The impact of the pandemic on mental health

The MHCOVID Project

FNSNF
Swiss National Science Foundation

78 NRP
Covid-19
National Research Programme

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MHCOVID STEERING COMMITEE

MHCOVID About **People** Aim Methods Living Review ▾ 👥 Crowd

Steering committee

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Matthias Egger, University of Bern, Switzerland (Swiss COVID19 Task Force, Swiss National Science Foundation)
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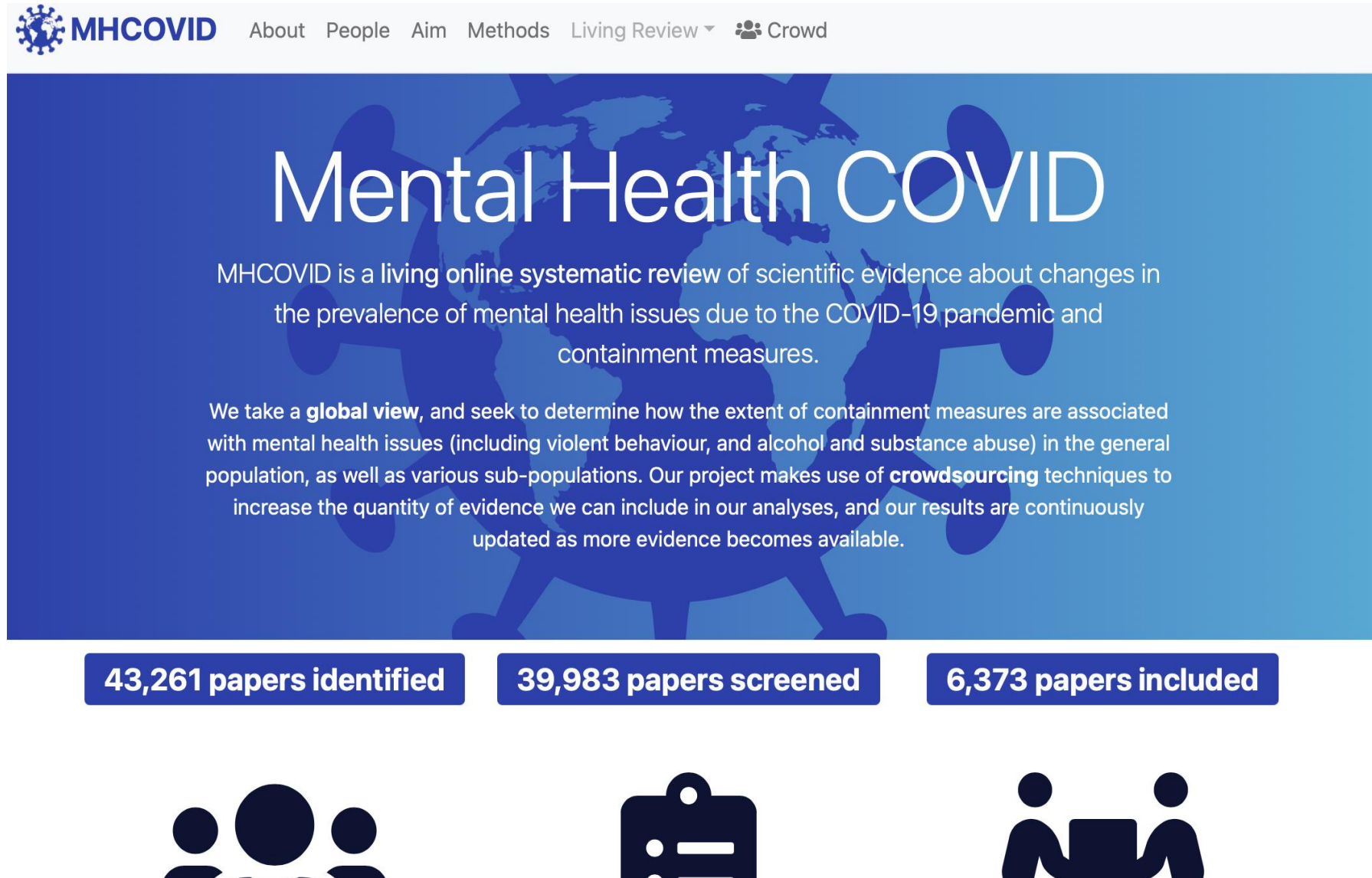**Chunbo Li**, Shanghai Jiao Tong University, China
Vikram Patel, Harvard Medical School, USA
Dominique De Quervain, University of Basel, Switzerland (Swiss COVID19 Task Force)
Simone Vigod, University of Toronto, Canada
Ian White, University College London, UK

MHCOVID website

https://mhcovid.ispm.unibe.ch

Questions that mhcovid aims to answer

- What is the prevalence of mental health problems (*including alcohol/drug abuse and violence)* in the **general population*** and subpopulations worldwide during the COVID-19 pandemic?

- How are mental health problems associated with
  a) characteristics of the pandemic
  b) the extent and intensity of measures to contain the pandemic?
  c) which population characteristics (e.g. sex, age, comorbidities) modify these prevalences.

*not healthcare personnel, COVID19 patients etc

Living online systematic review and meta-ecological study

Outcome:
Mental health during the pandemic

Crowdsourcing

Systematic review of published prevalence studies during the pandemic

Salanti et al., Lancet Psychiatry 2021
Leucht et al. Eur Arch Psych and Clinical Neuroscience 2021
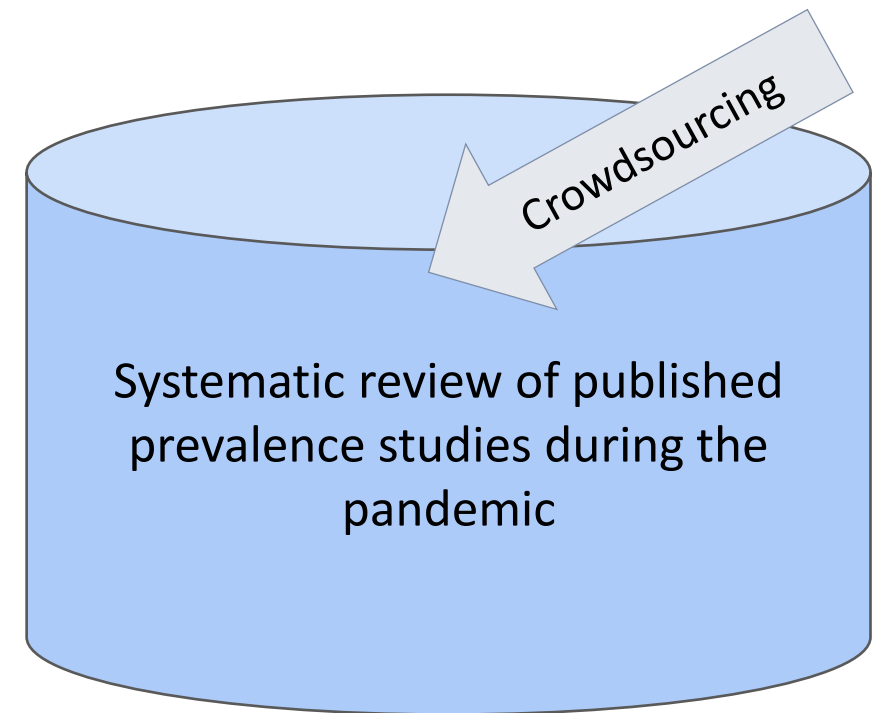
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114 researchers

Our crowd: 66 trained extractors
with experience in mental health and/or systematic reviews

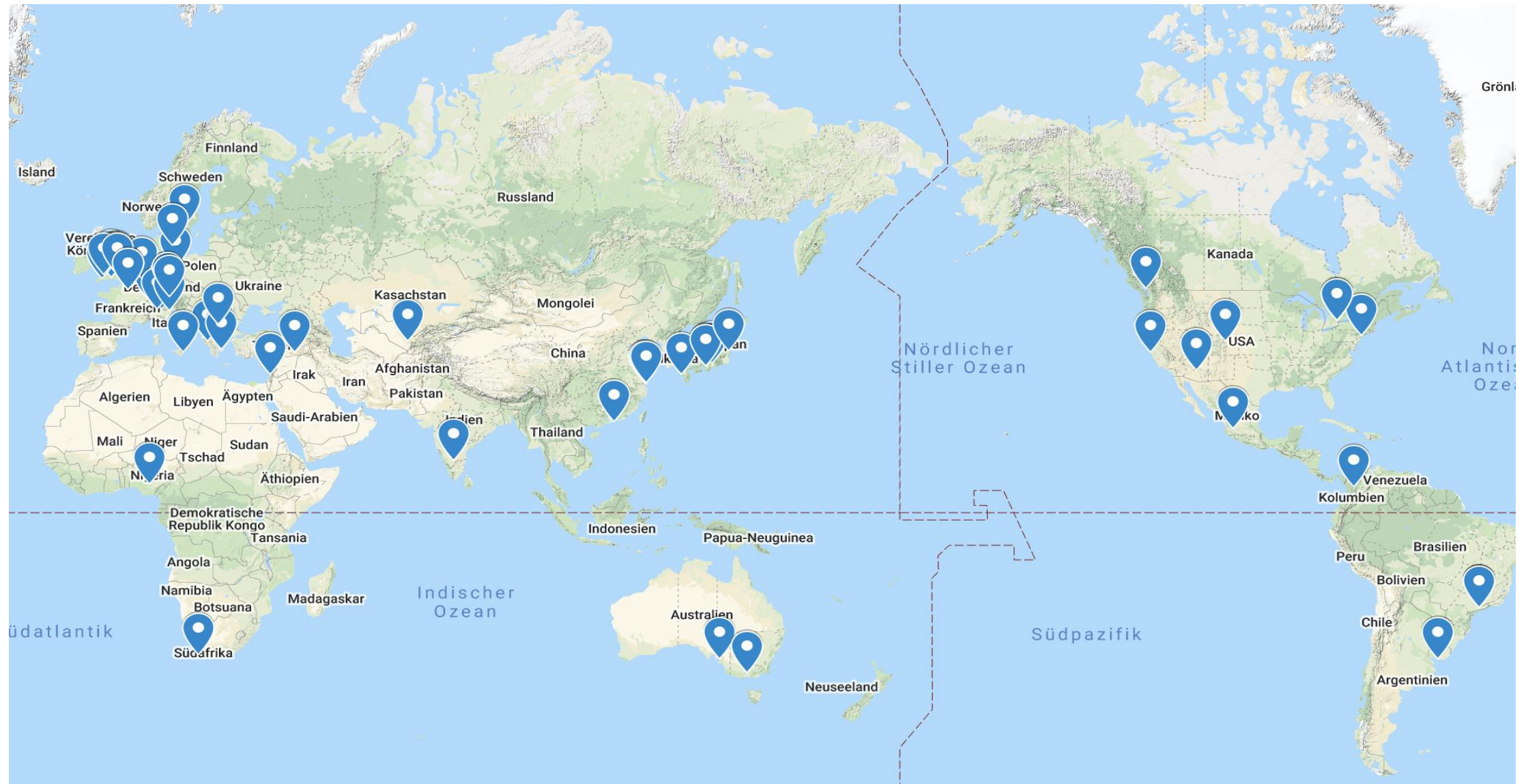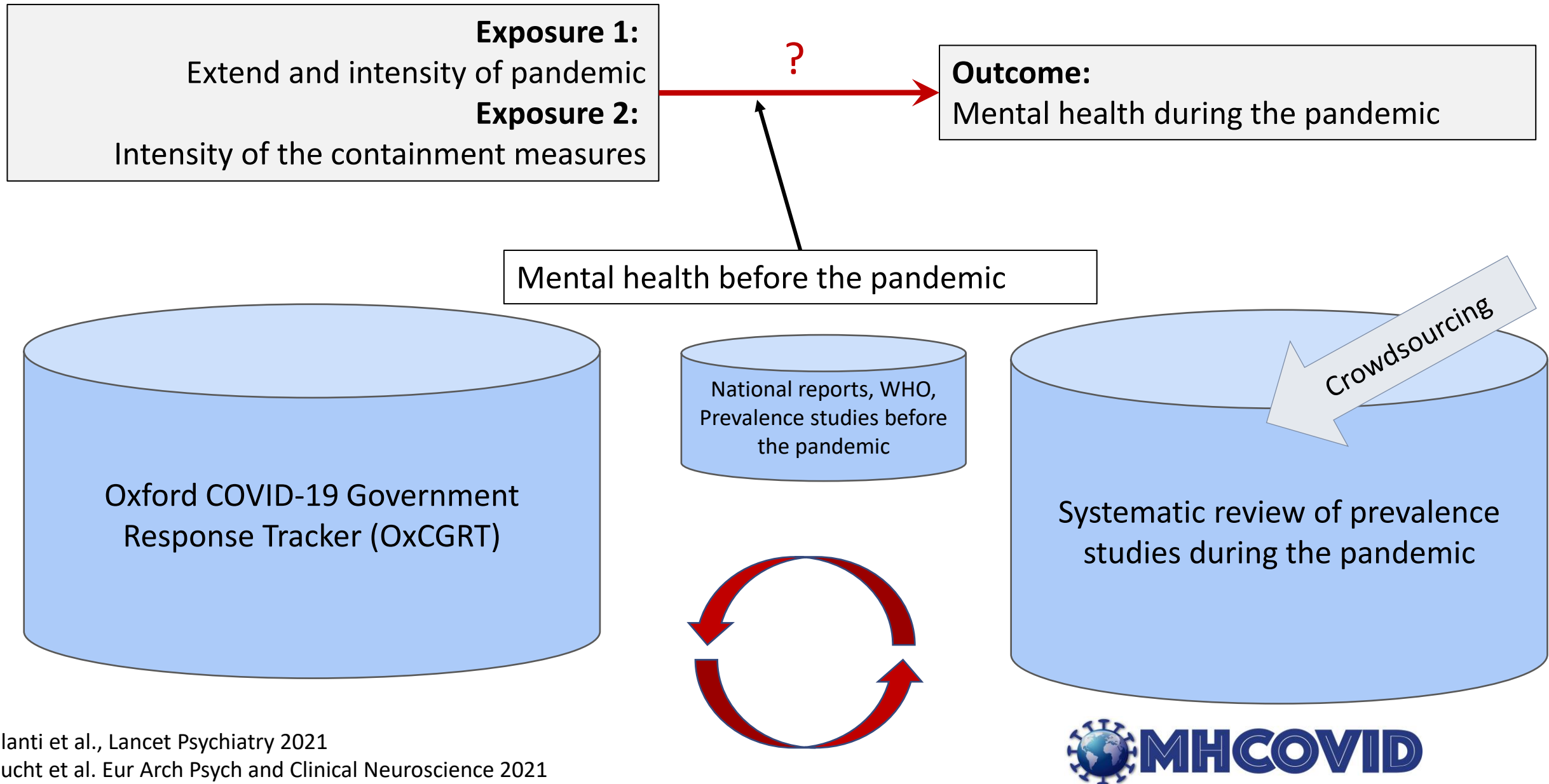|		
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Living online systematic review and meta-ecological study

Exposure 1:
Extend and intensity of pandemic

Exposure 2:
Intensity of the containment measures

?

Outcome:
Mental health during the pandemic

Mental health before the pandemic

Oxford COVID-19 Government Response Tracker (OxCGRT)
information on containment and closure policies, such as school closures and restrictions in movement.

National reports, WHO, Prevalence studies before the pandemic

Systematic review of published prevalence studies during the pandemic

Crowdsourcing

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Living online systematic review and meta-ecological study

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Pandemic of publications

Papers identified and screened since January 2020
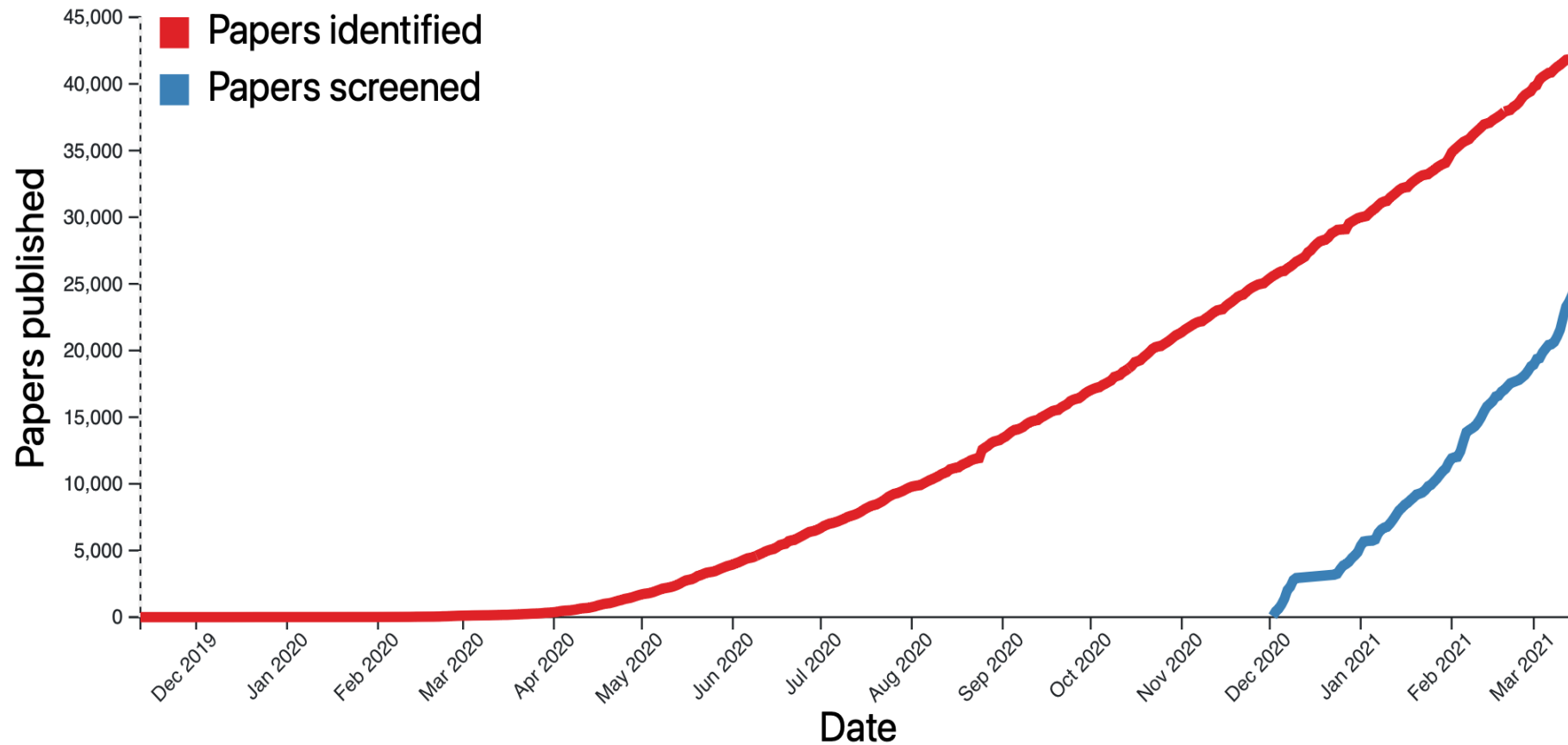
Data extraction

- **Restricted study inclusion criteria to prioritise data extraction**
  - Longitudinal studies
  - Cross-sectional studies with more than 1000 participants
  - Studies that did not use social media to identify participants
- **Dichotomous and continuous outcomes**
  - Nr diagnosed, mean score on a symptomes scale
  - In the study population and subgroups by age and sex
- **Population characteristics** (comorbidities, % of COVID19 cases etc)
- **Risk of bias, design characteristics**
- **Timing of the study**

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First results

Data collected until March 2021

43 205 Identified and screened

4 283 Included

3989 Set aside (lower priority)

164 with outcomes extracted

(*130 more expected*)

More are extracted as we speak!

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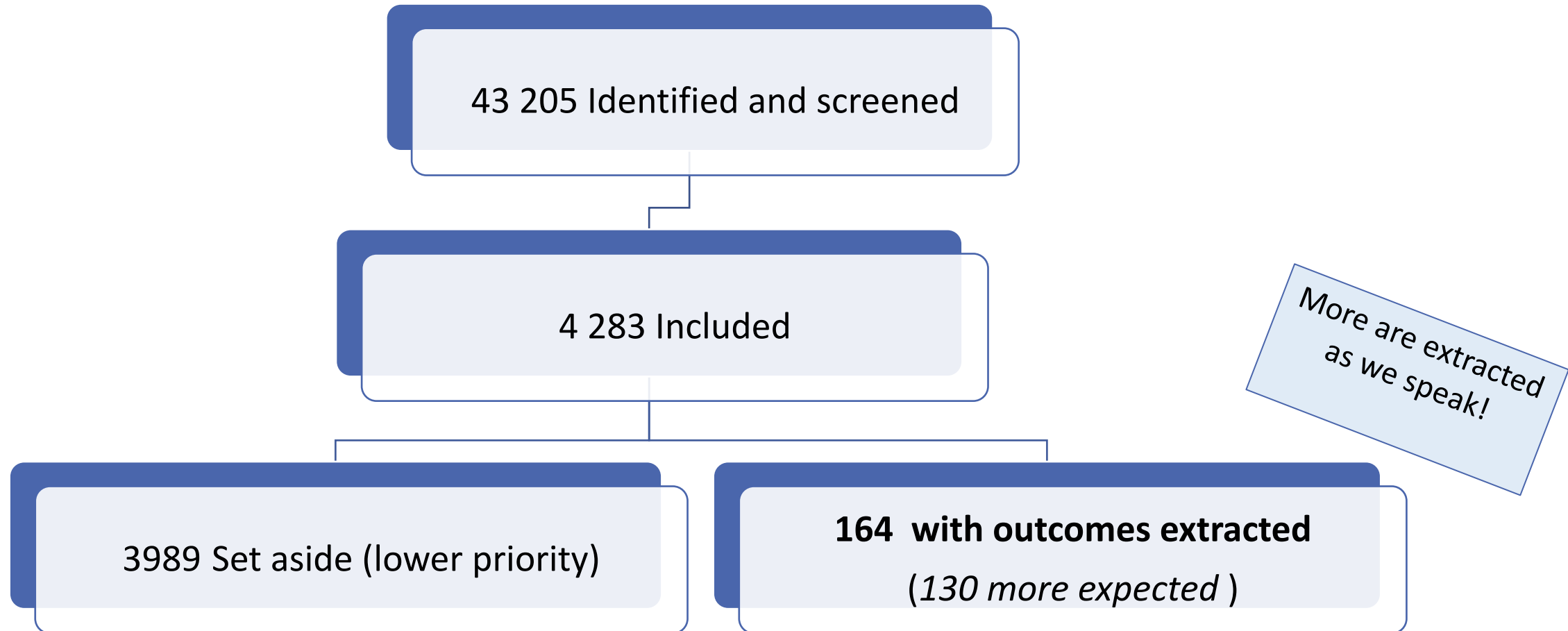
Extract from data

Population	Condition	Scale	Sample Size	Score	SD	Country	Timepoint	Stringency	First Infection	Days in pandemic
Adults	Mental Wellbeing	WHO-5	2458	62	45	Denmark	31.03.20	72.22	27.02.20	33
Adults	Anxiety	GAD-7	5033	11	3.7	China	30.01.20	8.33	22.01.20	8

Stringency index: between 0 and 100 from Oxford Covid19 Gov Resp tracker

   For each timepoint and country we map the stringency of the containment measure

Time spent in the pandemic: The time between study data collection and the timepoint of the first case in the respective country

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Some definitions…

- **Scaled outcome:** To synthesize mean scores of different symptoms scales for the same condition, we need to transform them according to their lower and maximum value
  - *Scaled score 0: No symptoms*
  - *Scaled score 1: Maximum score on symptoms scale*
- **Pandemic data:** those collected in China and HK after 1/1/2020 or after 1/3/2020 for the rest of the world

All	164

Design	
Pandemic data	129
Longitudinal studies	35

Population	Number of studies
Children	7
Adolescents	8
Adults	122
Elderly	20
Mixed	7

164 studies reporting on 49 different mental health outcomes

Condition	Number of studies
Depression	84
Anxiety	74
Depression & Anxiety	31
Sleep disturbance	18

|	median	range
Stringency Index	73	0 to 80
Time spent in the pandemic (days)	53	0 to 224

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Filtering

Condition

- ☑ Anxiety
- ☑ Anxiety 'OR' Depression
- ☑ Depression
- ☑ Depression and Anxiety
- ☑ General screening
- ☑ Mental Wellbeing
- ☑ PTSD
- ☑ Panic
- ☑ Psychological Distress
- ☑ Sleep disturbance

Country

- ☑ Austria
- ☑ Canada
- ☑ China
- ☑ Hong Kong
- ☑ Italy
- ☑ Japan
- ☑ Spain
- ☑ United Kingdom
- ☑ United States
- ☑ Viet Nam

Country–Condition
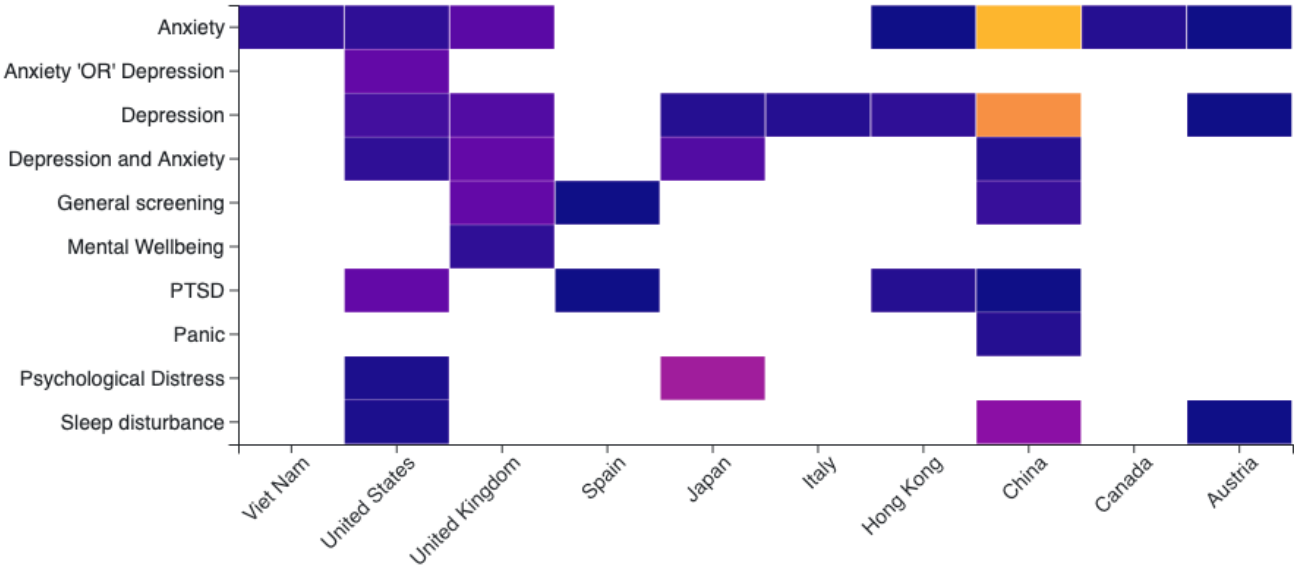
Subgroup–Condition
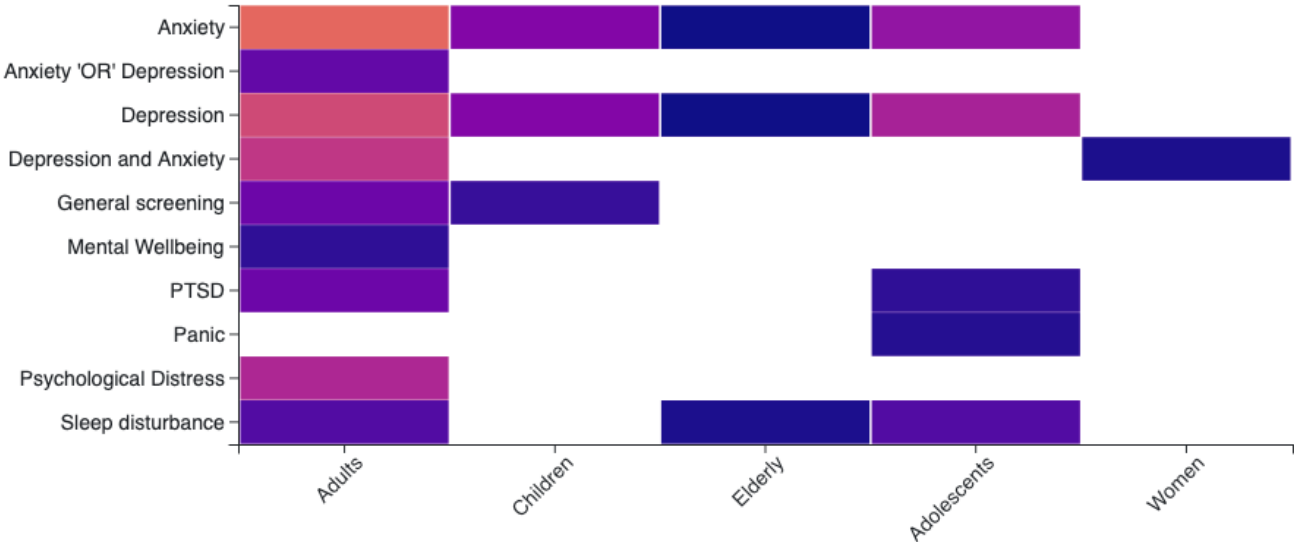
Prevalence vs Stringency

Legend:
- Sleep disturbance
- Psychological Distress
- Panic
- PTSD
- Mental Wellbeing
- General screening
- Depression and Anxiety
- Depression
- Anxiety 'OR' Depression
- Anxiety

Y-axis: Prevalence

X-axis: Stringency
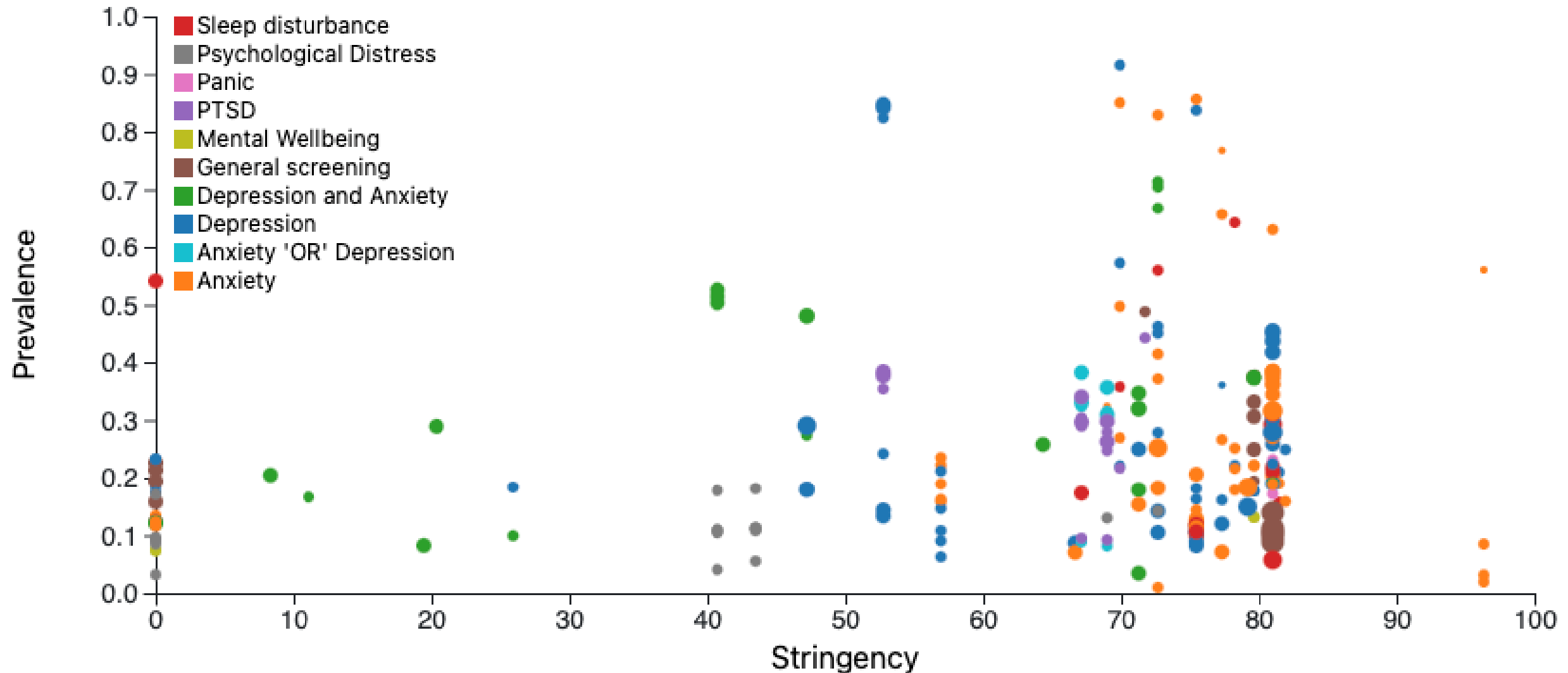
General screening (several conditions)
Sleep disturbance
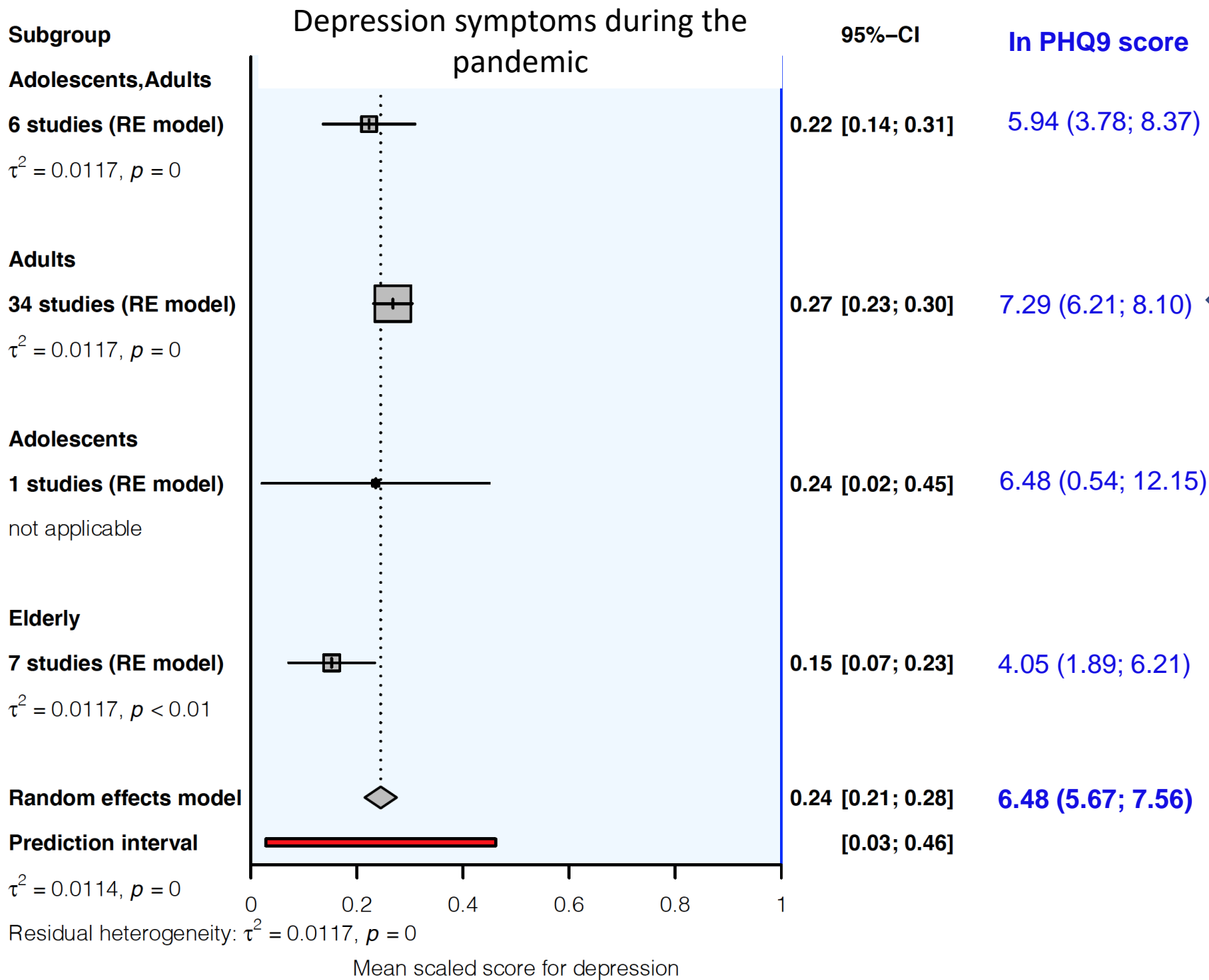Mental Wellbeing

Depression

Alcohol/substance abuse
Post-traumatic stress disorder
Depression and Anxiety
Suicidal thoughts or behaviour

Anxiety

Quality of Life

Depression symptoms during the pandemic

Subgroup		95%–CI	In PHQ9 score
Adolescents,Adults			
6 studies (RE model)		0.22 [0.14; 0.31]	5.94 (3.78; 8.37)
$\tau^2 = 0.0117$, $p = 0$			
Adults			
34 studies (RE model)		0.27 [0.23; 0.30]	7.29 (6.21; 8.10)
$\tau^2 = 0.0117$, $p = 0$			
Adolescents			
1 studies (RE model)		0.24 [0.02; 0.45]	6.48 (0.54; 12.15)
not applicable			
Elderly			
7 studies (RE model)		0.15 [0.07; 0.23]	4.05 (1.89; 6.21)
$\tau^2 = 0.0117$, $p < 0.01$			
Random effects model		0.24 [0.21; 0.28]	**6.48 (5.67; 7.56)**
Prediction interval		[0.03; 0.46]	
$\tau^2 = 0.0114$, $p = 0$			

Residual heterogeneity: $\tau^2 = 0.0117$, $p = 0$

Mean scaled score for depression

subthreshold depression, minor depression, mild depressive symptoms not reaching clinical threshold
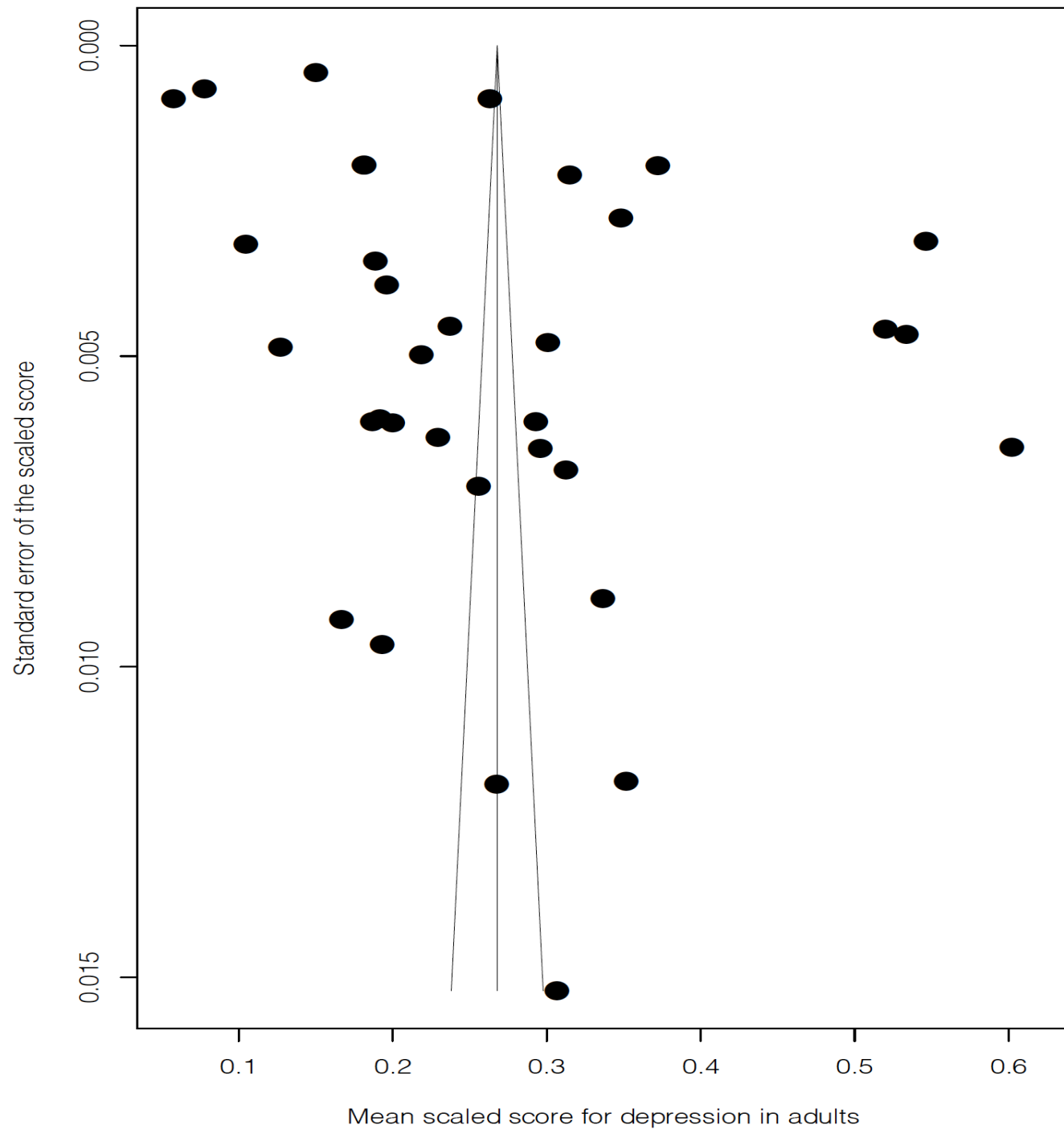
PHQ9 scores
0-4: no depression
5-9: mild depressive symptoms not reaching clinical threshold
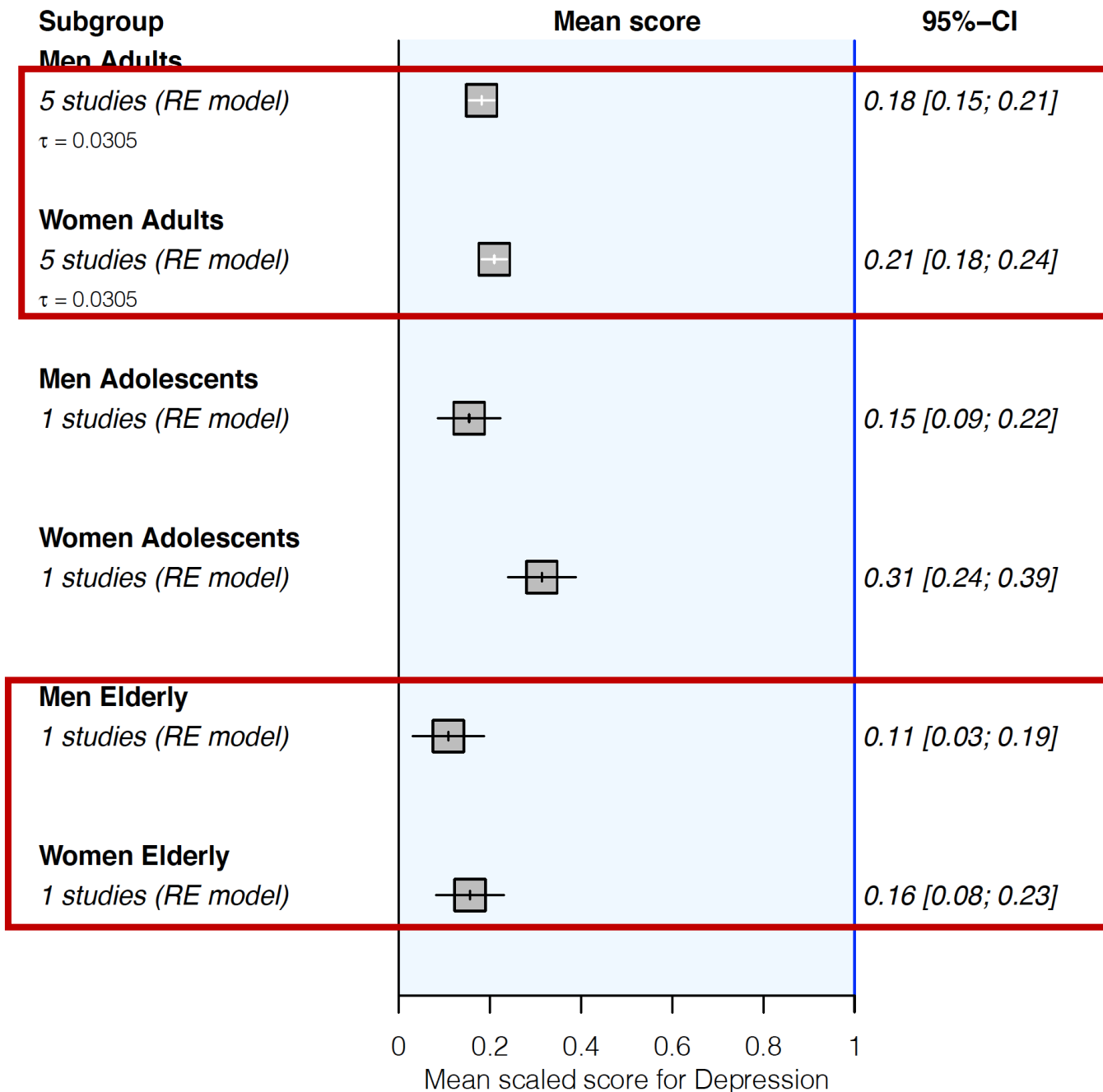10-14: mild major depression
15-19: moderate major depression
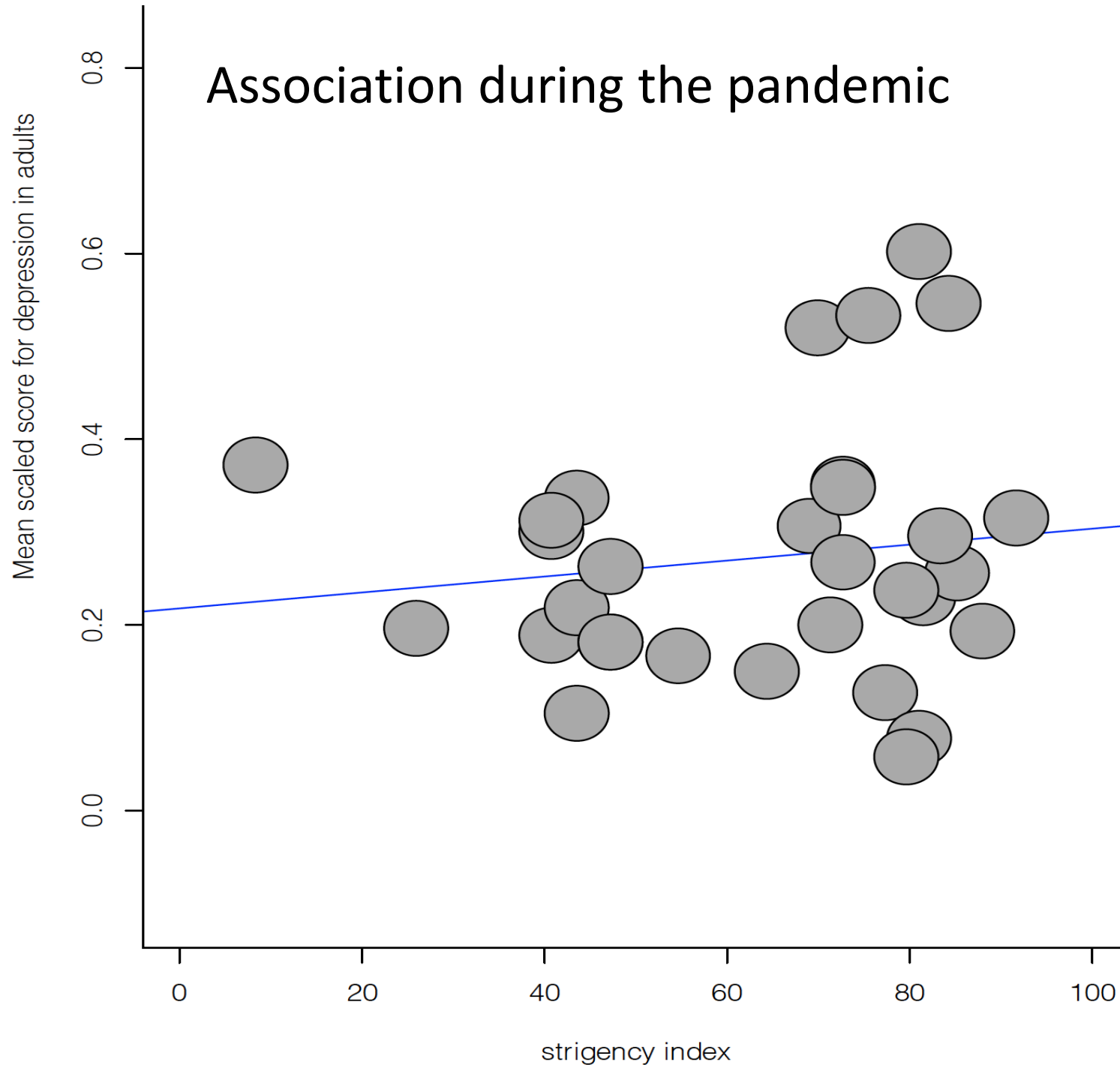20-: severe major depression.

20

Smaller studies exaggerate the mean symptoms?

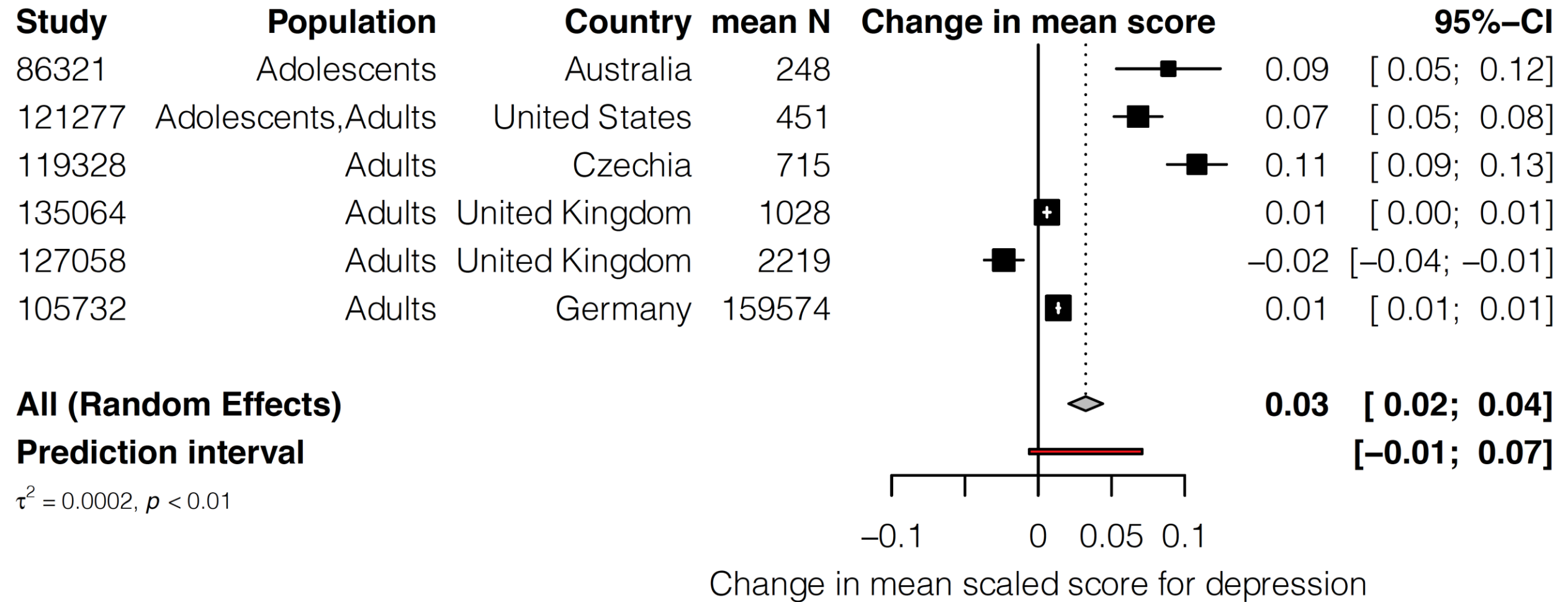Differences in mean depression score men vs women by age group

Total difference in PHQ9 between women and men:
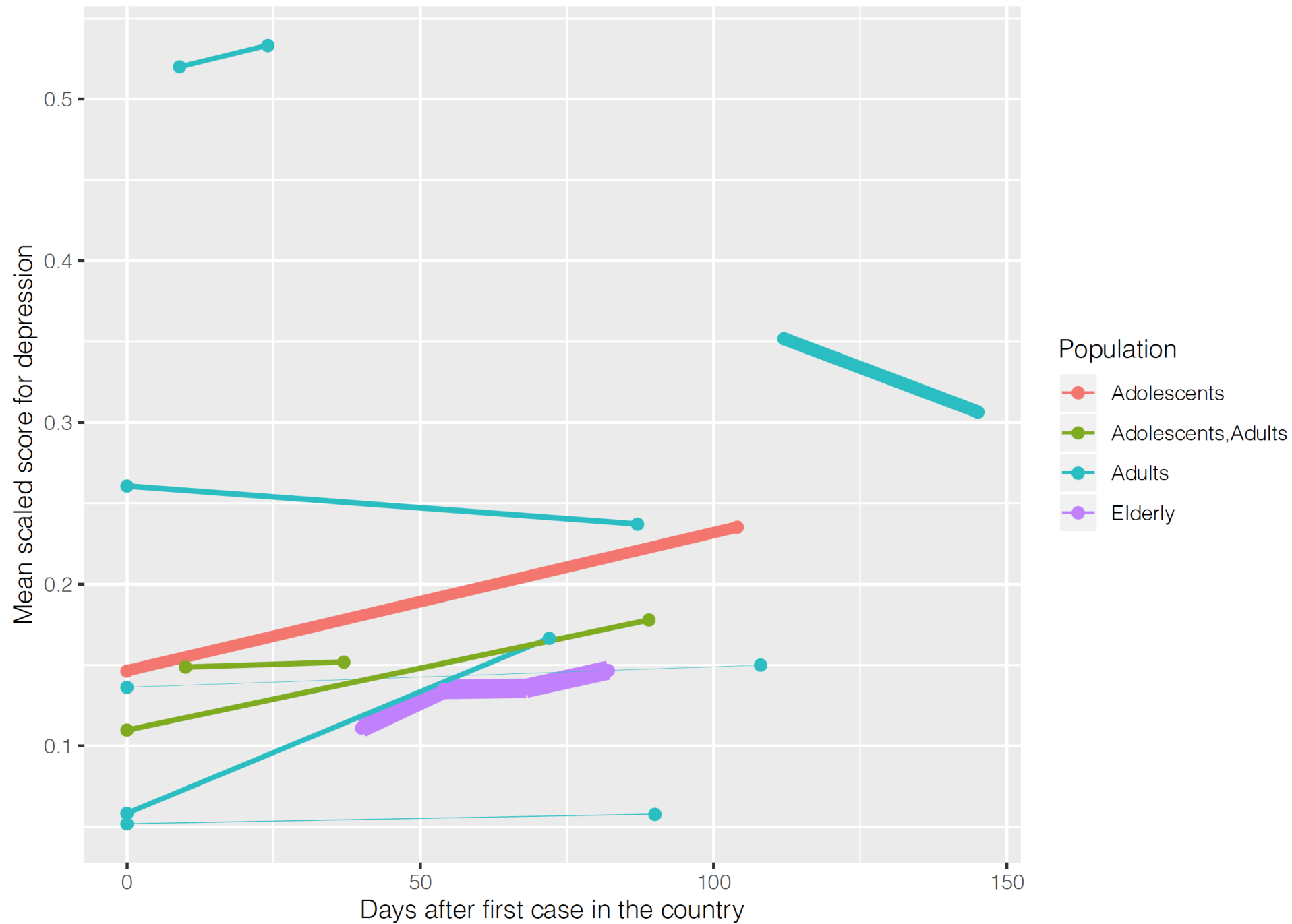1.27 (1.09; 1.49)

Association during the pandemic

for **every 10 units increase in stringency index**,
the mean symptoms **increase by 0.24** in PHQ9 scale

Association difference between before and during the pandemic

Study	Population	Country	mean N	Change in mean score		95%–CI
86321	Adolescents	Australia	248		0.09	[0.05; 0.12]
121277	Adolescents,Adults	United States	451		0.07	[0.05; 0.08]
119328	Adults	Czechia	715		0.11	[0.09; 0.13]
135064	Adults	United Kingdom	1028		0.01	[0.00; 0.01]
127058	Adults	United Kingdom	2219		−0.02	[−0.04; −0.01]
105732	Adults	Germany	159574		0.01	[0.01; 0.01]
All (Random Effects)					**0.03**	**[0.02; 0.04]**
Prediction interval						**[−0.01; 0.07]**

$\tau^2 = 0.0002$, $p < 0.01$

−0.1   0   0.05 0.1

Change in mean scaled score for depression

Mean score from 10 studies between 2015-06-15 and 2020-06-15

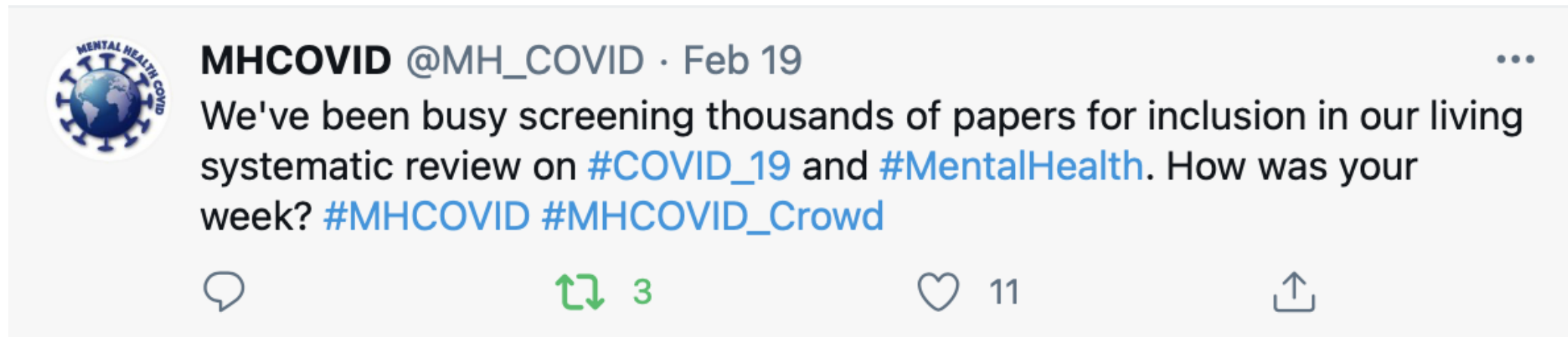Mean score from 10 studies between 2015–06–15 and 2020–06–15
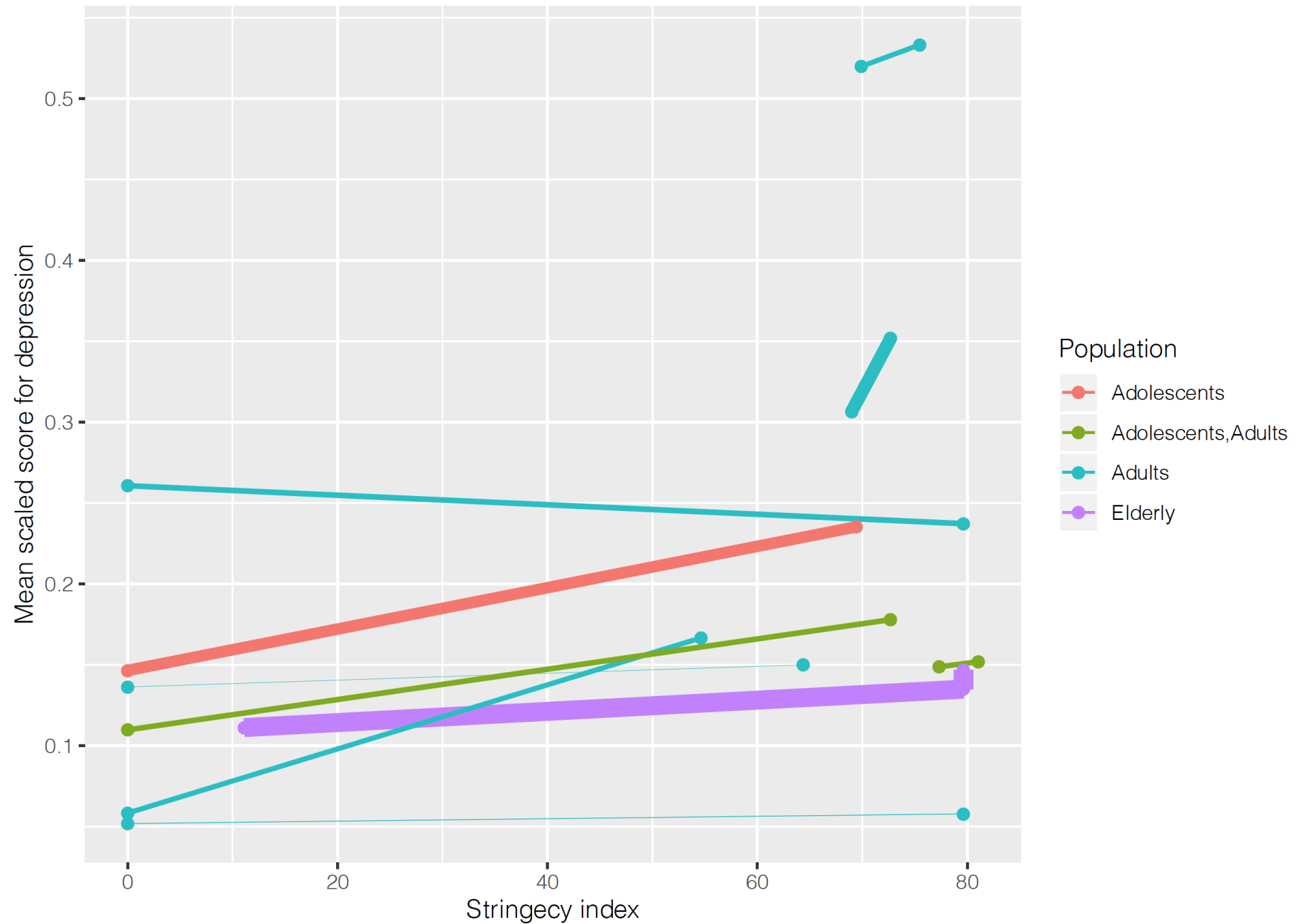
Next steps

- Data are changing as we integrate more studies (*about 130 in the pipeline*)
- The associations are observational
  - Need to account for possible confounders
  - Risk of bias and small study effects
- We need to account for pre-pandemic prevalence/symptoms score in each cross-sectional study
  - Identify pre-pandemic data to match the observed information
- **Challenge:** to keep updating the dataset and motivate the volunteers

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MHCovid on twitter

Account @MH_COVID

> **MHCOVID** @MH_COVID · Feb 19
>
> We've been busy screening thousands of papers for inclusion in our living systematic review on #COVID_19 and #MentalHealth. How was your week? #MHCOVID #MHCOVID_Crowd
>
> 💬   🔁 3   ♡ 11   ⬆️

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