

Pandemic mindfulness: is there a difference in pregnancy and birth outcomes between women practicing relaxation techniques or not?

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Background

- COVID-19 pandemic experience is a factor contributing to the **elevated psychological stress** and **anxiety levels** in pregnant women
(Preis et al., 2020; Boekhorst et al., 2021)
- **Higher maternal stress** leads to **adverse child outcomes**, e.g. lower birth weight, suboptimal brain development, biological aging, etc.
(Nkansah-Amankra et al., 2010; Entringer et al., 2013; Tate et al., 2015)
- **Maternal mindfulness activities** during pregnancy were previously presented as **protective factors** against health, socio-emotional and behavioral disturbances in children
(Van den Heuvel et al., 2015; Nyklíček et al., 2018; Ostlund et al., 2021)

Aim

To explore the association between **practicing mindfulness techniques** by women pregnant at the time of the COVID-19 pandemic and their **pregnancy duration and birth outcomes**

HYPOTHESIS: practicing mindfulness techniques → better pregnancy and birth outcomes



Materials and Methods

Participants

- **466** Polish women pregnant at the time of COVID-19 pandemic
- Mean age **30.7** (SD 3.62)
- Recruitment: **May-December 2020**

Collected data

Online questionnaire:

- Practicing relaxation techniques (yes/no + how often): yoga, meditation, relaxing music
- Maternal age and BMI, pregnancy complications, sex of the baby

Birth records:

- Birth weight (g)
- Birth length (cm)
- Head circumference (cm)
- Gestational age at birth (weeks)

Statistical analyses

- **General Linear Models** with categorical variables → women compared based on:

A. the fact of practicing mindfulness techniques

B. the frequency of practicing mindfulness techniques (4 categories)

- **Covariates:** maternal age, maternal BMI, pregnancy complications, sex of the baby, duration of the gestation *

*depending on the model

Exclusion criteria

- Smoking, drinking alcohol while pregnant
- Twin pregnancy
- Birth weight <2.5 kg
- <37 weeks of pregnancy

Practicing mindfulness techniques (yes/no)

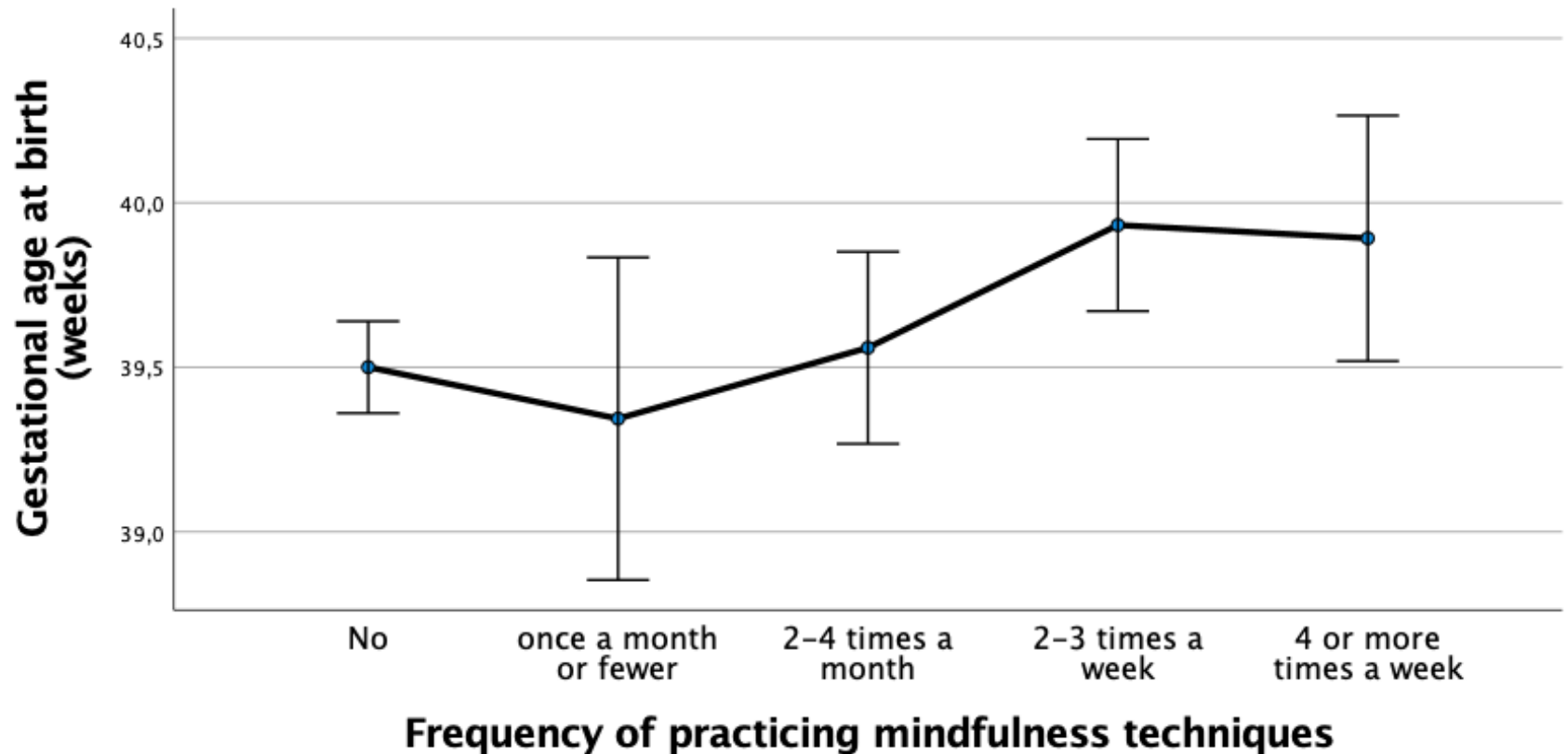
„no” n=268; „yes” n=198

	F	p	η^2
Gestational age at birth (weeks) Full model: $p=0.049$; $\eta^2=0.024$	5.13	0.02	0.011
Birth weight (g) Full model: $p<0.001$; $\eta^2=0.167$	0.95	0.33	0.002
Birth length (cm) Full model: $p<0.001$; $\eta^2=0.103$	0.99	0.32	0.002
Head circumference (cm) Full model: $p=0.004$; $\eta^2=0.043$	0.09	0.76	0.001

Frequency of practicing mindfulness techniques (4 categories of frequency)

”no” n=268; ”once a month” n=22; „2-4 times a month” n=61; „2-3 times a week” n=78; „4 or more times a week” n=37

Gestational age at birth (weeks) Full model: $p=0.022$; $\eta^2=0.038$	2.98	0.02	0.025
Birth weight (g) Full model: $p<0.001$; $\eta^2=0.172$	0.954	0.43	0.008
Birth length (cm) Full model: $p<0.001$; $\eta^2=0.113$	1.495	0.20	0.013
Head circumference (cm) Full model: $p=0.010$; $\eta^2=0.050$	0.705	0.59	0.007



Covariates: maternal age, pre-pregnancy BMI, pregnancy complications, sex of the baby

Whiskers represent 95%CI

Post-hoc test with Bonferroni correction: significant difference between groups „No” and „2-3 times a week” ($p=0.04$)

Summary

- **Pregnant women who practiced mindfulness techniques** (including the frequency of the practice) **gave birth later** on the average than women who did not practice relaxation (however, the observed effect size was small)
- **No difference** was observed for the birth measurements
- These preliminary results shed a light on a **potential contribution** of mindfulness practices to **optimal pregnancy length**, especially in the highly stressful COVID-19 pandemic context

Future research directions

- **Experimental** studies (interventions)
- Different mindfulness techniques **analyzed separately**
- **More advanced** predictors of child growth and pregnancy course