

Maternal psychometrics during pregnancy across three cohorts

BACKGROUND

- This study explores prenatal factors, both biological and socio-environmental, which are an important predisposition for human developmental trajectory.
- Collecting prenatal information with reliable tools is the first step to assess the impacts of early factors on later outcomes.
- A total of 3,724 participants were involved in the analysis, with China Jintan Study (N=2683), California Twin Study (N=586), and Philadelphia Healthy Brain Study (N=455).
- Two prenatal measures were developed, with Prenatal Psychosocial Scale containing seven items, and Prenatal Life Events Scale containing nine items, and the Lewis Murray Scale was modified.

OBJECTIVES

- To explore the effects of maternal acceptance and maternal rejection during pregnancy.
- To develop a measure on maternal psychosocial and life events during the pregnancy with psychometric validation
- To conduct a cultural comparison among three datasets in two countries.

METHODS/DATA

- Data collection was primarily divided into two parts - demographic set and maternal prenatal set.
- The prenatal psychosocial scale and life events scale produced data that were used to establish the psychometrics by using principal component statistical methods using SPSS Statistics.
- Exploratory factor analysis of the psychosocial scale explores the underlying dimensions that examine the relationships between the numerous items.

Figure 1:

Factor Analyses (1 Factor)

	Jintan	Twin	HBBS
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.696	0.672	0.718
Bartlett's Test of Sphericity: Approximate Chi Squared	261.91	595.83	577.27
df	21	21	28
Significant figure value	< 0.001	< 0.001	< 0.001
Matrix			
Items	Factor Loading		
	1	1	1
Planned pregnancy	-0.549	0.671	0.583
Happy/excited you were about pregnancy	0.836	0.769	0.770
Happy/excited partner was about pregnancy	0.809	0.525	0.640
Thought to terminating pregnancy	-	-0.596	-0.648
Termination of pregnancy	0.131	-	-0.500
Supportive friends and family	0.688	0.552	0.458
Depression after birth	-0.255	-0.415	-0.531
Length of depression	0.088	-0.457	-0.371
%Variance	31.67%	33.69%	33.03%
Cronbach's alpha	0.223	0.677	0.708

Note: Extraction Method: Principal Component Analysis

RESULTS

- There is little variation in the distribution of prenatal information among the Prenatal Life Events Scale and the Prenatal Psychosocial Scale.
- It can be concluded that the majority of people in China, California, and Philadelphia do not encounter life-changing events and that the general population of these three demographics contain positive psychosocial histories.
- From the data, it can be inferred that maternal acceptance in the cohorts is very positive, with a majority of participants enjoying and having supportive relationships during their pregnancy. Also, maternal rejection is definitely a minority in the three cohorts as termination and depression were highly disregarded by a majority of mothers.

CONCLUSIONS

- This study demonstrated a measure for psychosocial and life event prenatal factors in pregnant mothers. There were cross-cultural distinctions, which observed differences in a majority of items across the three datasets. Psychometric validation affirms the statistics produced from the cohorts and offers insight into the mechanics of maternal acceptance and rejection factors on future outcomes.

REFERENCES

- Liu J, Richmond TS, Raine A, Cheney R, Brodtkin ES, Gur RC, Gur RE. The Healthy Brains and Behavior Study: objectives, design, recruitment, and population coverage. *Int J Methods Psychiatr Res.* 2013 Sep;22(3):204-16. doi: 10.1002/mpr.1394. PMID: 25931327; PMCID: PMC5667643.
- Baker LA, Barton M, Raine A. The Southern California Twin Register at the University of Southern California. *Twin Res.* 2002 Oct;5(5):456-9. doi: 10.1375/136905202320906273. PMID: 12537876; PMCID: PMC2771426.
- Jianghong Liu and others, Cohort Profile Update: The China Jintan Child Cohort Study, *International Journal of Epidemiology*, Volume 44, Issue 5, October 2015, Pages 1548–1548I, <https://doi.org/10.1093/ije/dyv119>