current interventions are overall effective in treating self-harm in adolescence. ($d = 0.13$, 95% CI 0.04–0.22, $p = .004$)
- DBT-A showed moderate effects in reducing self-harm. ($d = 0.51$, 95% CI 0.18–0.85, $p = .002$)

Kothgassner et al. (2020)

Fig. 2 Forest plot of trials comparing the effect of therapeutic interventions and controls on self-harm. Note: Displays the standardized mean difference (Cohen's d) in post-treatment self-harm, a positive effect size indicates that the outcome was in favour of therapeutic interventions. The average effect was calculated using a random-effects model

Self-harm: treatment

- Treatments for suicidal ideation in adolescence are effective ($d = 0.31$, 95% CI 0.12–0.50, $p = .001$)
- DBT-A and Family-centred therapy have moderate effects in reducing suicidal ideation

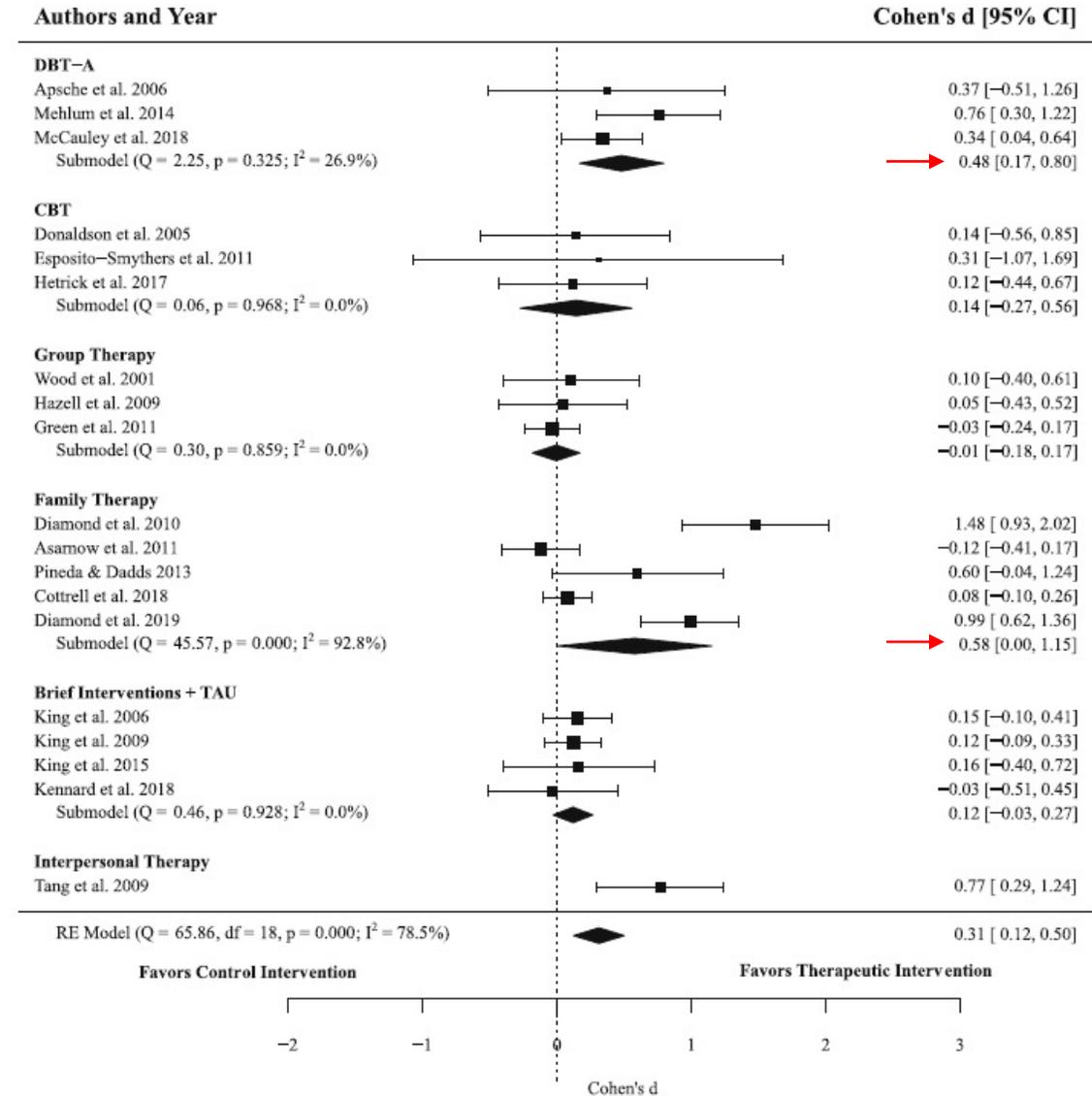


Fig. 3 Forest plot of trials comparing the effect of therapeutic interventions and controls on suicidal ideation. Note: Displays the standardized mean difference (Cohen's d) in post-treatment suicidal ideation, a positive effect size indicates that the outcome was in favour of therapeutic interventions. The average effect was calculated using a random-effects model

Risk factors for self-harm

- Suicidal ideation and depressive symptomatology (*Vitiello et al., 2009*)
- Psychotic symptoms (*Kelleher et al., 2013*)
- ASD (*Duerden et al., 2012*)
- Early-onset (< 16 years) cannabis use in females (*Wilcox et al., 2004*)
- Conduct, hyperkinetic, and emotional problems in males (*Sourander et al., 2009*)
- Worries about sexuality, anxiety (*O'Connor et al., 2009*)
- Low self-esteem, external attributional style (*Martin et al.*)
- Bullying victimisation (*Fisher et al., 2012*)
- Family conflict, History of NSSI (*Brent et al., 2009*)
- Previous suicide attempt, use of a 'hard' method (*Hulten et al., 2001*)
- Rehospitalisation (*Czyz et al., 2016*)
- Childhood abuse (*Wan et al., 2015*)
- History of sexual abuse, family self-harm (*O'Connor et al., 2009*)
- Living in a non-intact family (*Sourander et al., 2009*)
- Low level of education (*Brunner et al., 2007*)

From suicidal thinking to suicide attempts

- Presence of psychiatric disorders
- Female gender
- Lower IQ
- Higher impulsivity
- Higher intensity seeking
- Lower conscientiousness
- A greater number of life events
- Body dissatisfaction
- Hopelessness
- Exposure to self-harm in both friends and family
- Smoking
- Non-cannabis drug use

Risk factors for completed suicide

- Male sex
- Low socioeconomic status
- Restricted educational achievement
- Parental separation or divorce
- Parental death
- Adverse childhood experiences
- Parental mental disorder
- Family history of suicidal behaviour
- Interpersonal difficulties
- Mental disorder
- Drug and alcohol misuse
- Hopelessness

Hawton et al. (2012)

Long term follow up A&E presentations

Repetition in 27.3%

- Age
- Self-cutting
- Previous self-harm
- Psychiatric treatment

Death in 1% (50% suicides)

- The method used was usually different to that used for self-harm.
- Male gender
- Self-cutting
- Prior psychiatric treatment
- History of previous self harm

Hawton et al. (2012)

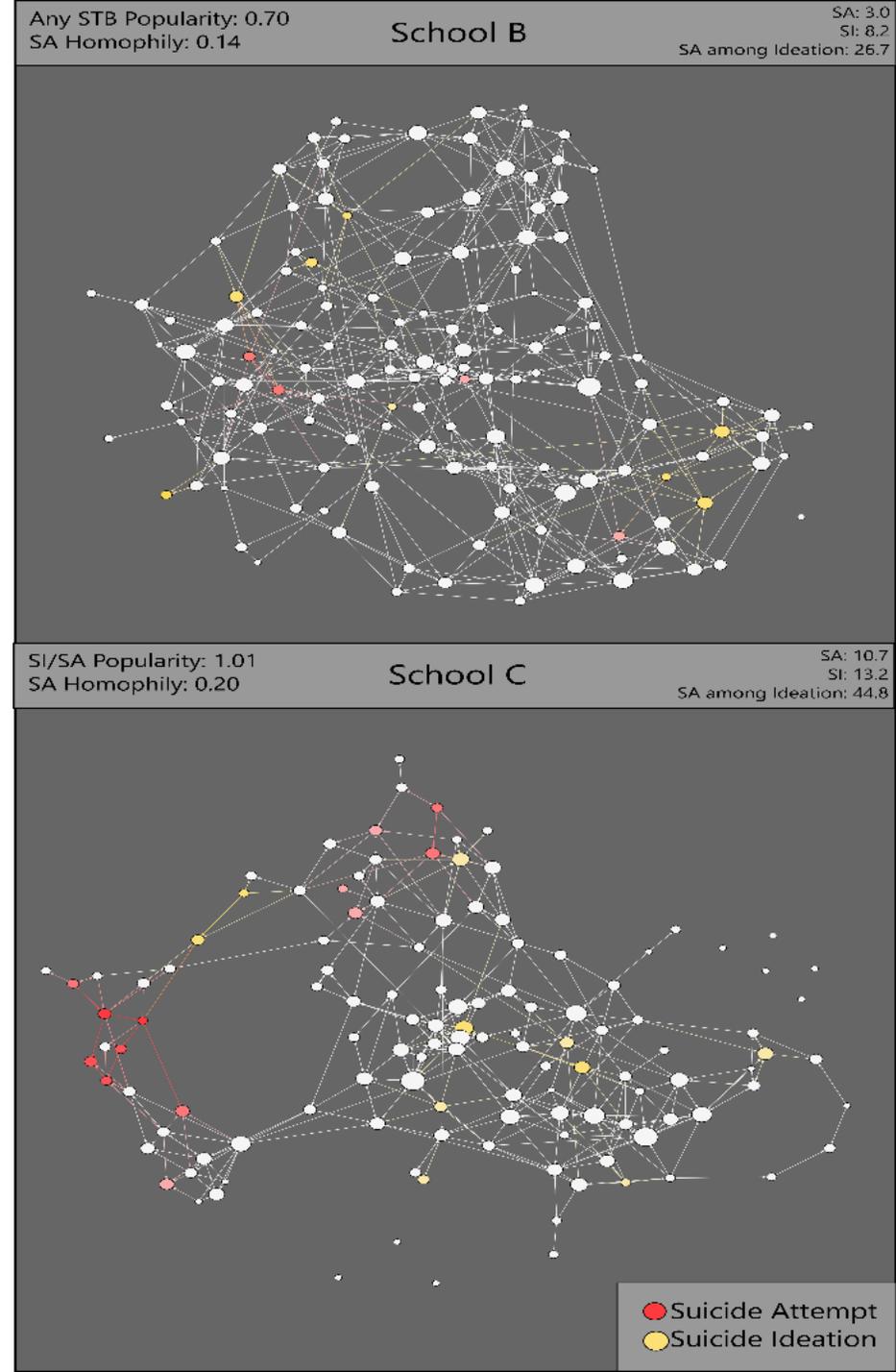
- Violent versus non-violent self-harm makes you **8 times** more likely to die

Beckman et al. (2019)

Peer-adult network structure and suicide attempts in 38 high schools: implications for network-informed suicide prevention

- School networks could provide the relationship network structure that will potentially prevent suicidal behaviour
- Lower peer network integration and cohesion in schools had higher rates of suicidal ideation (SI) and suicide attempts (SA)
- Suicidal attempts increased with two factors:
 1. Student isolation
 - 10% more students isolated from adults led to 20% higher SA rate on average
 2. Popularity of student and clustering on network
 - Higher relative to non suicidal peers

Wyman et al. (2019)



Stressors in current pandemic

- Anxiety and fear relating to the pandemic (*Guessoum et al., 2020*)
- Isolation, loneliness (*Reger, Stanley, and Joiner, 2020*)
- Pre-existing mental illness (*Moutier, 2020*)
- Access to mental health services (*Fegert et al., 2020*)
- Socio-economic disadvantages (*Fegert et al., 2020*)
- Domestic violence (*Bradbury-Jones and Isham, 2020*)
- Alcohol consumption (*Dumas, Ellis, and Litt, 2020*)
- Increased exposure to social media (*Xiong et al., 2020, Sedgwick et al., 2019*)
- Bereavement (*Clemens et al., 2020*)

Retrospective Cohort study: Methodology

- First and to date the only international study on self-harm in children and adolescents
- Electronic patient records
- Emergency unit presentations (n=2073)
 - March–April 2019 & March–April 2020
 - Under-18s
 - Psychiatric emergencies including self-harm

(Ougrin et al., 2020, under review)

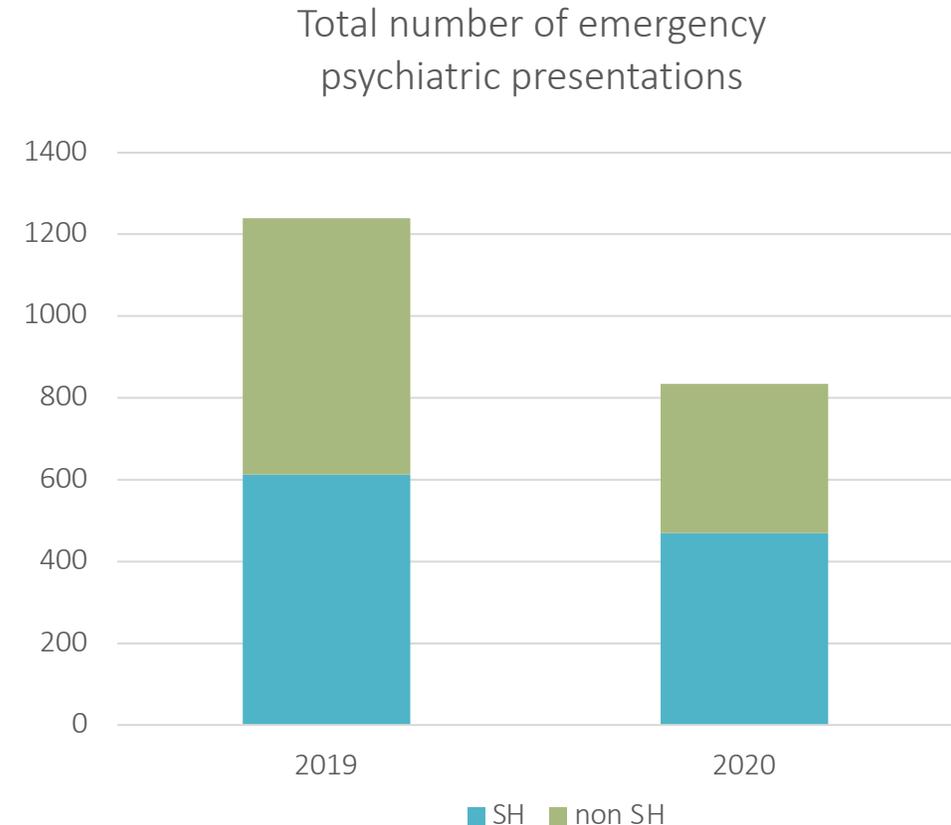


Catchment areas

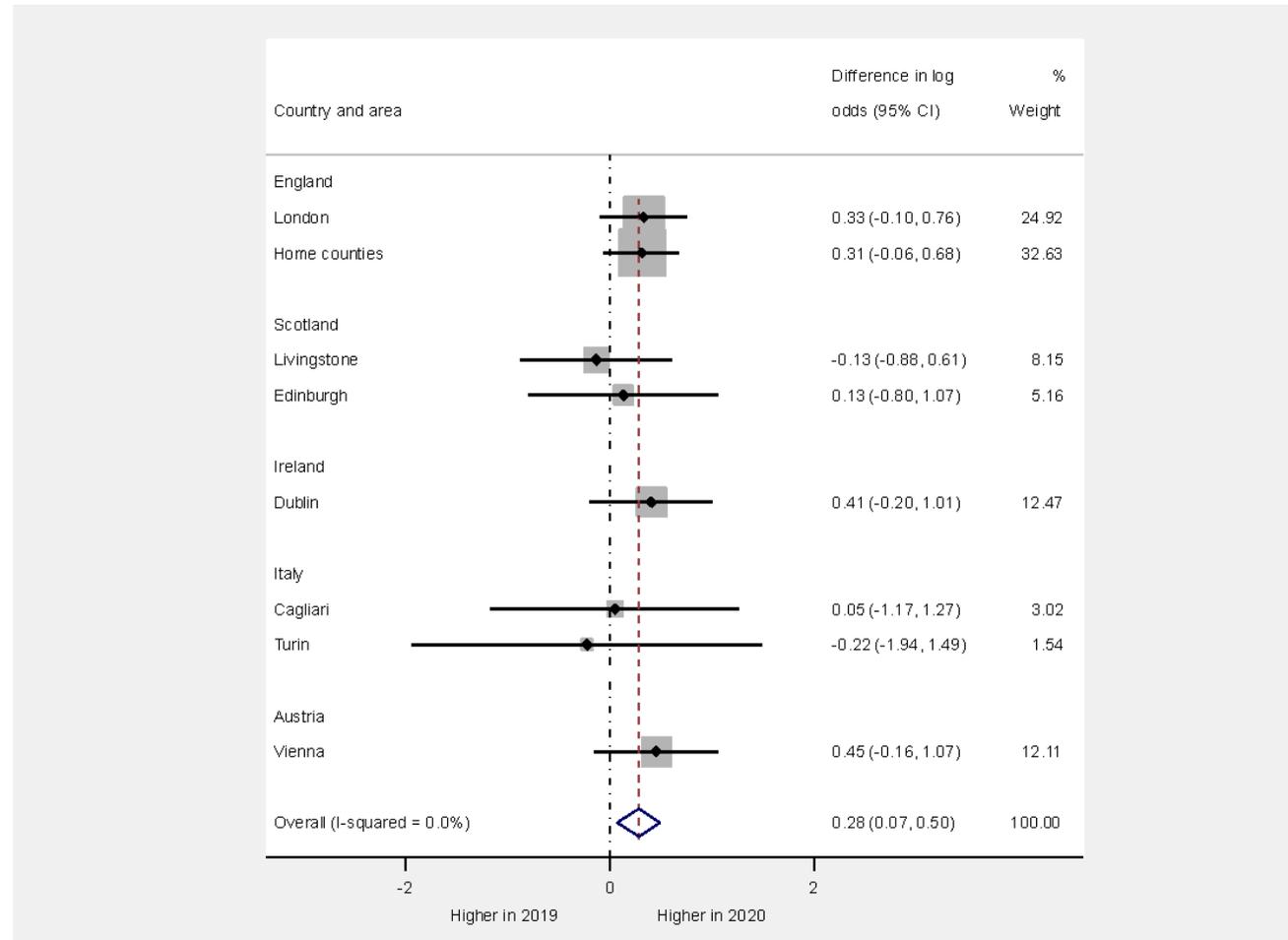
- 10 countries
- 23 hospital A&E
- 6.5 million children and adolescents
- Mixture of health care systems
- Categorised into 14 areas for analyses

Main results

- No. of emergency psychiatric presentations *decreased significantly*
 - 1,239 in 2019 → 834 in 2020
 - IRR = 0.67, 95%CI [0.62, 0.73]
- Proportion of self-harm presentations *increased significantly*
 - 50% in 2019 → 57% in 2020
 - OR = 1.33, 95%CI [1.07, 1.64]



Main results



Forest plot of year differences in hospital self-harm presentations

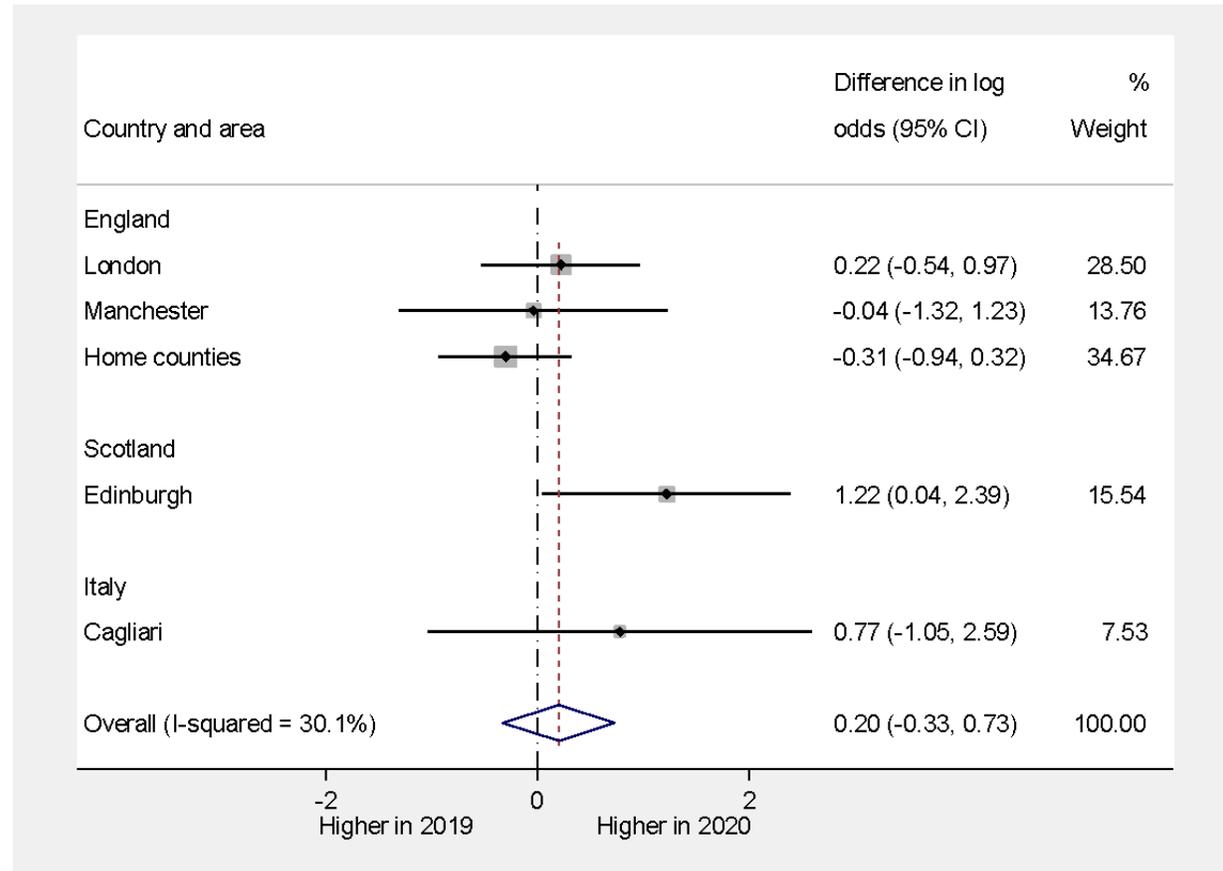
Results

- Proportion with history of previous hospital presentation for self-harm
 - Significantly *increased* in 2020
 - OR 1.40, 95%CI [1.05, 1.87]
- Proportion with history of previous self-harm in community
 - No significant difference in 2020

Results: Clinical characteristics

Among those presenting with self-harm, the proportion of...

- Severe self-harm*
 - No significant difference in 2020

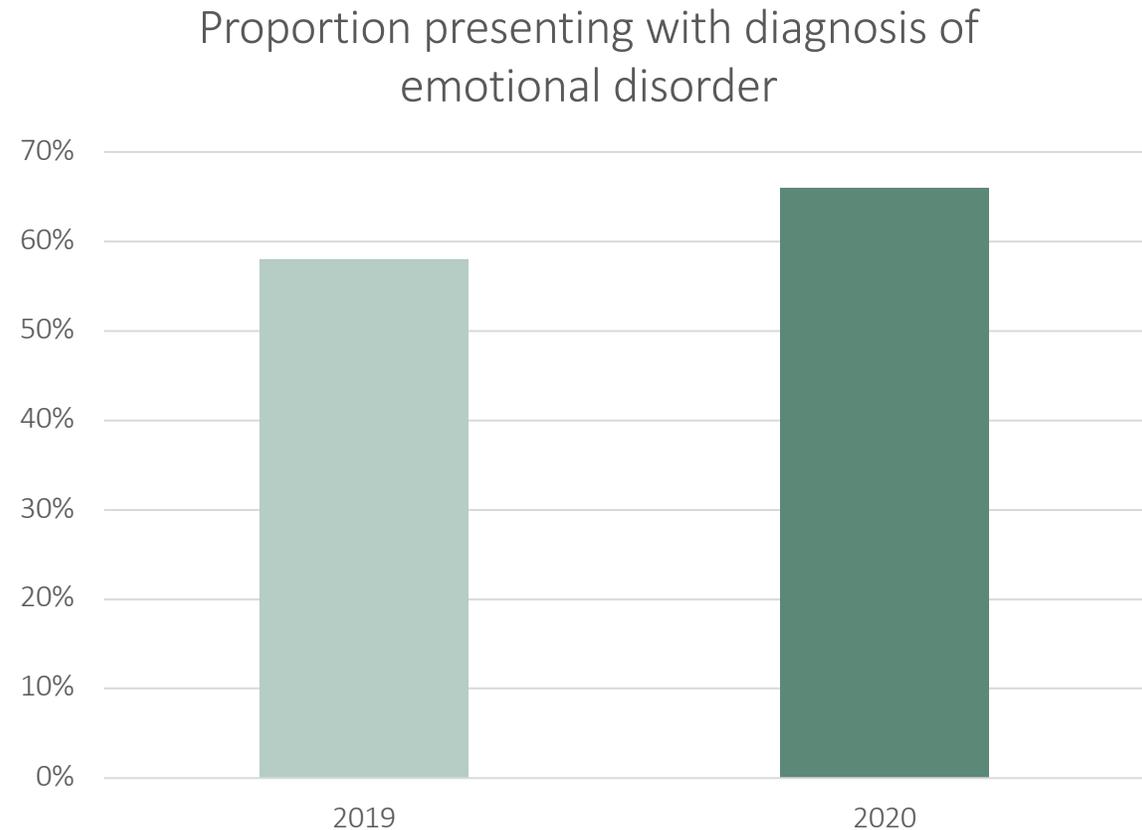


*High-lethality method, ICU admission, or Acute ward for >72 hours

Results: Clinical characteristics

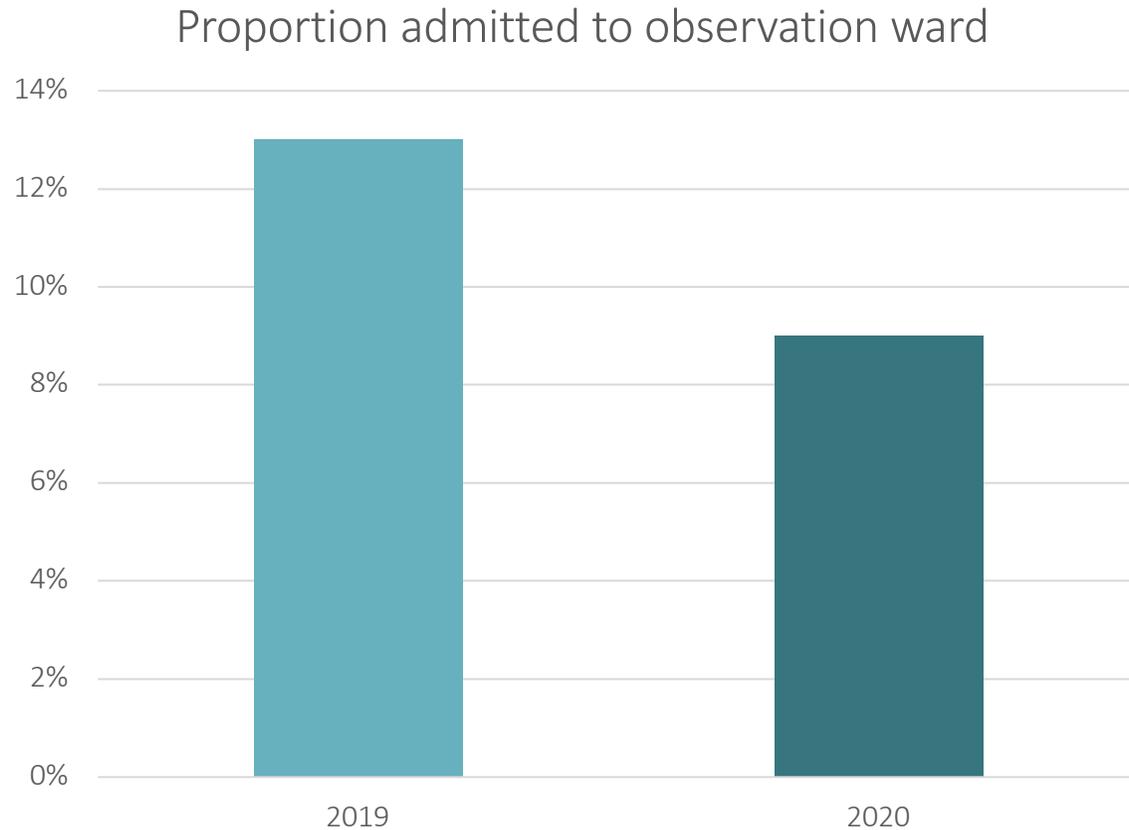
Among those presenting with self-harm, the proportion of...

- Emotional disorder diagnosis
 - *Increased* significantly in 2020
 - OR 1.58, 95%CI [1.06 to 2.36]



Results: Clinical management

Among those presenting with self-harm, the proportion of...



- Admission to observation ward
 - *Reduced* significantly in 2020
 - OR 0.52, 95%CI [0.28 to 0.96]

Notable negative results

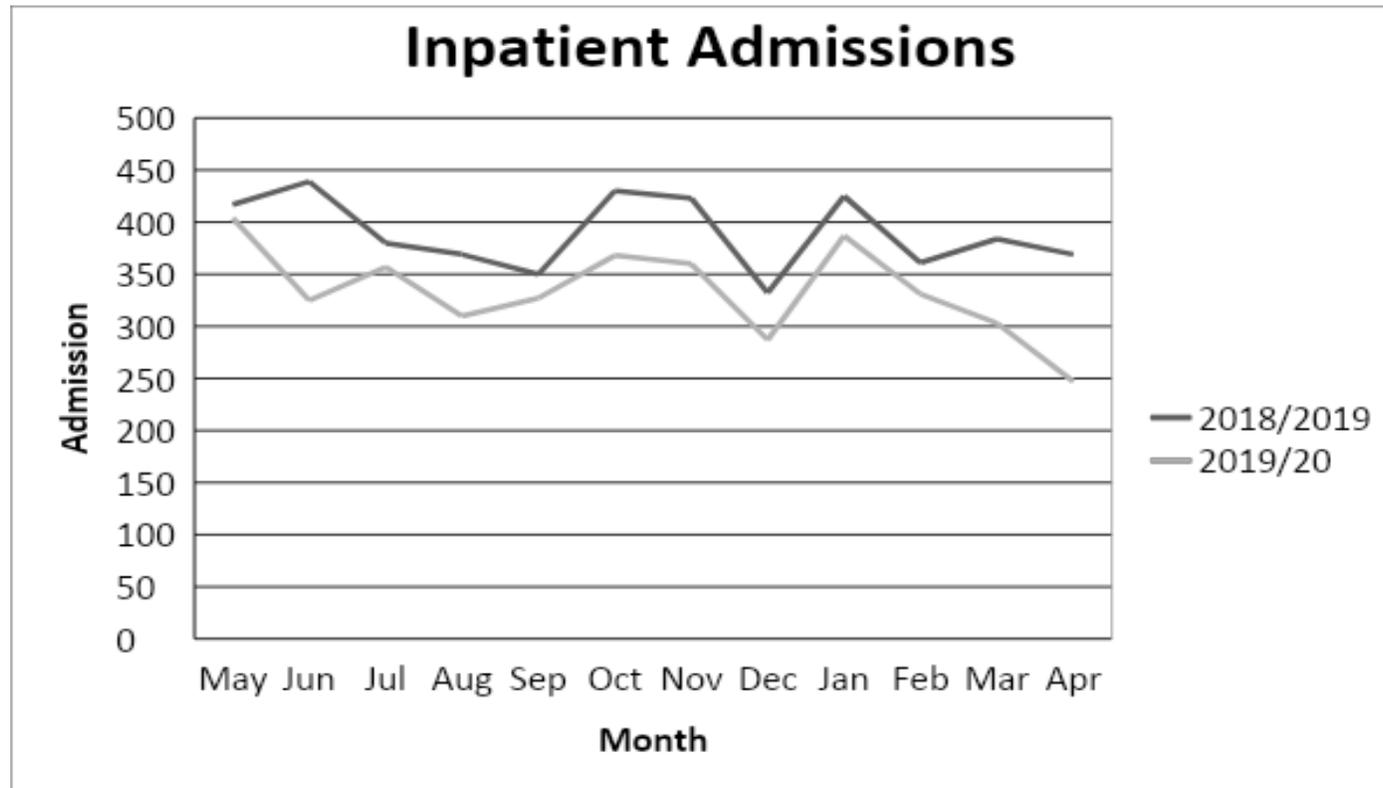
Among those presenting with self-harm,

no statistically significant difference was found in 2020 for the proportion...

- From deprived areas
- From ethnic minorities
- Offered follow-up appointments
- Subsequently attended the first follow-up appointment

Implications of findings

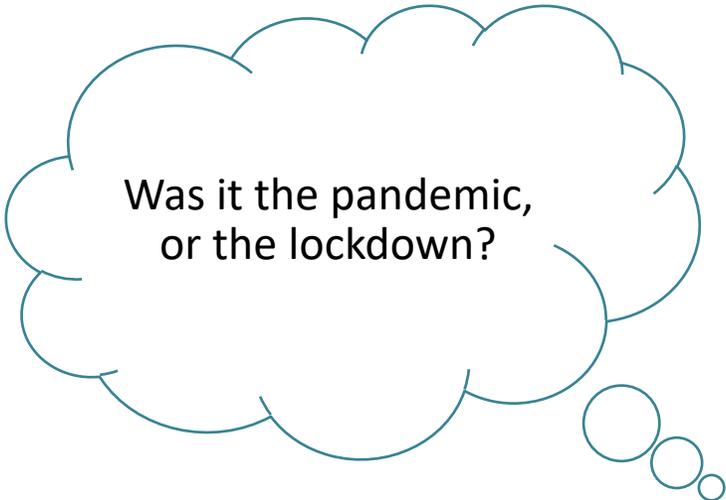
- Comparing with inpatient psychiatric admissions in England...



Implications of findings

- Reduced hospital presentations in 2020 compared with 2019
 - Genuine lower incidence of psychiatric emergencies in young people?
 - e.g. Family cohesion protects against suicide attempt (*McKeown et al, 2010*)
 - Less frequent help-seeking behaviour?
- Increased proportion of self-harm presentations
- Further development of appropriate interventions needed
 - Community-based services
 - Virtual and phone-based contacts

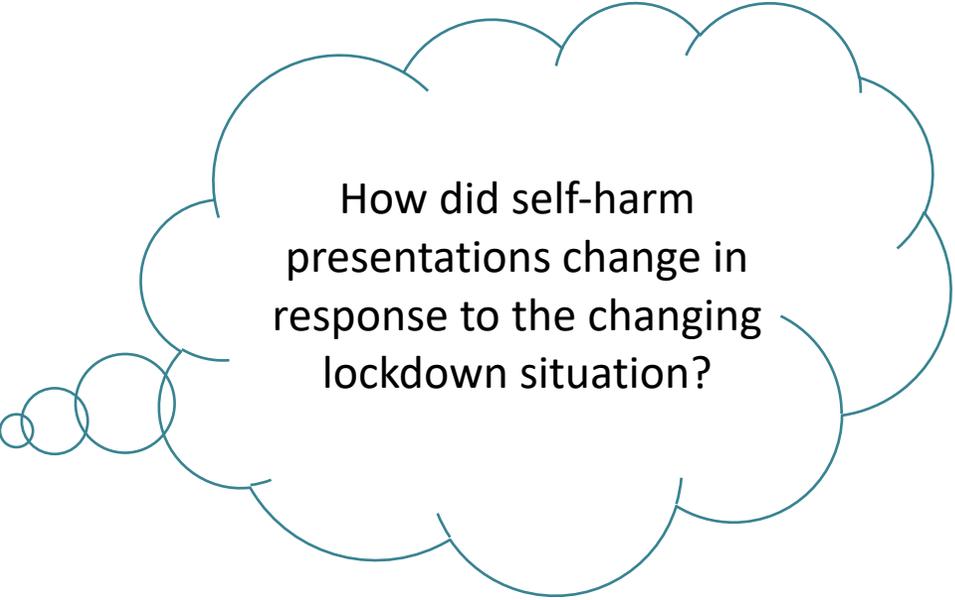
More questions...

A thought bubble with a scalloped border and three small circles leading to it from the bottom right.

Was it the pandemic,
or the lockdown?

A thought bubble with a scalloped border and three small circles leading to it from the bottom right.

What was the role
of policy measures?

A thought bubble with a scalloped border and three small circles leading to it from the bottom left.

How did self-harm
presentations change in
response to the changing
lockdown situation?

Evaluate effects of lockdown policies

- School closure (*Andrew et al., 2020*)
- Disruption of health care and social services
(*Fegert et al., 2020*)
- Physical distancing ~~social distancing~~
(*Bargain and Aminjonov, 2020*)
- Mobility and entertainment restrictions
(*Fegert et al., 2020*)
- Overcrowding and family Friction
(*Biroli et al., 2020*)
- Vulnerable or high-risk populations
(*Moutier, 2020*)
- Potential psychosocial inequalities
(*Armitage and Nellums, 2020*)

But also:

- Constantly changing
- Vary internationally
- Subjective interpretation

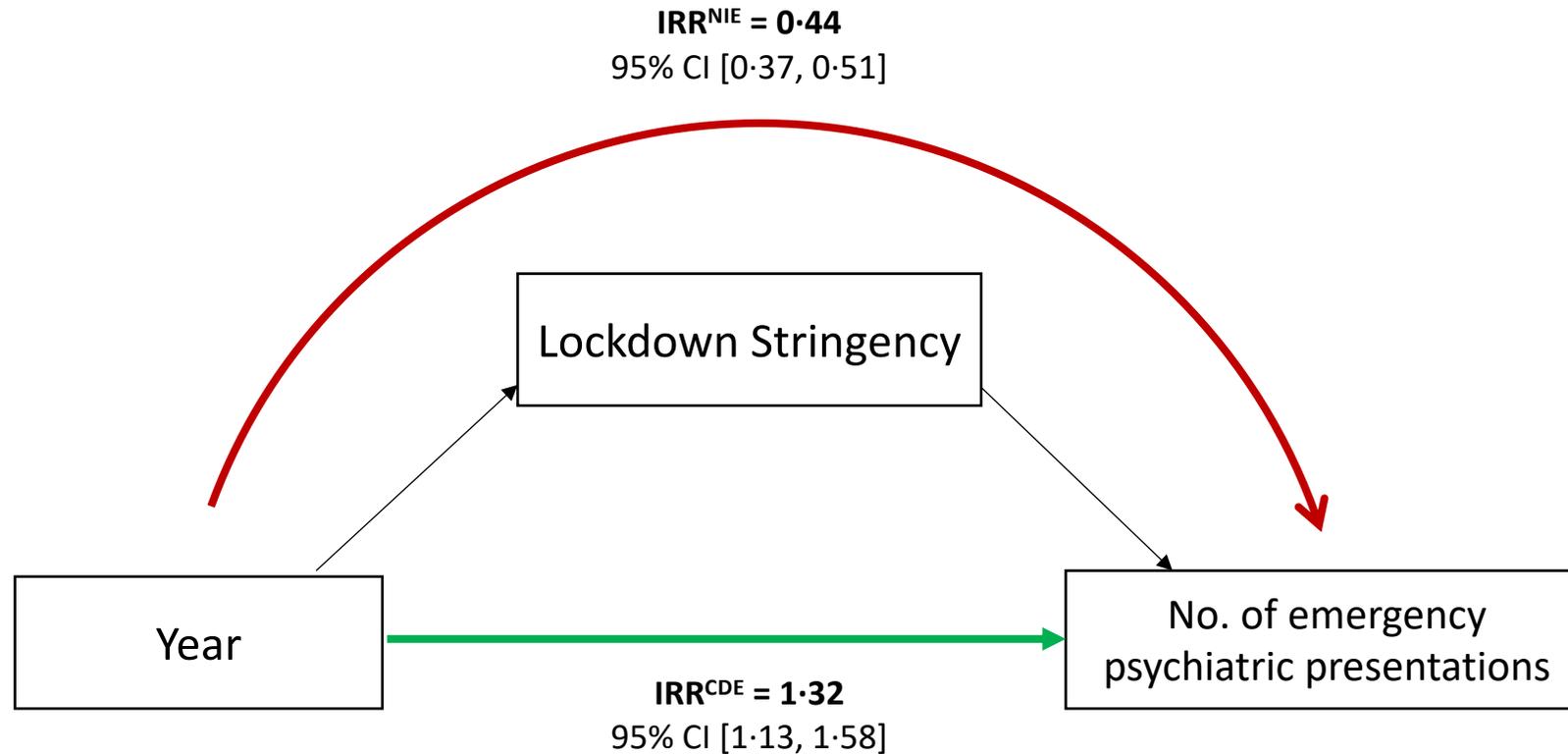
Evaluate effects of lockdown policies

- OxCGRT (*Hale et al., 2020*)
 - Daily, standardised, and country-specific measure of lockdown stringency
- Nine policy response indicators
 - School closure
 - Workplace closure
 - Public event cancellation
 - Restrictions of gatherings
 - Public transport closure
 - Stay at home requirements
 - Restrictions on internal movement
 - International travel controls
 - Public info campaigns

Secondary analyses

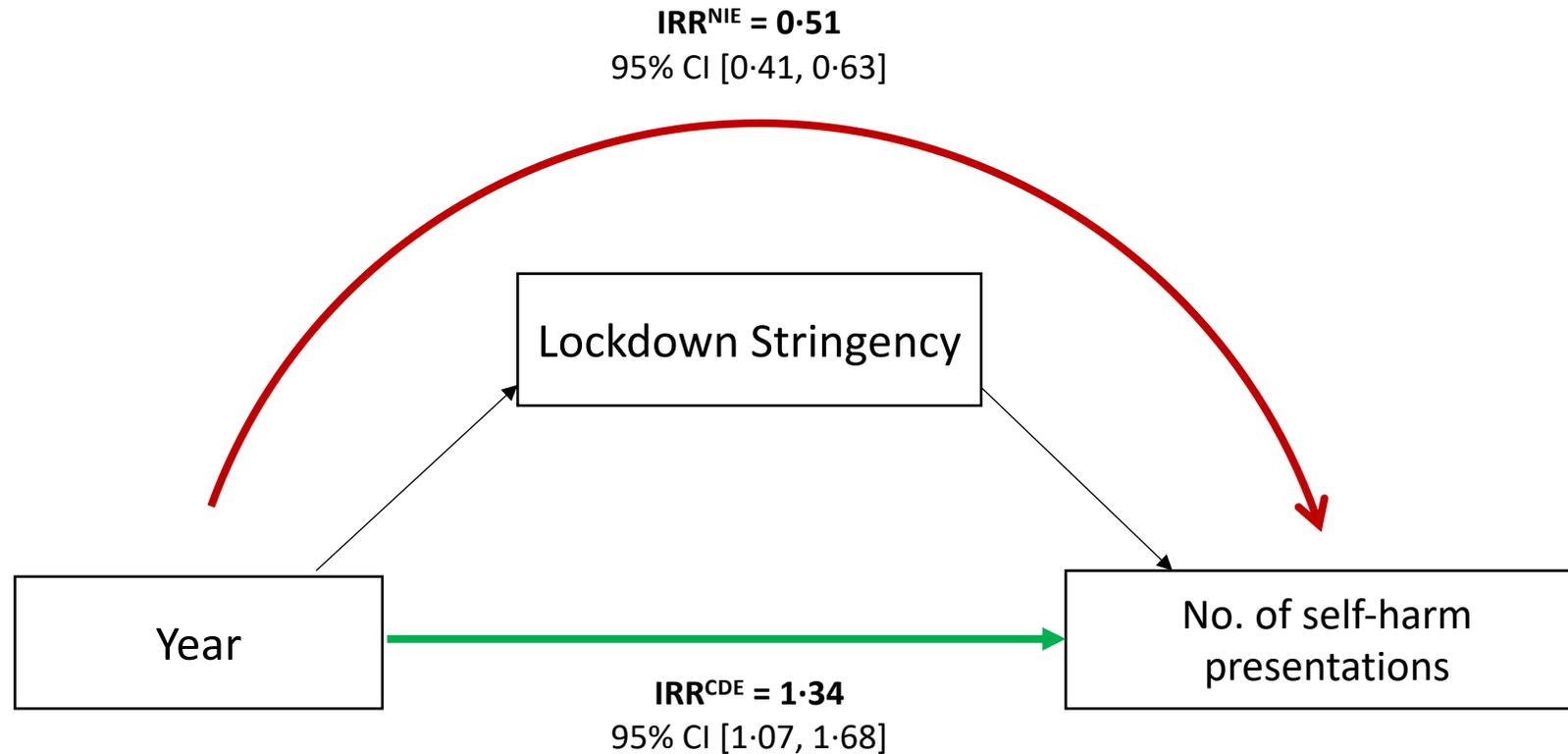
- Mediation roles of lockdown stringency on...
 - Reduction in emergency psychiatric presentations
 - Reduction in self-harm presentations
 - Increase in proportion of self-harm presentations
- Lockdown stringency as a predictor
 - Characteristics of children and adolescents presented with self-harm during March and April 2020

Results: Mediation effects of stringency



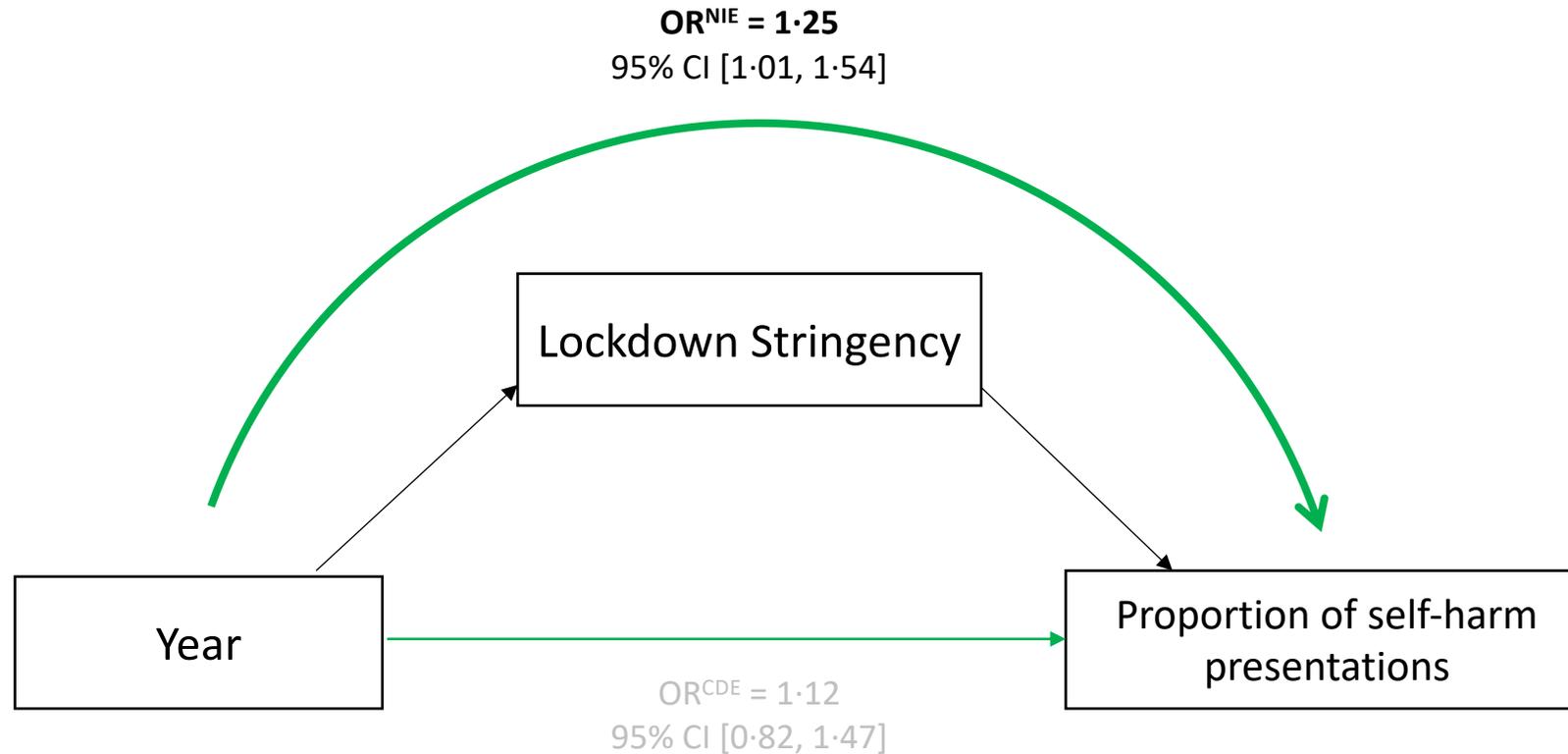
Total effect: $IRR^{TE} = 0.58$, 95% CI [0.53, 0.65]

Results: Mediation effects of stringency



Total effect: $IRR^{TE} = 0.68$, 95% CI [0.60, 0.80]

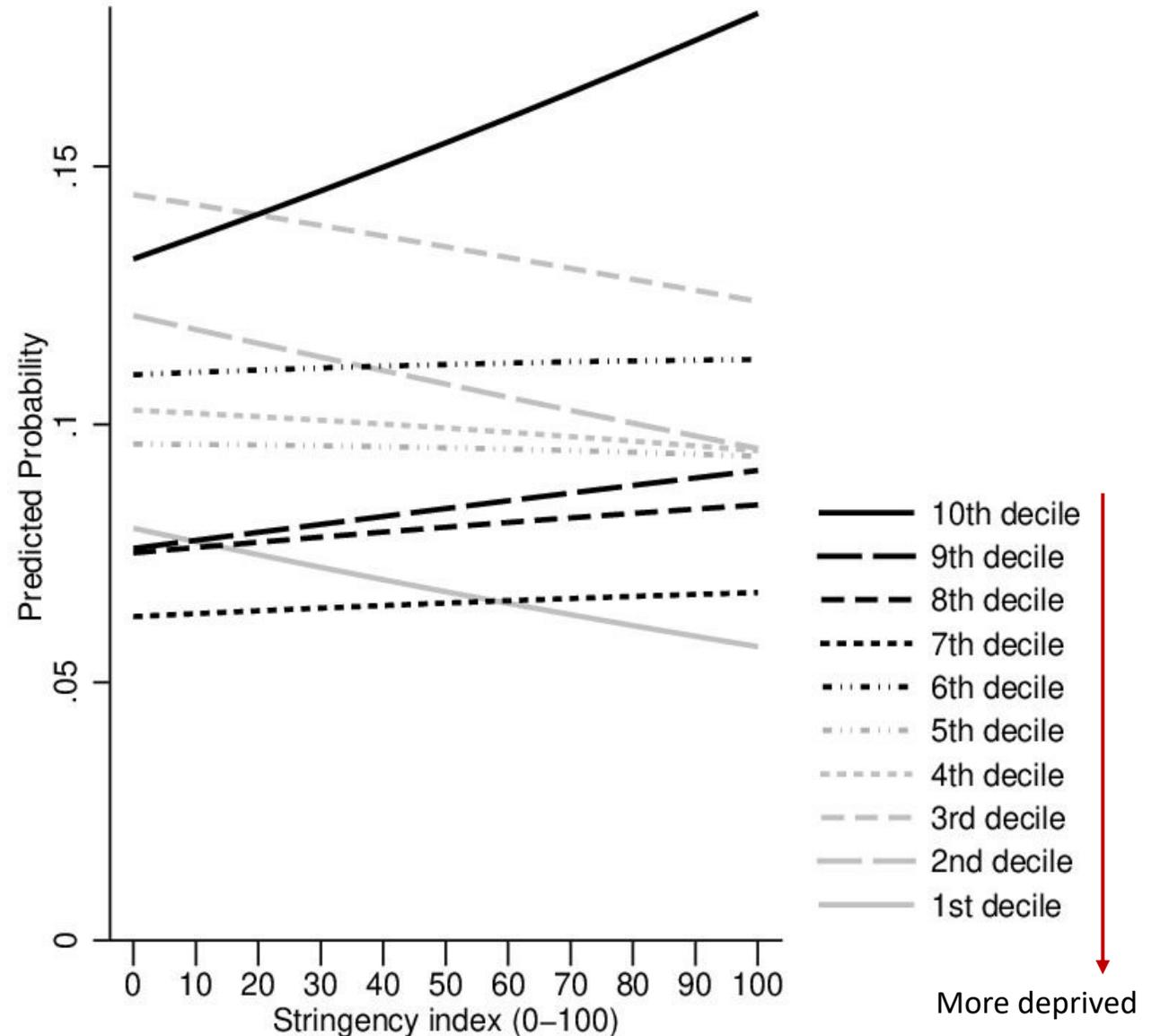
Results: Mediation effects of stringency



Total effect: $OR^{TE} = 1.39$, 95% CI [1.15, 1.67]

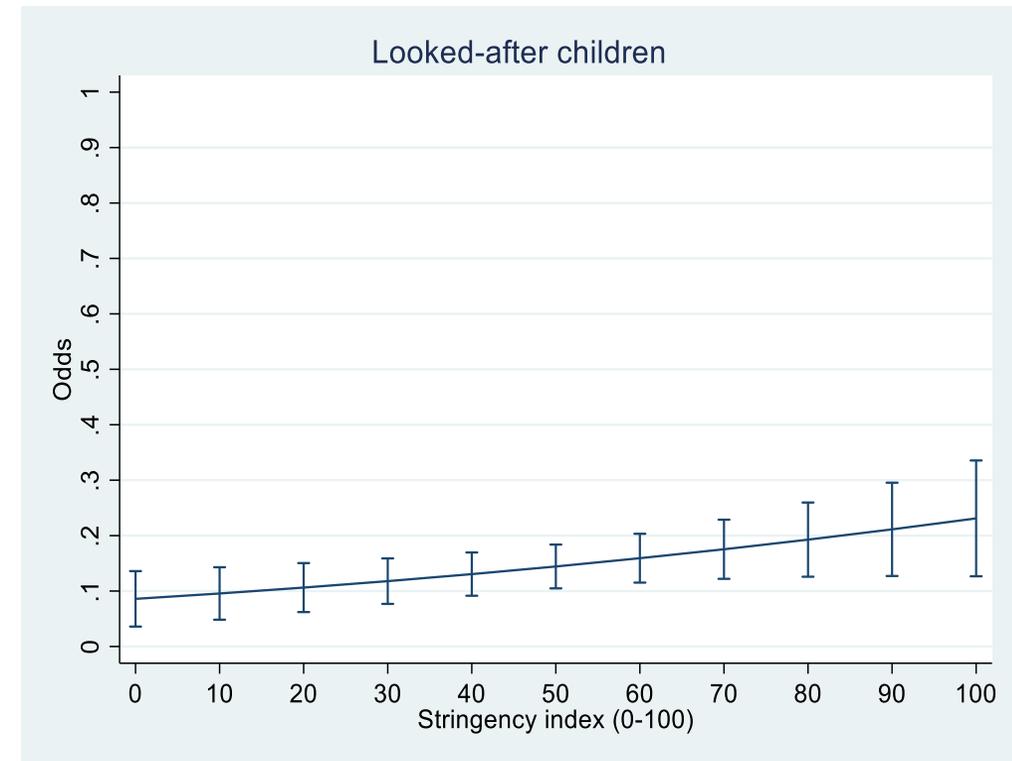
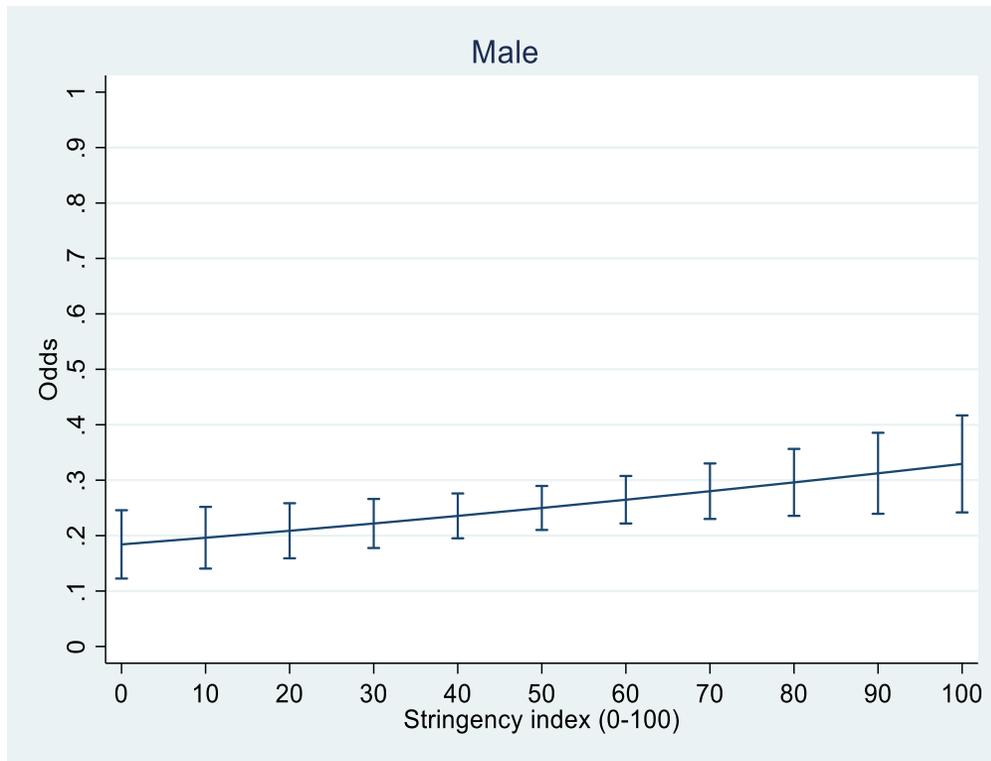
Results: Contrasting patterns across deprivation levels

- When lockdown became more stringent, children from more deprived neighbourhoods became *less likely* to be presented for self-harm.
- However, they were not **always** less likely to be presented when compared directly with peers from relatively more deprived deciles. (e.g. 3rd vs 7th decile)



Results: Stringency as predictor

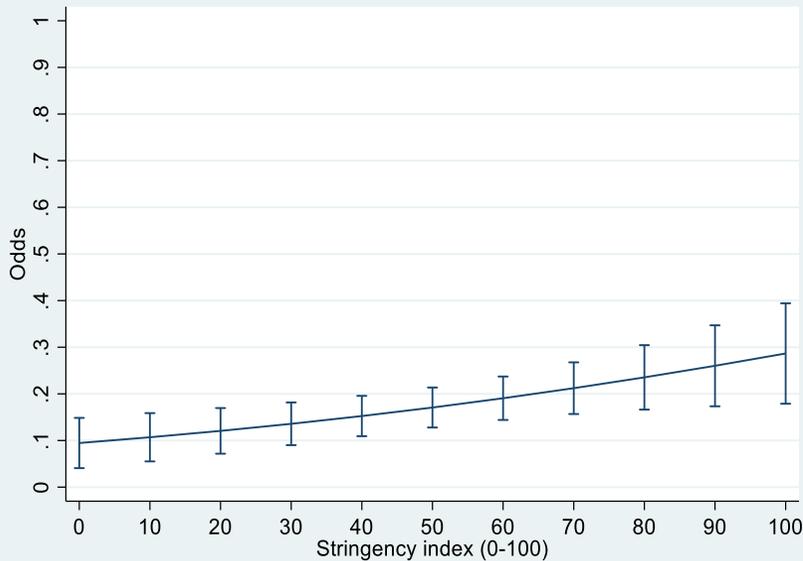
Among self-harm presentations in Mar–April 2020,
when lockdown became more stringent...



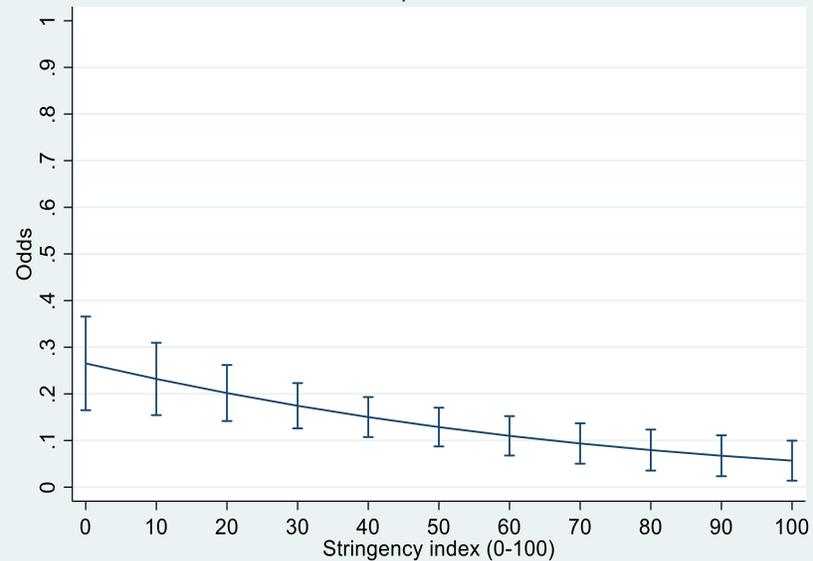
Results: Stringency as predictor

Among self-harm presentations in Mar–April 2020, when lockdown became more stringent, presentation precipitated by...

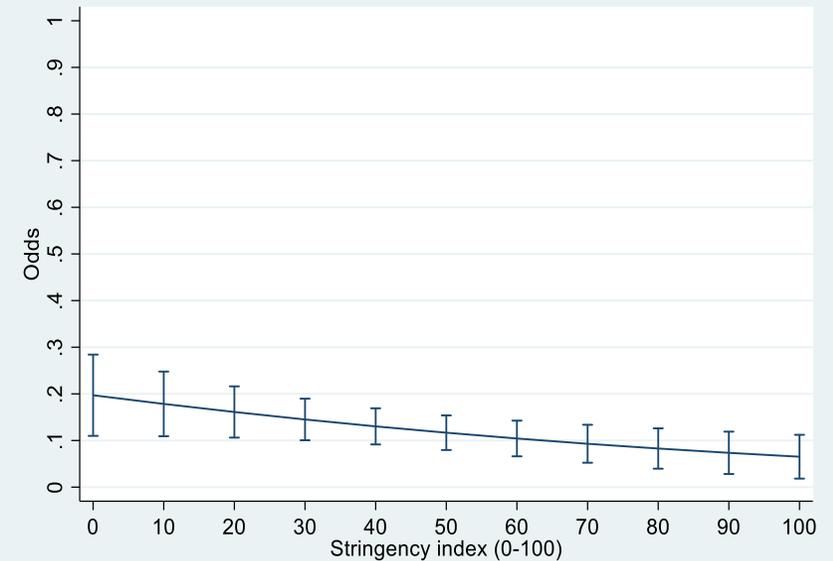
Social isolation



School pressure



Row with a friend



Results: Summary

- Lockdown stringency mediates the reduction in psychiatric emergency and self-harm presentations in 2020 compared to 2019
- Rates of presentations are predicted to have increased in the pandemic if there was no lockdown restriction
- Potential psychosocial inequality
 - Children and adolescents in economically deprived families may be at a disadvantage in accessing mental health services
- Social isolation is an important factor to self-harm presentations in children and adolescents during lockdown

Implications of findings

- Improve healthcare pathways outside hospitals
- Do not prolong physical distancing policies more than needed
- Reduce social isolation in children and adolescents
- Provide a clear rationale for the measures
- Future research:
 - Specific policies
 - Socioeconomic variation
 - Vulnerable populations to prioritise