

INTRODUCTION

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

Recent studies show that rates of anxiety and depression were highest at pandemic onset and declined thereafter in the general population.³⁻⁴

- 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.⁵

- 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.⁶
 - Score range 7-35
 - Scores ≥ 20 = clinically concerning anxiety symptoms
- Edinburgh Postpartum Depression Scale.⁷
 - Score range 0-30
 - Scores ≥ 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 1st, 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

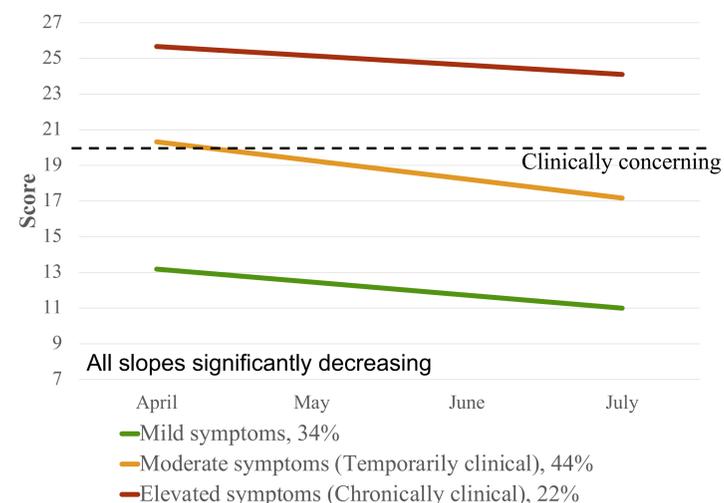


Table: Predictors of anxiety trajectories

	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	1.70 (1.03-2.79)	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	15.58 (9.26-26.23)	4.04 (2.72-5.99)
Depression dx pre-pregnancy	1.50 (0.81-2.76)	1.37 (0.79-2.37)
Weeks until due date (04/01)	1.04 (1.01-1.07)	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)	1.05 (1.04-1.07)	1.03 (1.02-1.04)
Quality of care concerns	1.03 (1.02-1.04)	1.02 (1.01-1.02)
Social support	0.34 (0.21-0.56)	0.61 (0.41-0.91)
Partner support	0.38 (0.27-0.54)	0.55 (0.42-0.73)

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

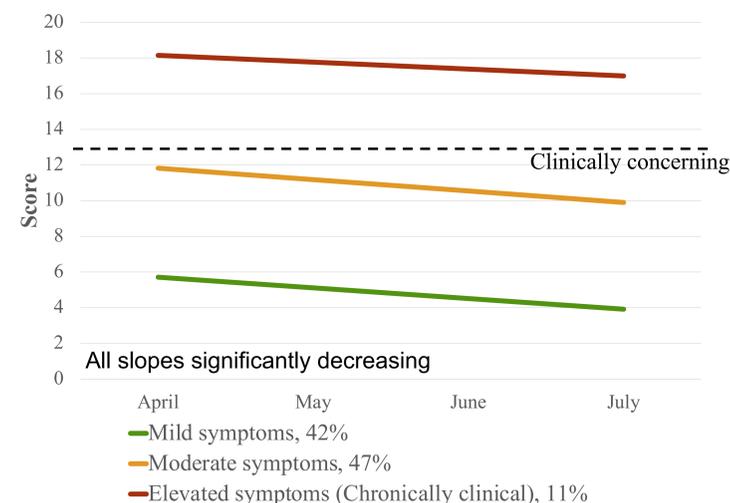


Table: Predictors of depression trajectories

	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	6.91 (0.63-1.86)	3.90 (2.70-5.64)
Depression dx pre-pregnancy	3.08 (1.61-5.89)	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)	0.73 (0.55-0.98)	0.82 (0.67-0.99)
Perceived threat (COVID-19)	1.05 (1.03-1.06)	1.03 (1.02-1.03)
Quality of care concerns	1.03 (1.02-1.04)	1.02 (1.01-1.02)
Social support	0.20 (0.11-0.35)	0.43 (0.27-0.68)
Partner support	0.28 (0.19-0.41)	0.46 (0.35-0.60)

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

- Tomfohr-Madsen et al. (2021). Depression and anxiety in pregnancy during COVID-19: A rapid review and meta-analysis. *Psychiatry Research*.
- Salari et al. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Globalization and health*.
- Daly & Robinson. (2021). Psychological distress and adaptation to the COVID-19 crisis in the United States. *Journal of psychiatric research*.
- Daly, & Robinson. (2021). Longitudinal changes in psychological distress in the UK from 2019 to September 2020 during the COVID-19 pandemic: Evidence from a large nationally representative study. *PsyArXiv*.
- Giesbrecht et al. (2020). Protocol for the Canadian Pregnancy During the COVID-19 Pandemic study. *PsyArXiv*.
- Pilkonis et al. (2011). Item banks for measuring emotional distress from the Patient-Reported Outcomes Measurement Information System (PROMIS®): depression, anxiety, and anger. *Assessment*.
- Cox et al. (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *The British journal of psychiatry*.

ACKNOWLEDGEMENTS

Fonds de Recherche du Québec – Santé (CR)
Canadian Institutes of Health Research (CR)
Canada Research Chair Program (CL)
Canadian Child Health Clinician Scientist Program (LTM)