

Background

- The proximate determinants of unintended fertility are clear, but the **distal determinants** (the processes that lead to sex without effective contraception) are less well understood.
- Women's attitudes toward pregnancy, children, sex, and contraception ("**fertility motivation**") predict reproductive behavior and may be an important distal determinant of unintended fertility.
- Existing research has studied a wide range of attitudes, but there is little consensus as to which attitudes are most influential or how best to measure them.
- Different datasets use different measures, making it difficult to compare results across surveys and across samples.

This study

- In this study, we compare measures of attitudes toward pregnancy, children, sex, and contraception from two surveys that have been widely used to study fertility: the National Longitudinal Study of Adolescent to Adult Health (**AddHealth**) and the Relationship Dynamics and Social Life Study (**RDSL**).
- Each of these surveys includes multiple measures of relevant attitudes. The surveys contain many shared items as well as some unique items.
- We use psychometric approaches (1) to analyze the relationship between items and the dimensionality of fertility motivation within each dataset and (2) to measure common latent factors using both shared and unique items and accounting for possible differential item functioning across datasets.

Data and methods

Data

- Add Health, Wave 1: nationally representative sample of boys and girls in grades 7-12 in the 1994-95 school year. Only girls used in analysis; only respondents age 15+ asked questions about sex and contraception. N=6485 girls age 15+ at Wave 1.
- RDSL, baseline survey: representative population-based sample of 1,003 women aged 18-19 in 2008 and 2009 residing in a single Michigan county.
- For the pooled analysis, we used a random subsample of 1,003 Add Health respondents to match the RDSL sample size.

The Fog Zone survey

During the first stages of our research, we also included data from the National Survey of Reproductive and Contraceptive Knowledge (**Fog Zone**), a nationally representative survey of unmarried men and women age 18-24. We conducted exploratory and confirmatory factor analysis using Fog Zone items. However, the available items and the measurement structure in the Fog Zone survey proved to be too different from the other two surveys to productively integrate in the pooled analysis. We therefore did not include the Fog Zone survey in the integrative data analysis.

Data and methods, continued

Methods

- We used exploratory and confirmatory factor analysis (EFA, CFA) to determine measurement structure in each dataset.
- We then applied integrative data analysis (IDA) techniques to assess differences in measurement structure across datasets.
- IDA (Bauer and Hussong 2009; Hussong, Curran, and Bauer 2013) is a factor analytic technique that tests for survey effects on factor means, item intercepts, factor variances, and item loadings. It is designed to construct latent measures that are comparable across datasets and can be used to compare both levels of the measures and predictive power.
- All models were estimated using Mplus.

Table 1. Items used in analysis

		Add Health	RDSL
SEXONCE	What are the chances you would get pregnant if you have sex once or twice without birth control?	X	X
PRGWORST	Getting pregnant at this time is one of worst things that could happen	X	X
NOTBAD	It wouldn't be all that bad if you got pregnant now	X	X
PREGFAST	If you got pregnant now, you would have to grow up too fast	X	X
QUITSCH	If you got pregnant now, you would have to quit school	X	X
EMBRSFAM	If you got pregnant now, it would embarrass your family	X	
PARREACT	How would your parents react if you had a baby?		X
MORAL	Using birth control is morally wrong	X	X
MUCHPLAN	It takes too much planning ahead to use birth control	X	X
BCBOTHER	It is too much of a hassle to use birth control	X	X
PLEASURE	Birth control interferes with enjoyment	X	X
EXPENSIVE	Birth control is too expensive	X	X

Descriptive statistics

Table 2. Mean and standard deviations of attitude measures

	Add Health	RDSL
SEXONCE	3.3 (1.0)	3.3 (1.2)
PRGWORST	4.3 (1.1)	3.9 (1.3)
NOTBAD	4.2 (1.1)	3.8 (1.1)
PREGFAST	3.9 (1.2)	3.2 (1.2)
QUITSCH	2.3 (1.2)	2.3 (1.0)
EMBRSFAM	3.7 (1.3)	--
PARREACT	--	3.7 (1.7)
MORAL	4.2 (1.0)	3.3 (0.6)
MUCHPLAN	4.1 (1.1)	4.2 (0.6)
BCBOTHER	4.1 (1.1)	4.2 (0.8)
PLEASURE	4.1 (1.0)	4.4 (1.0)
EXPENSIVE	4.0 (1.0)	3.9 (0.9)

- Responses for SEXONCE in Add Health range from "almost none" to "almost certain." In RDSL, responses are provided from 1-100. RDSL responses were collapsed to a 1-5 scale.
- Responses for PARREACT range from 0 (not at all positively) to 5 (very positively).
- Responses for all other items range from 1 (strongly disagree) to 5 (strongly agree).
- For Add Health, means are for the subsample used in the pooled analysis. Means for the full sample are highly similar.

Results, CFA

- We used exploratory factor analysis to determine the number of latent factors that best fit observed items in each dataset. We evaluated model fit based on multiple fit statistics (RMSEA<.05, CFI>.950).
- In Add Health, a three-factor model provided best fit. In RDSL, both three- and four-factor models provided adequate fit. We chose a three-factor model to allow for closer comparison to Add Health.
- We dropped items that did not load significantly on any factor.
- We then conducted confirmatory factor analysis testing one-, two-, and three-factor models. The three-factor model was the best-fitting model. We used the same criteria for fit statistics as in the EFA.
- Arrows connecting items and latent factors shown in the figure below represent factor loadings that are significant at the p<.001 level.

Figure 1. Results from CFA

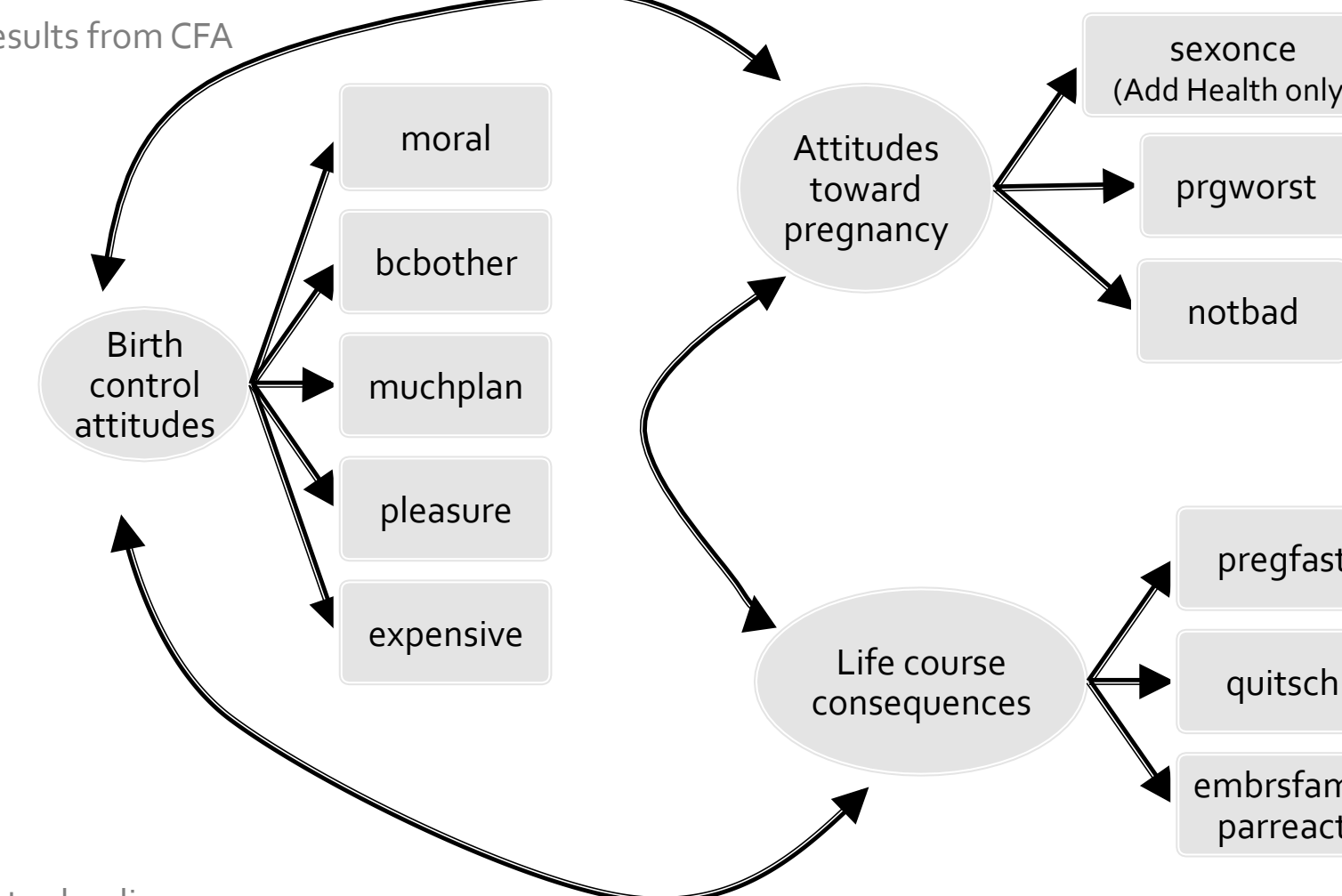


Table 3. Factor loadings

	Add Health	RDSL
Factor 1: Attitudes toward pregnancy		
SEXONCE	0.181	--
PRGWORST	1.00	1.00
NOTBAD	1.040	0.92
Factor 2: Life course consequences		
PREGFAST	1.00	1.00
QUITSCH	0.74	0.51
EMBRSFAM/PARREACT	1.23	1.24
Factor 3: Birth control attitudes		
MORAL	1.00	1.00
MUCHPLAN	1.76	0.92
BCBOTHER	1.64	1.12
PLEASURE	1.33	0.60
EXPENSIVE	1.41	0.83

Acknowledgements and references

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Results, IDA

- For the IDA component of the analysis, we ran MIMIC models testing direct effects of survey on (1) factor mean; (2) factor variance; (3) item intercepts; (4) item loadings. We retained constraints that improved BIC by at least 6 (Kass and Raftery 1995).
- We tested each latent factor separately to simplify model building.
- There were substantial differences in measurement properties across datasets.

Table 4. Differences in measurement properties between Add Health and RDSL items

	Direct effects of survey on:			
	Factor mean?	Factor variance?	Item intercept?	Item loading?
Factor 1: Attitudes toward pregnancy	Y	Y		
SEXONCE			N	N
PRGWORST			N	N
NOTBAD			N	N
Factor 2: Life course consequences	Y	Y		
PREGFAST			Y	Y
QUITSCH			N	N
EMBRSFAM/PARREACT			--	--
Factor 3: Birth control attitudes	Y	Y		
MORAL			Y	N
MUCHPLAN			N	N
BCBOTHER			N	Y
PLEASURE			Y	Y
EXPENSIVE			Y	Y

Summary & next steps

Summary

- Even when identical survey questions are used, items measuring attitudes toward pregnancy and birth control do not have consistent measurement properties across different surveys or samples, so comparisons may yield biased results.

Next, we plan to:

- Explore whether differences in measurement properties are due to differences in sample characteristics (age, race-ethnic composition).
- Extend analysis to incorporate items related to "**reproductive knowledge**" – accuracy of knowledge about reproduction and contraception.
- Link **fertility motivation** and **reproductive knowledge** to reproductive behaviors.