Influence of maternal education on prenatal parenting: initial findings of Cohort ’18

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What did we find?

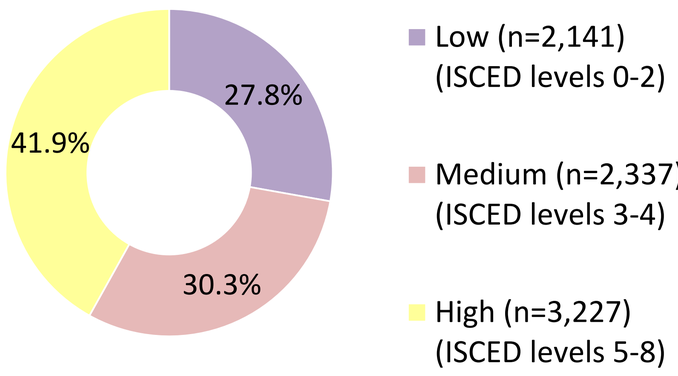
- Mothers’ level of education was associated to prenatal parenting.
- Pregnant women with low, medium and high levels of education differed significantly, regarding their level of generalized- and pregnancy-specific anxiety, depression, unhealthy diet, and the share of smokers, in each age groups. Thus, lower levels of education proved to be risk factors in case of prenatal mental health, diet and smoking.
- On the other hand, women with high and medium level of education had statistically equal levels of maternal-fetal attachment, regardless of age group, with a significantly higher score, than assessed among women with low level of education.

Introduction

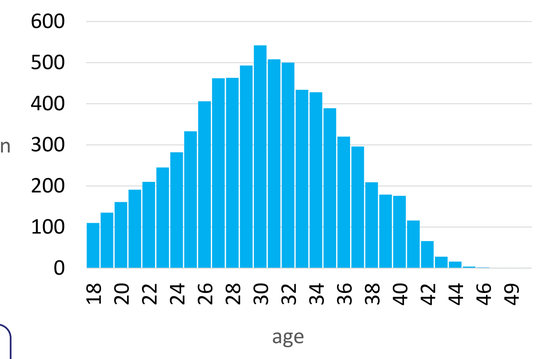
- Prenatal parenting includes bonding with the baby and biological effects on fetal development [1], such as the mother’s anxiety, depression and risk behaviors.
- Maternal age and education had low effect sizes predicting maternal-fetal attachment [2], though most studies were conducted on small, homogenous samples [3].
- Lower level of education and younger maternal age are consequent determinants of smoking [4] and unhealthy diet during pregnancy [5], while maternal education showed low level of associations with prenatal depression [6] and inconsistent relationship with antenatal anxiety [7].

Our aim was to assess the associations between prenatal parenting and maternal education through a representative study of the growth and development of children in Hungary.

Mothers’ level of education



Mothers’ age



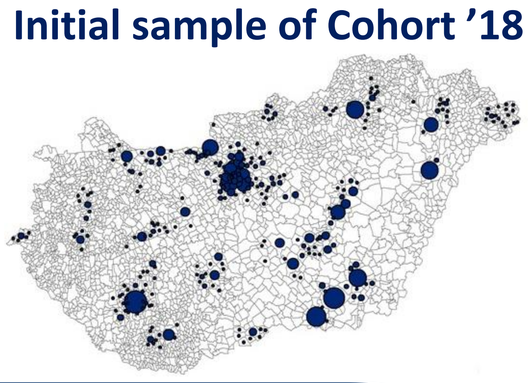
Methods

- Sample
  - N = 7,705 pregnant women in the third trimester of their pregnancy
  - Mean gestational age was 30.27 weeks (SD=2.04)
  - Mean age was 30.13 years (SD=5.68)
- Measurements
  - Generalized Anxiety Disorder (GAD)-2 scale [8]
  - 9 items from the Pregnancy Related Thoughts scale [9]
  - 8-items [10] from the Center for Epidemiologic Studies – Depression
  - 20-item version [11] of the Maternal–Fetal Attachment Scale [12]
  - Modified, 9-item version of the Starting the Conversation scale [13]
  - Prenatal smoking was measured on a 6-point scale (1=none, 6=20< cigarettes a day), and was dichotomized afterwards (0=none, 1=yes)

Cohort’ 18 Growing Up in Hungary

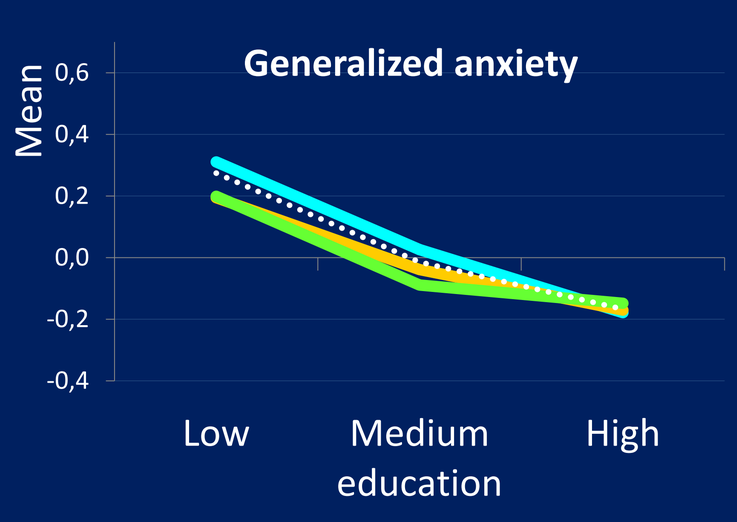
- The source of data was the prenatal wave of Cohort ’18 - Growing Up in Hungary.
- Cohort ’18 is a large-scale, longitudinal survey initiated by the Hungarian Demographic Research Institute (HDRI) of the Hungarian Central Statistical Office (HCSO)[3], with the objective to provide a comprehensive overview (including health and development, demographic characteristics and social background) of children growing up in Hungary, and the influencing factors.
- Reference population of the Cohort ’18 was defined as children born in Hungary between April 1, 2018 and April 30, 2019, and their families.
- Primary sampling units were health-visitor districts: a stratified random sample of 650 districts were selected for the study.
- The first, prenatal wave of Cohort ’18 will be followed by three prospective research waves, at the ages of six months, 18 months and three years old.

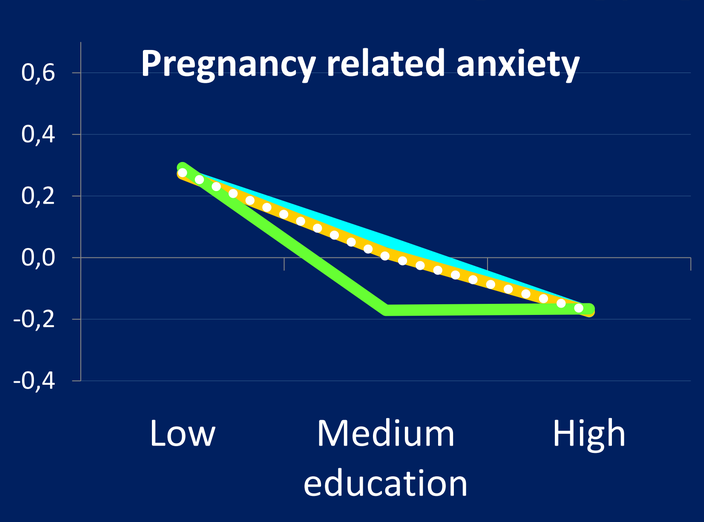
Initial sample of Cohort ’18

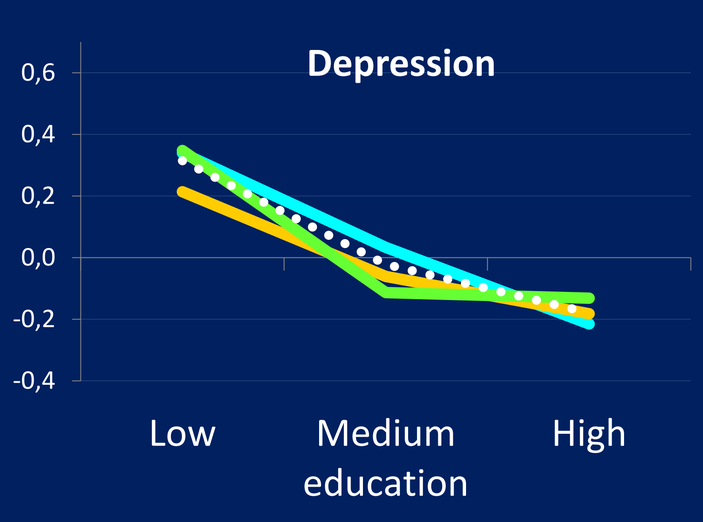


Results: comparison of standardized means of maternal outcomes by education and age groups

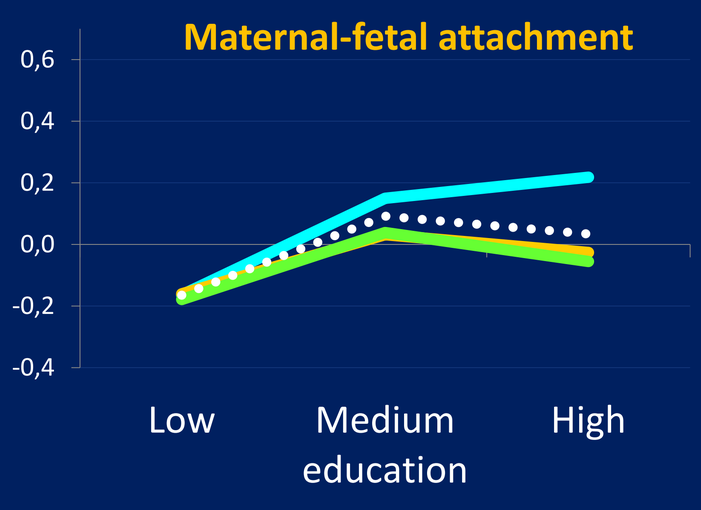
Maternal emotional well-being during pregnancy

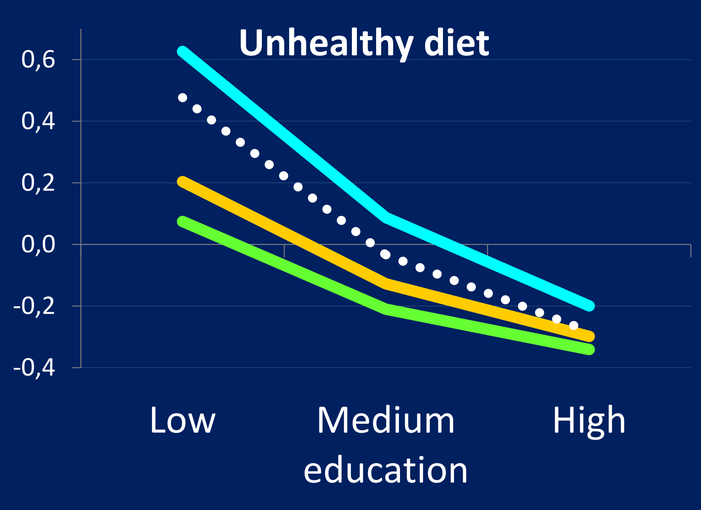


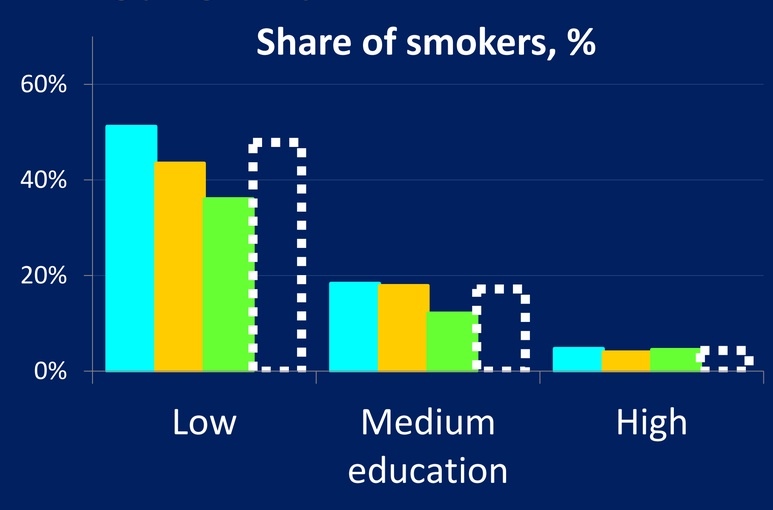




Risk behavior during pregnancy







18-25y 26-34y 35-49y All

Notes

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References

[1] Glover, V., & Capron, L. (2017). Prenatal parenting. Current Opinion in Psychology, 15, 66–70. [2] Yarcheski, A., Mahon, N. E., Yarcheski, T. J., Hanks, M. M., & Cannella, B. L. (2009). A meta-analytic study of predictors of maternal-fetal attachment. International Journal of Nursing Studies, 46(5), 708–715. [3] Alhusen, J. L. (2008). A Literature Update on Maternal-Fetal Attachment. Journal of Obstetric, Gynecologic & Neonatal Nursing, 37(3), 315–328. [4] Lu, Y., Tong, S., & Oldenburg, B. (2001). Determinants of smoking and cessation during and after pregnancy. Health Promotion International, 16(4), 355–366. [5] McGowan, C. A., & McAuliffe, F. M. (2013). Maternal dietary patterns and associated nutrient intakes during each trimester of pregnancy. Public Health Nutrition, 16(1), 97–107. [6] Lancaster, C. A., Gold, K. J., Flynn, H. A., Yoo, H., Marcus, S. M., & Davis, M. M. (2010). Risk factors for depressive symptoms during pregnancy: a systematic review. American Journal of Obstetrics and Gynecology, 202(1), 5–14. [7] Bayrampour, H., Vinturache, A., Hetherington, E., Lorenzetti, D. L., & Tough, S. (2018). Risk factors for antenatal anxiety: A systematic review of the literature, Journal of Reproductive and Infant Psychology, DOI: 10.1080/02646838.2018.1492097 [8] Kroenke, K., Spitzer, R. L., Williams, J. B. W., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Annals of Internal Medicine, 146(5), 317–325. [9] Rini, C. K., Dunkel-Schetter, C., Wadhwa, P. D., & Sandman, C. A. (1999). Psychological adaptation and birth outcomes: the role of personal resources, stress, and sociocultural context in pregnancy. Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association, 18(4), 333–345. [10] Bracke, P., Levecque, K., & Van de Velde, S. (2008). The psychometric properties of the CES-D 8 depression inventory and the estimation of cross-national differences in the true prevalence of depression. Ghent University. [11] Busonera, A., Cataudella, S., Lampis, J., Tommasi, M., & Zavattini, G. C. (2016). Psychometric properties of a 20-item version of the Maternal-Fetal Attachment Scale in a sample of Italian expectant women. Midwifery, 34, 79–87. [12] Cranley, M. S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. Nursing Research, 30(5), 281–284. [13] Paxton, A. E., Strycker, L. A., Toobert, D. J., Ammerman, A. S., & Glasgow, R. E. (2011). Starting The Conversation. American Journal of Preventive Medicine, 40(1), 67–71.

COHORT '18 Growing Up in Hungary

HUNGARIAN DEMOGRAPHIC RESEARCH INSTITUTE

Size of groups

Count (n=)		Age group 18-25y	26-34y	35-49y	Total
Education	Low	1453	440	248	2141
	Medium	1166	789	382	2337
	High	871	1572	784	3227
Total		3490	2801	1414	7705

Descriptive statistics

	MFAS	GAD2	PRT	CESD8	DIET	SMOKE
Mean	82.13	1.41	17.41	4.51	6.55	0.20
Variance	75.49	1.81	31.13	12.08	5.54	0.16
Minimum	20	0	9	0	0	0
Maximum	100	6	36	23	18	1
Median	83	1	17	4	6	0

Nonparametric correlations between variables

Spearman's rho			MFAS Maternal-fetal attachment	GAD2 Generalized anxiety	PRT Pregnancy related anxiety	CESD8 Depression	DIET Unhealthy diet	SMOKE Smoking
	MFAS Maternal-fetal attachment	Correlation Coefficient	1	-.010	.000	-.112**	-.135**	-.060**
		Sig. (2-tailed)		.405	.989	.000	.000	.000
		N	*6949*	*6834*	*6690*	*6713*	*6783*	*6925*
	GAD2 Generalized anxiety	Correlation Coefficient		1	.305**	.523**	.185**	.154**
		Sig. (2-tailed)			.000	.000	.000	.000
		N		*7553*	*7223*	*7268*	*7361*	*7528*
	PRT Pregnancy related anxiety	Correlation Coefficient			1	.358**	.142**	.132**
		Sig. (2-tailed)				.000	.000	.000
		N			*7328*	*7088*	*7151*	*7303*
	CESD8 Depression	Correlation Coefficient				1	.206**	.150**
		Sig. (2-tailed)					.000	.000
		N				*7379*	*7207*	*7353*
	DIET Unhealthy diet	Correlation Coefficient					1	.195**
		Sig. (2-tailed)						.000
		N					*7502*	*7476*
	SMOKE Smoking	Correlation Coefficient						1
		Sig. (2-tailed)						
		N						*7681*

**. Correlation is significant at the 0.01 level (2-tailed).

Oneway ANOVA analysis of prenatal parenting and education, controlled for age group
Welch and Brown-Forsythe robust tests of equality of means and multiple comparisons with Games-Howell Post Hoc tests

Oneway

MFAS	Anova	Robust test of equality of means		Games-Howell Post Hoc Tests		
	F	Welch	Brown-Forsythe	L-M	L-H	M-H
18-25y	*	*	*	*	*	
26-34y	*	*	*	*	**	
35-49y	**	**	**	**		

*. The test and mean difference is significant at the 0.05 level.
**. The test and mean difference is significant at the 0.10 level.

Oneway

GAD2	Anova	Robust test of equality of means		Games-Howell Post Hoc Tests		
	F	Welch	Brown-Forsythe	L-M	L-H	M-H
18-25y	*	*	*	*	*	*
26-34y	*	*	*	*	*	*
35-49y	*	*	*	*	*	

*. The test and mean difference is significant at the 0.05 level.

Oneway

PRT	Anova	Robust test of equality of means		Games-Howell Post Hoc Tests		
	F	Welch	Brown-Forsythe	L-M	L-H	M-H
18-25y	*	*	*	*	*	*
26-34y	*	*	*	*	*	*
35-49y	*	*	*	*	*	

*. The test and mean difference is significant at the 0.05 level.

Oneway

CESD8	Anova	Robust test of equality of means		Games-Howell Post Hoc Tests		
	F	Welch	Brown-Forsythe	L-M	L-H	M-H
18-25y	*	*	*	*	*	*
26-34y	*	*	*	*	*	*
35-49y	*	*	*	*	*	

*. The test and mean difference is significant at the 0.05 level.

Oneway

DIET	Anova	Robust test of equality of means		Games-Howell Post Hoc Tests		
	F	Welch	Brown-Forsythe	L-M	L-H	M-H
18-25y	*	*	*	*	*	*
26-34y	*	*	*	*	*	*
35-49y	*	*	*	*	*	*

*. The test and mean difference is significant at the 0.05 level.

Symmetric measure for Education*Smoke*Age Crosstabulation

SMOKE

Agegroups			Value	Approx. Sig.
18-25y	Nominal by Nominal	Phi	0.437	0.000
		Cramer's V	0.437	0.000
	N of Valid Cases		*3478*	
26-34y	Nominal by Nominal	Phi	0.403	0.000
		Cramer's V	0.403	0.000
	N of Valid Cases		*2796*	
35-49y	Nominal by Nominal	Phi	0.353	0.000
		Cramer's V	0.353	0.000
	N of Valid Cases		*1406*	
Total	Nominal by Nominal	Phi	0.445	0.000
		Cramer's V	0.445	0.000
	N of Valid Cases		*7680*	