

## INTRODUCTION

Reviews and meta-analyses suggest significantly elevated rates of mental health problems across populations during the COVID-19 pandemic, including in pregnant individuals.<sup>1-2</sup>

Recent studies show that rates of anxiety and depression were highest at pandemic onset and declined thereafter in the general population.<sup>3-4</sup>

- No study examined mental health longitudinally in pregnant individuals.
- No study examined intraindividual change.

## Objectives

- Examine trajectories of depression and anxiety in pregnant individuals during the first wave of COVID-19 (April-July 2020).
- Identify predictors of these trajectories.

## METHOD

### Sample

Participants from the Pan-Canadian Pregnancy during the COVID-19 Pandemic (PdP) study.<sup>5</sup>

- 3747 individuals with a delivery due date after July participated between April and July 2020.
- For adequate covariance coverage, 1842 participants with at least two assessments were included in the current study.

### Measures

- PROMIS® Anxiety Adult 7-item short form.<sup>6</sup>
  - Score range 7-35
  - Scores  $\geq 20$  = clinically concerning anxiety symptoms
- Edinburgh Postpartum Depression Scale.<sup>7</sup>
  - Score range 0-30
  - Scores  $\geq 13$  = clinically concerning depression symptoms
- Predictors include:
  - SES variables (Marital status, University degree, Income)
  - Number of previous pregnancies, any previous miscarriages
  - Pre-pregnancy anxiety and depression diagnoses
  - Weeks until due date on April 1<sup>st</sup>, 2020
  - COVID-19: income change, perceived threat, care concerns
  - Social support and partner support

### Analyses

- Conducted in Mplus v8. FIML for missing data.
- Growth mixture modeling (latent trajectory analysis) to identify trajectories of depression and anxiety and their predictors.

## RESULTS - ANXIETY

Table: Fit indices of trajectory models

	2 classes	3 classes	4 classes	5 classes	6 classes
BIC	24187.829	23915.812	23904.723	23890.246	23898.247
Adjusted	24159.239	23877.691	23857.072	23833.065	23831.535
LMR LRT	0	0	0.07	0.352	0.1
Entropy	0.775	0.709	0.621	0.624	0.627

Figure: Anxiety trajectories

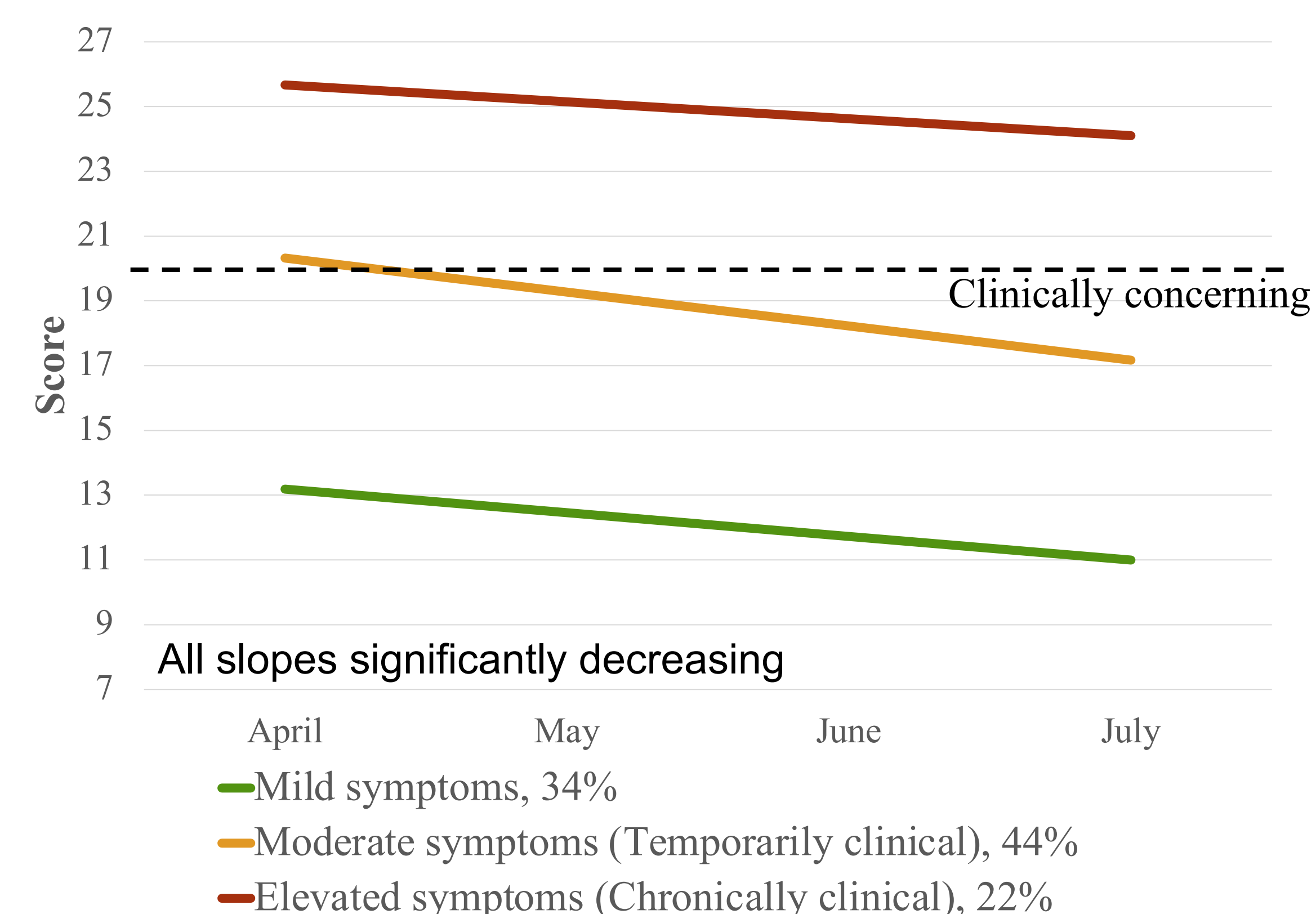


Table: Predictors of anxiety trajectories

	Elevated vs. Mild OR (95% CI)	Moderate vs. Mild OR (95% CI)
Marital status	0.83 (0.09-7.41)	1.47 (0.20-10.74)
University degree	<b>1.70 (1.03-2.79)</b>	1.33 (0.90-1.98)
Income	0.91 (0.81-1.01)	0.97 (0.90-1.04)
# Previous pregnancies	1.07 (0.88-1.32)	1.07 (0.93-1.25)
Previous miscarriage	0.85 (0.46-1.56)	0.96 (0.62-1.50)
Anxiety dx pre-pregnancy	<b>15.58 (9.26-26.23)</b>	<b>4.04 (2.72-5.99)</b>
Depression dx pre-pregnancy	1.50 (0.81-2.76)	1.37 (0.79-2.37)
Weeks until due date (04/01)	<b>1.04 (1.01-1.07)</b>	1.02 (0.99-1.04)
Income change (COVID-19)	0.91 (0.81-1.01)	0.91 (0.75-1.11)
Perceived threat (COVID-19)	<b>1.05 (1.04-1.07)</b>	<b>1.03 (1.02-1.04)</b>
Quality of care concerns	<b>1.03 (1.02-1.04)</b>	<b>1.02 (1.01-1.02)</b>
Social support	<b>0.34 (0.21-0.56)</b>	<b>0.61 (0.41-0.91)</b>
Partner support	<b>0.38 (0.27-0.54)</b>	<b>0.55 (0.42-0.73)</b>

## RESULTS - DEPRESSION

Table: Fit indices of trajectory models

	2 classes	3 classes	4 classes	5 classes	6 classes
BIC	23993.006	23677.007	23571.961	23563.546	23554.667
Adjusted	23964.415	23638.886	23524.31	23506.364	23487.955
LMR LRT	0	0.0014	0.0001	0.3766	0.0587
Entropy	0.745	0.73	0.698	0.639	0.648

Figure: Depression trajectories

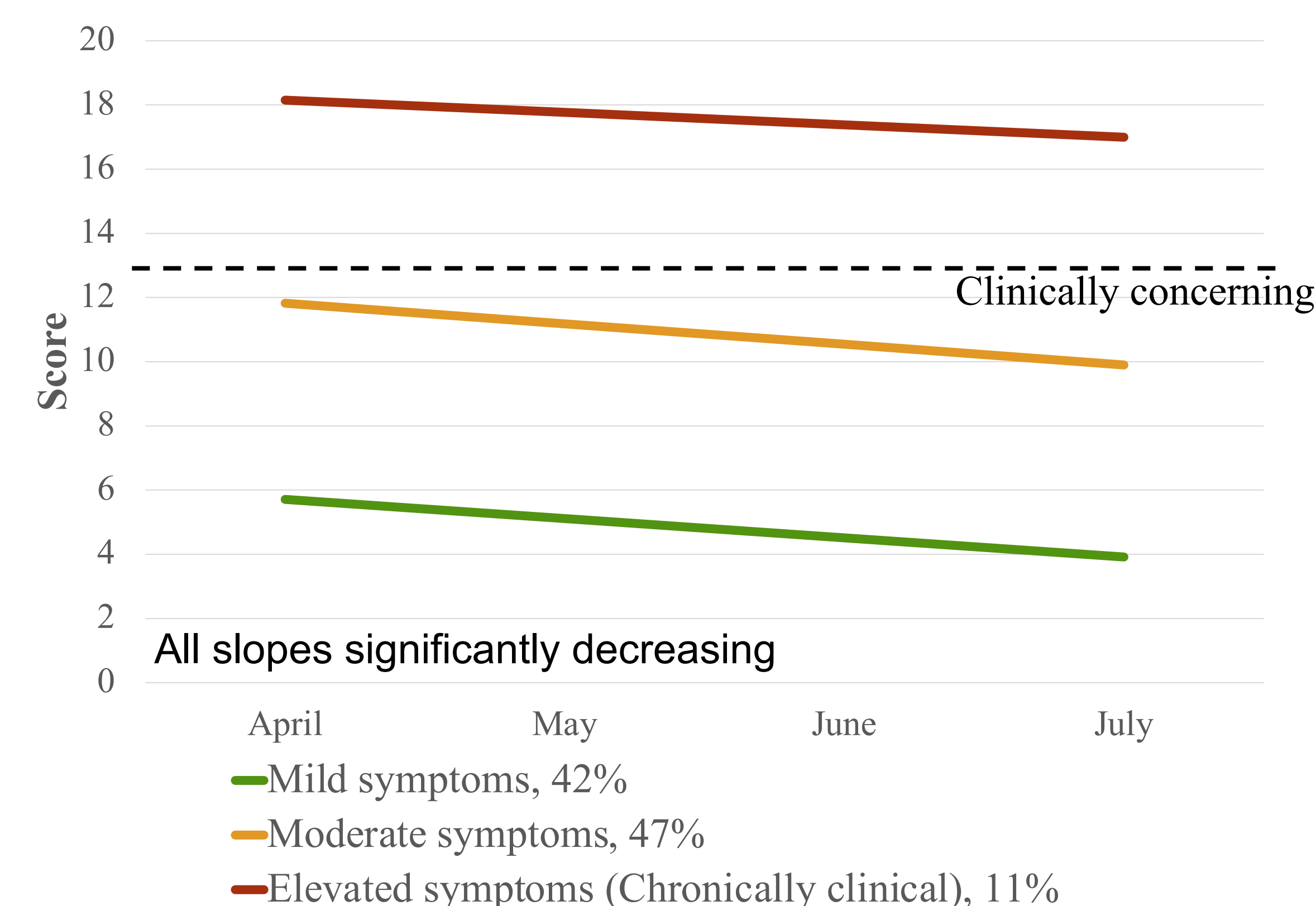


Table: Predictors of depression trajectories

	Elevated vs. Mild OR (95% CI)	Moderate vs. Mild OR (95% CI)
Marital status	0.93 (0.11-7.98)	0.71 (0.10-4.91)
University degree	1.08 (0.63-1.86)	1.24 (0.83-1.86)
Income	0.89 (0.77-0.98)	0.93 (0.86-1.01)
# Previous pregnancies	1.21 (0.94-1.56)	1.05 (0.87-1.25)
Previous miscarriage	0.64 (0.31-1.32)	0.74 (0.46-1.18)
Anxiety dx pre-pregnancy	<b>6.91 (0.63-1.86)</b>	<b>3.90 (2.70-5.64)</b>
Depression dx pre-pregnancy	<b>3.08 (1.61-5.89)</b>	1.08 (0.64-1.82)
Weeks until due date (04/01)	1.00 (0.96-1.04)	1.00 (0.97-1.02)
Income change (COVID-19)	<b>0.73 (0.55-0.98)</b>	<b>0.82 (0.67-0.99)</b>
Perceived threat (COVID-19)	<b>1.05 (1.03-1.06)</b>	<b>1.03 (1.02-1.03)</b>
Quality of care concerns	<b>1.03 (1.02-1.04)</b>	<b>1.02 (1.01-1.02)</b>
Social support	<b>0.20 (0.11-0.35)</b>	<b>0.43 (0.27-0.68)</b>
Partner support	<b>0.28 (0.19-0.41)</b>	<b>0.46 (0.35-0.60)</b>

## DISCUSSION

### Anxiety and depression during the first wave of COVID-19

- No qualitative differences in growth patterns - overall decline.
- Average symptom level remains high vs. pre-pandemic.

### Predictors of anxiety and depression

- Strongest predictors of anxiety and depression symptoms:
  - Pre-pregnancy anxiety diagnosis
  - Social and partner support
- Income change due to COVID-19 and pre-pregnancy depression diagnosis increase the odds of depression symptoms only.
- Having a University degree is associated with increased odds of elevated anxiety symptoms only.
- Perceived threat from COVID-19 and quality of care concerns are associated with anxiety and depression, but the effect size is very small (little clinical significance).

### Implications

- Pre-pregnancy mental health, especially anxiety symptoms, could help identify individuals at higher risk of mental health problems during pregnancy.
- Social support could be an effective intervention target for improved mental health during pregnancy.

### Limitations

- Changes during subsequent COVID-19 waves are unknown.
- All data is self-reported. All associations are correlational.

## REFERENCES

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