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COHORT '18
Growing Up in Hungary

GROWING UP IN HUNGARY – COHORT '18
HUNGARIAN BIRTH COHORT STUDY
TECHNICAL REPORT 2.
PRENATAL WAVE
SELF-REPORTED SCALES

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INTRODUCTION

Several variables in the focus of the Cohort '18 Study, particularly those in the field of psychology, were measured not by individual questions, but using standard, self-reported scales involving multiple questions or statements, which were included in the self-administered questionnaire. Using multi-item measurement tools, we can get an idea of abstract phenomena that cannot be measured directly through just one question. In selecting the scales, in addition to their fit to our research questions, we took account of previous data on validity and reliability, indicating whether a certain scale is indeed suitable for studying and assessing a given phenomenon.

An important indicator of reliability is internal consistency: that is, whether items on a given scale capture the same phenomenon. One indicator of this is the Cronbach's alpha value, for the interpretation of which there are several guiding data in the literature. In the present case, we relied on the interpretation of George and Mallery (2003: 231), according to whom an excellent value is above 0.9; good is in the range 0.8–0.9; and acceptable is in the range 0.7–0.8. Meanwhile, reliability of the overall test score is questionable between 0.6 and 0.7, weak between 0.5 and 0.6, and unacceptable below 0.5.

Given that the data obtained on these scales become meaningful and analysable almost exclusively through the calculation of their aggregate scores, the self-administered database also contains the relevant computed variables and the related technical information, presented in this chapter. In addition to describing the objectives, source, basic properties and variables of the self-reported scales using these tools, we present the descriptive data and internal consistency of the questionnaires obtained by analysing the prenatal database, as well as the degree of their completion.

The dataset for the self-administered questionnaire was completely missing in the case of only 96 persons (1.2%) – i.e. the rate of (at least partial) completion was 98.8%. The shortcomings experienced include blank returned, unreturned and unidentifiable booklets (containing self-reported answers to questions). (This chapter discusses the completion of the multi-item scales of the self-administered questionnaire, while the completion of further questions is discussed in the Technical report 2., section 6.3.) The computed variables, based on the scales, are the total scores obtained by adding the scores of the items together to obtain the aggregate values. Given that in many cases participants failed to answer only one or two items when completing the questionnaire, at above 80% completion the missing data for the given scales were replaced by the averages of the respondent's own completed answers when creating the aggregate score; this seemed like a promising solution to account for the item-level missing data (Bono et al., 2007; Downey and King, 1998). In addition to the aggregated variables computed in this way, the database naturally also contains the original, item-level, non-imputed data.

MATERNAL-FOETAL ATTACHMENT

Maternal-foetal attachment was measured on a 20-item scale, for which we abbreviated the Hungarian adaptation (Andrek et al., 2016) of the Maternal-Fetal Attachment Scale (MFAS, Cranley, 1981), based on the 20-item Italian version (Busonera et al., 2016). On a five-point Likert scale, the respondents indicated the extent to which they were characterized by each statement. There were no reverse-coded items in the questionnaire, and the values used in the Cohort '18 Study correspond to the original values (1 = Definitely no, 5 = Definitely yes).

Despite the fact that Cranley (1981) distinguished five subscales (role taking, differentiation of self from foetus, interaction with the foetus, attributing characteristics to the foetus, giving of self) when creating the questionnaire, the one-dimensional structure proved to be the most reliable, in both the Hungarian and the Italian adaptations (Cronbach's alpha ranged from 0.77 to 0.87). A higher total score on the scale indicates a more intense attachment to the foetus.

In all, 88.8% of respondents completed the questionnaire in full in the prenatal wave of the Cohort '18 Study (the 11.2% incomplete response rate includes the 1.2% of totally missing responses mentioned above). Meanwhile 80% of the questions (at least 16 items) were answered by 97.8% of the participants. The reliability of the scale proved to be good both before and after the missing data replacement. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 1.

Table 1

Measuring maternal-foetal attachment in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Maternal-foetal attachment
Scale	Maternal-Fetal Attachment Scale
Number of items used	20
Cronbach's alpha (raw; after data replacement)	0.811; 0.812
Mean ± std. deviation (raw; after data replacement)	82.02 ± 8.74; 81.81± 8.78
Median (raw; after data replacement)	82; 82
Recoding	Did not apply
Fully completed response rate	88.8%
Missing data replacement	In case of at least 16 answered items
Response rate after data replacement	97.8%
Computed variable	s1mfas
Used variables	s1mfa1 – s1mfa20

SOCIAL SUPPORT

To assess social support, we used six items from the Hungarian version (Sz. Makó et al., 2016) of the Medical Outcomes Study Social Support Survey (MOS SSS; Sherbourne and Stewart, 1991). Shortened versions of the questionnaire – consisting of 6–8 items – have been successfully used in the past (Holden et al., 2014; Moser et al., 2012). In the questionnaire, the respondents reported, on a five-point Likert scale, how often different types of supports/subsidies had been available to them. There were no reverse-coded items in the questionnaire and the values used in the Cohort '18 Study correspond to the original values (1 = None of the time, 5 = All of the time). By adding up the scores, a global indicator of social support can be created, with a higher value indicating stronger support.

The questionnaire originally included several sub-dimensions, such as emotional or informational support, instrumental or tangible support, positive social interaction and affective support; but it also proved reliable as a one-dimensional tool, both at its initial creation (Cronbach's alpha = 0.97) and in the Hungarian adaptation (Cronbach's alpha = 0.95).

A total of 96.5% of respondents completed the questionnaire in full in the prenatal wave of the Cohort '18 Study, while 80% of the questions (at least five items) were answered by 97.5% of participants. The reliability of the scale proved to be good both before and after the missing data replacement. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 2.

Table 2

Measuring social support in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Social support
Scale	Medical Outcomes Study Social Support Survey
Number of items used	6
Cronbach's alpha (raw; after data replacement)	0.847; 0.849
Mean ± std. deviation (raw; after data replacement)	27.96 ± 3.26; 27.93 ± 3.29
Median (raw; after data replacement)	30; 30
Recoding	Did not apply
Fully completed response rate	96.5%
Missing data replacement	In case of at least five answered items
Response rate after data replacement	97.5%
Computed variable	s1msupps
Used variables	s1msupp1 – s1msupp6

GENERALIZED ANXIETY

The Hungarian translation (available at http://www.phqscreeners.com) of the Generalized Anxiety Disorder-2 scale (GAD-2; Kroenke et al., 2007) was used to assess generalized anxiety. This ultra-brief scale is suitable for the quick screening of anxiety disorders: a total score above a certain threshold refers to a possible anxiety disorder. When used as a continuous variable, a higher total score on the scale indicates a higher incidence of generalized anxiety symptoms.

Respondents indicated on a four-point Likert scale how often they had experienced certain feelings and behaviours in the previous two weeks (1 = Not at all, 4 = Nearly every day). Neither of the two items was reverse-coded. The questionnaire was originally meant to be answered on a scale of 0–3, but the Cohort '18 Study version of the questionnaire had a score of 1–4 for uniform structure and easier response. Therefore, these values were recoded during the preparation of the database for further analysis and descriptive statistics, transcoded to 0–3, consistent with the literature. The recoded values are also presented in this methodological volume. (The published version of the database also contains the recoded values.)

Using a three-point cut-off score, this tool was found to be acceptable for screening for generalized anxiety disorder within a clinical population (sensitivity = 0.86; specificity = 0.83) and for identifying panic disorder, social phobia and post-traumatic stress disorder (sensitivity = 0.59–0.76; specificity = 0.81). According to the recommendation of the UK's National Institute for Health and Care Excellence, it is also suitable for surveying pregnant women (NICE, 2014).

The questionnaire was completed in full by 96.6% of the pregnant women. The reliability of the total score was acceptable, and was also checked with the Spearman–Brown coefficient due to its two-item nature. Given that it consists of only two items, no data replacement was used. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 3.

Table 3

Measuring generalized anxiety in the prenatal wave of the Cohort '18 Study

Measured phenomenon	**Generalized anxiety**
Scale	Generalized Anxiety Disorder (GAD)-2
Number of items used	2
Cronbach's alpha	0.702
Spearman–Brown coefficient	0.704
Mean ± std. deviation	1.42 ± 1.35
Median	1
Recoding	1→0, 2→1, 3→2, 4→3
Fully completed response rate	96.6%
Missing data replacement	Did not apply
Computed variable	s1mgads
Used variables	s1mgad1 – s1mgad2

PREGNANCY RELATED ANXIETY

To assess fears and anxieties related to pregnancy, we used a nine-item version of the Pregnancy Related Thoughts scale (PRT; Rini et al., 1999), adapted to Hungarian (Kopcsó et al., 2018). This tool is suitable for assessing concerns about foetal health and loss, maternal health, childbirth, childcare and control. Respondents indicated on a four-point Likert scale the extent to which certain statements were true of them (1 = Not at all, 4 = Very much). The first two items of the questionnaire are reverse-coded.

The questionnaire is mostly considered to be a one-dimensional tool, with a higher total score indicating higher pregnancy-related anxiety. It proved to be reliable both at its initial creation (Cronbach's alpha = 0.78-0.80) and within the Hungarian adaptation (Cronbach's alpha = 0.839).

A total of 93.5% of respondents completed the questionnaire in full in the prenatal wave of the Cohort '18 Study, while 80% of the questions (at least seven items) were answered by 97.6% of participants. The reliability of the scale proved to be good both

before and after the missing data replacement. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 4.

Table 4

Measuring pregnancy-related anxiety in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Pregnancy-related anxiety
Scale	Pregnancy Related Thoughts
Number of items used	9
Cronbach's alpha (raw; after data replacement)	0.830; 0.829
Mean ± std. deviation (raw; after data replacement)	17.46 ± 5.61; 17.52 ± 5.61
Median (raw; after data replacement)	17; 17
Recoding	Did not apply
Fully completed response rate	93.5%
Missing data replacement	In case of at least seven answered items
Response rate after data replacement	97.6%
Computed variable	s1mpras
Used variables	s1mpra1 – s1mpra9

DEPRESSION

Symptoms of depression were assessed using the eight-item version (CES-D-8; Bracke et al., 2008) of the Centre for Epidemiologic Studies – Depression questionnaire (Radloff, 1977), the Hungarian translation of which was taken from the adaptation by Szeifert (2010). Respondents indicated on a four-point Likert scale how often they had experienced certain feelings or behaviours in the previous week (1 = None or almost none of the time (for less than 1 day), 4 = All or almost all of the time (for 5–7 days)). Items 4 and 6 are reverse-coded. The questionnaire was originally meant to be answered on a scale of 0–3, but the Cohort '18 Study version of the questionnaire had a score of 1–4 for uniform structure and easier response. Therefore, these values were recoded during the preparation of the database for further analysis and descriptive statistics, transcoded to 0–3, consistent with the literature. The recoded values are also presented in this methodological volume. (The published version of the database also contains the recoded values.)

A study by Lancaster et al. (2010), reviewing literature covering risk factors for antepartum depression, found that CES-D is one of the most commonly used tools to identify depression during pregnancy. Based on the study of Bracke et al. (2008), the eight-item version is a reliable (Cronbach's alpha = 0.847) and valid measurement tool among expectant mothers, and can be considered one-dimensional. A higher total score indicates a higher incidence of depressive symptoms.

A total of 94.3% of respondents completed the questionnaire in full in the prenatal wave of the Cohort '18 Study, while 80% of the questions (at least six items) were answered by 97.6% of participants. The reliability of the scale proved acceptable both before and after the missing data replacement. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 5.

Table 5

Measuring depression in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Depression
Scale	Centre for Epidemiologic Studies – Depression
Number of items used	8
Cronbach's alpha (raw; after data replacement)	0.758; 0.760
Mean ± std. deviation (raw; after data replacement)	4.52 ± 3.49; 4.56 ± 3.53
Median (raw; after data replacement)	4; 4
Recoding	1→0, 2→1, 3→2, 4→3
Fully completed response rate	94.3%
Missing data replacement	In case of at least six answered items
Response rate after data replacement	97.6%
Computed variable	s1mdeprs
Used variables	s1mdepr1 – s1mdepr8

FOOD INSECURITY

The concerns of the expectant mothers about meals, lack of food and malnutrition were measured by six items on the Food Insecurity Experience Scale (FIES; Ballard et al., 2013), which measures the severity of food insecurity due to limited resources. Within the framework of the Cohort '18 Study, we used the six items of the questionnaire that address mild to moderate food insecurity in relation to the gestational period. The two items on severe food insecurity and hunger were therefore not applied.

The respondents were required to indicate on a dichotomy scale whether there had been any experience of food insecurity during their pregnancy (1 = Yes, 2 = No). The questionnaire was initially meant to be answered on a 1–0 scale (1 = Yes, 0 = No); during the preparation of the database for further analysis and descriptive statistics, values of 2 in the Cohort '18 Study questionnaire were recoded to 0; the recoded values are also presented in this methodological volume. (The published database also contains the recoded values.)

The scale is methodologically well founded, and is considered to be reliable and valid (Ballard, 2013). It can be evaluated in several different ways: one possible way is to use the raw total score created by adding the scores of each item, which we also utilized. A higher value of this indicates a greater degree of food insecurity.

A total of 97.7% of respondents completed the questionnaire in full in the prenatal wave of the Cohort '18 Study, while 80% of the questions (at least five items) were answered by 98.1% of participants. Due to the fact that the level of completion was initially high, and only 0.4% of missing data could have been replaced, no data replacement occurred. The reliability of the scale proved acceptable. The indicators of the scale and the descriptive data of the questionnaire are shown below, in the Table 6.

Table 6

Measuring food insecurity in the prenatal wave of the Cohort '18 Study

Measured phenomenon	**Food insecurity**
Scale	Food Insecurity Experience Scale
Number of items used	6
Cronbach's alpha	0.749
Mean ± std. deviation	0.18 ± 0.68
Median	0
Recoding	2→0
Fully completed response rate	97.7%
Missing data replacement	Did not apply
Computed variable	s1mfies
Used variables	s1mfie1 – s1mfie6

RELATIONSHIP SATISFACTION AND COMMITMENT

To assess relationship satisfaction and commitment, we used the Hungarian translation (Kozékiné Hammer, 2014) of three items apiece on the two subscales of the Investment Model Scale (IMS; Rusbult, 1998). Respondents indicated on a five-point Likert scale the degree to which they agreed with given statements regarding their relationship (1 = Do not agree at all, 5 = Agree completely). None of the items are reverse-coded.

Abbreviated versions of the questionnaire (Lehmiller and Christopher, 2008; Rodrigues and Lopes, 2013) give reason for confidence in its validity and reliability.

In the prenatal wave of the Cohort '18 Study, the two subscales were completed in full by 92.5% and 93.2% of respondents. Due to the low number of items, no data replacement was applied. The reliability of both subscales proved good. Higher overall scores on the subscales indicate higher levels of satisfaction with and commitment to the relationship. The indicators of the subscales and the descriptive data of the questionnaire are shown below, in the Table 7.

Table 7

Measuring relationship satisfaction and commitment in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Relationship satisfaction	Relationship commitment
Scale	Investment Model Scale	Investment Model Scale
Number of items used	3	3
Cronbach's alpha	0.825	0.868
Mean ± std. deviation	13.37 ± 2.05	14.17 ± 1.70
Median	14	15
Recoding	Did not apply	Did not apply
Fully completed response rate	92.5%	93.2%
Missing data replacement	Did not apply	Did not apply
Computed variable	s1mrsats	s1mrcoms
Used variables	s1mrsat1 – s1mrsat3	s1mrcom1 – s1mrcom3

RELATIONSHIP INTERACTIONS

As a further aspect of the quality of relationships, we measured the frequency of positive and negative interactions, using the 11-item Gilford–Bengtson Marital Satisfaction Scale (Gilford and Bengtson, 1979). Although the questionnaire had been previously translated (Gödri, 2001), that version was not used for further research. The English-language questionnaire had also been modified somewhat in the meantime (Silverstein and Bengtson, 2008); thus, we re-adapted the scale for use in our research (Kopcsó, 2018), when both subscales proved reliable (Cronbach's alpha = 0.755 for negative and 0.885 for positive interactions).

Respondents indicated on a five-point Likert scale how frequent they considered the occurrence of the given relationship interactions (1 = Hardly ever, 5 = Always). None of the items are reverse-coded.

In the prenatal wave of the Cohort '18 Study, the positive interaction subscale was completed in full by 91.8% of respondents, and 80% of the questions (at least four items) were answered by 93.9% of participants. The negative interaction or conflict subscale was fully completed by 90.4% of respondents, and 80% (at least five items) of the questions were answered by 93.6%. The subscale reliability of relationship conflicts was acceptable, while the subscale reliability of positive interactions was found to be good in the prenatal wave. The total scores on the subscales reflect the frequency of positive interactions and conflicts between couples. The indicators of the subscales and the descriptive data of the questionnaire are shown below, in the Table 8.

Table 8

Measuring relationship interactions in the prenatal wave of the Cohort '18 Study

Measured phenomenon	Relationship conflicts	Positive relationship interactions
Scale	Gilford–Bengtson Marital Satisfaction Scale	Gilford–Bengtson Marital Satisfaction Scale
Number of items used	6	5
Cronbach's alpha (raw; after data replacement)	0.737; 0.739	0.846; 0.847
Mean ± std. deviation (raw; after data replacement)	9.76 ± 2.95; 9.80 ± 2.99	21.18 ± 3.30; 21.17 ± 3.32
Median (raw; after data replacement)	9; 9	22; 22
Recoding	Did not apply	Did not apply
Fully completed response rate	90.4%	91.8%
Missing data replacement	In case of at least five answered items	In case of at least four answered items
Response rate after data replacement	93.6%	93.9%
Computed variable	s1mrnegs	s1mrpozs
Used variables	s1mrneg1 – s1mrneg6	s1mrpoz1 – s1mrpoz5

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