

# Life course factors associated with exclusive breastfeeding

Oregon Life Course Network &  
Epidemiologists' Forum

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## **Presentation objectives:**

- Apply the Life Course Health Development framework to examine factors associated with exclusive breastfeeding
  - Examine breastfeeding as an early family experience important for life course health
  - Analyze the contexts associated with exclusive breastfeeding
  - Discuss opportunities to create contexts supportive of breastfeeding

# Disclosures

- No conflicts of interest to report
- No financial support was received for conducting this research
- Study completed as research for my doctoral dissertation in health policy at University of the Sciences in Philadelphia
- I am not an epidemiologist!

# Breastfeeding as occupation

- Feeding & eating
  - Personal factors & skills
- Child rearing; Family social participation
  - Performance patterns (routines)
  - Context & environment
- Health management & maintenance
  - Physical & social environment

# Environmental factors: work & child care

- Work
  - Flexibility
  - Access to infant or space for expressing
  - Family Medical Leave policy
- Child care
  - Providers' support, training, comfort

## **The health benefits of breastfeeding**

- **Infant**
  - Protective against disease
  - Developmental benefits
- **Mother**
  - Decreased risk of chronic disease
  - Protective against postpartum depression
- **Society**
  - Reduced healthcare costs
  - Decreased workplace absenteeism

# Recommendation: exclusive breastfeeding for 6 months

- World Health Organization
  - *Innocenti Declaration of 1990*
  - Baby Friendly Hospital Initiative
- American Academy of Pediatrics
  - *Breastfeeding and the Use of Human Milk*
- Healthy People 2020:
  - 25.5% of infants born each year will be EBF for 6 months*
- Recent outcomes
  - Among infants born in the US in 2011 :
    - 18.8% were EBF for 6 months

American Academy of Pediatrics, 2005; 2012; CDC, 2014; United States Department of Health and Human Services, 2011a; 2011b; 2010; World Health Organization, 1990; 1998

# Why is breastfeeding a life course issue?

- *Rethinking MCH: The Life Course Model as an Organizing Framework*
  - USDHHS, 2010
- The Life Course Health Development (LCHD) framework
  - Halfon & Hochstein, 2002
  - Halfon et al., 2014
  - <http://www.healthychild.ucla.edu/LCRN.asp>



## **Principles of LCHD, from Halfon et al. (2014)**

- Health is an emergent property of living systems
- Health develops continuously over the lifespan
- Health development is complex nonlinear process that results from person environmental interactions that are multidimensional, multidirectional, multilevel

## **Principles of LCHD, from Halfon et al. (2014)**

- Health development is highly sensitive to the timing and social structuring of environmental exposures
- Evolution enables and constrains health development pathways and plasticity
- Optimal health development promotes survival, enhance thriving, and protects against disease
- The cadence of human health development results from synchronized timing of molecular, physiological, cultural and evolutionary processes

# Problem/Significance

- Given the evidence for the health benefits of breastfeeding & recommendations for exclusive breastfeeding for 6 months, why don't mothers in the United States achieve this life course health development behavior of exclusive breastfeeding?

# Research questions

- What contexts of life course health development describe the characteristics of women who breastfed exclusively for at least 4 months\*?
- What are the differences in the contexts of life course health development of women who breastfed exclusively for at least 4 months compared with women who breastfed exclusively, but not for the recommended 4 months?
- Which contexts of life course health development are predictors (protective factors) for meeting the recommendation of exclusive breastfeeding for at least 4 months?

*\*In 2005-2007, at the time of data collection for the IFPS II, the AAP recommended EBF for at least 4-6 months*

# Methods

- Secondary analysis of data from IFPS II (Fein et al., 2008)
- Participants
  - Full cohort: n = 1226
    - Subgroup working at mo. 3 postnatal
      - n = 421

# Methods

- Outcome of interest is EBF  $\geq$  4 months
- Independent factors include socio-demographics, risk of postpartum depression, and work & child care characteristics
  - Independent factors fit to LCHD contexts

# LCHD contexts

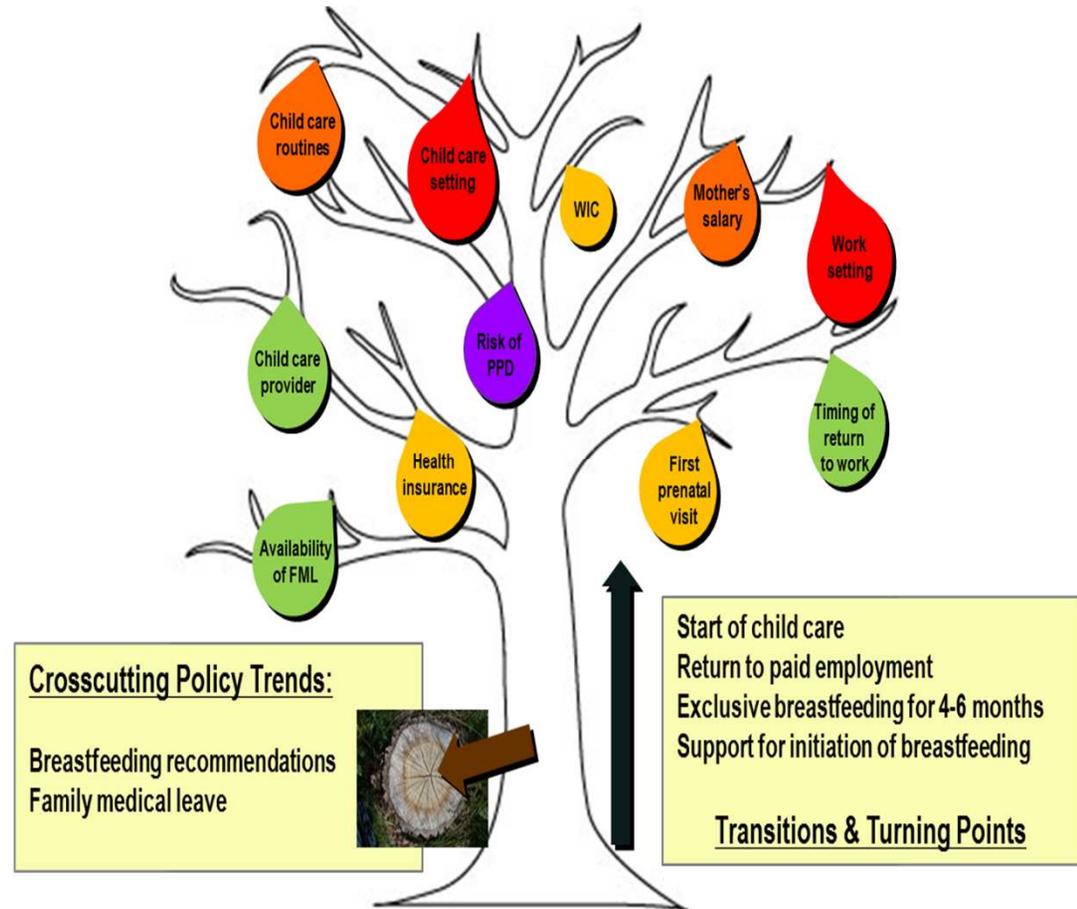
Physical

Social, Culture, & Policy

Health care system

Family

Psychological



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1. From Halfon, N. & Hochstein, M. (2002). Life course health development: An integrated framework for developing health, policy, and research. The Milbank Quarterly, 80(3), 433-479.

Adapted with permission.

# Methods

- Analysis
  - Descriptive analysis (means or frequencies)
  - Bivariate analysis (Chi-Square) examined relationships
  - Logistic regression analysis modeled EBF  $\geq$  4 months for full & working cohorts

# Selection of sample characteristics

Variable	Full Cohort n=1226	Working Cohort n=421	Variable	Full Cohort n=1226	Working Cohort n=421
Responses	n (%)	n (%)	Responses	n (%)	n (%)
<b>Race/ Ethnicity</b>			<b>Marital status</b>		
White	1077(89.7)	371 (89.8)	Married	971 (82.9)	326 (81.1)
Black	25 ( 2.1)	11 (2.7)	Not married	200 (17.1)	76 (18.9)
Hispanic	57 ( 4.8)	19 (4.6)	<b>Parity</b>		
Asian	28 ( 2.3)	8 (1.9)	Primiparous	340 (27.7)	140 (33.3)
Other	14 ( 1.2)	4 (1.0)	Multiparous	886 (72.3)	281 (66.8)
<b>Mother's age, years</b>			<b>Percent of income to poverty level</b>		
18-24	235 (19.2)	76 (18.1)	<185%	473 (39.0)	136 (32.7)
25-29	460 (37.6)	158 (37.6)	185 – 250%	226 (18.6)	69 (16.6)
30-34	337 (27.5)	113 (26.9)	>250%	515 (42.4)	211 (50.7)
35 or older	193 (15.8)	73 (17.4)	<b>Plan to work for pay postnatal</b>		
<b>Level of education</b>			Yes	708 (57.9)	383 (91.2)
High school	185 (15.8)	55 (13.7)	No	514 (42.1)	37 ( 8.8)
Some college	472 (40.4)	150 (37.3)			
College graduate	511 (43.8)	197 (49.0)			

# Maternity leave: descriptive statistics

Variable	Full Cohort n=608	Working Cohort n=353
Responses	n (%)	n (%)
<b>Available maternity leave</b>		
<b>Paid</b>		
0 weeks	403 (66.3)	226 (64.0)
1 – 6 weeks	145 (23.9)	92 (26.1)
7 – 12 weeks	54 (8.9)	34 (9.6)
13+ weeks	6 (1.0)	1 (0.3)
<b>Partial paid</b>		
0 weeks	487 (80.1)	276 (78.2)
1 – 6 weeks	88 (14.5)	57 (16.2)
7 – 12 weeks	28 (4.6)	17 (4.8)
13+ weeks	5 (0.8)	3 (0.9)
<b>Unpaid</b>		
0 weeks	274 (45.1)	154 (43.6)
1 – 6 weeks	148 (24.3)	93 (26.4)
7 – 12 weeks	160 (26.3)	95 (26.9)
13+ weeks	26 (4.3)	11 (3.1)

# EBF outcomes for full & working cohort

	n	Outcome not met: EBF < 4 mo. n (%)	Outcome met: EBF ≥ 4 mo. n (%)
Full Cohort	1226	753 (61.4)	473 (38.6)
Working Cohort	421	277 (65.8)	144 (34.2)

## Full cohort model for EBF $\geq$ 4 months

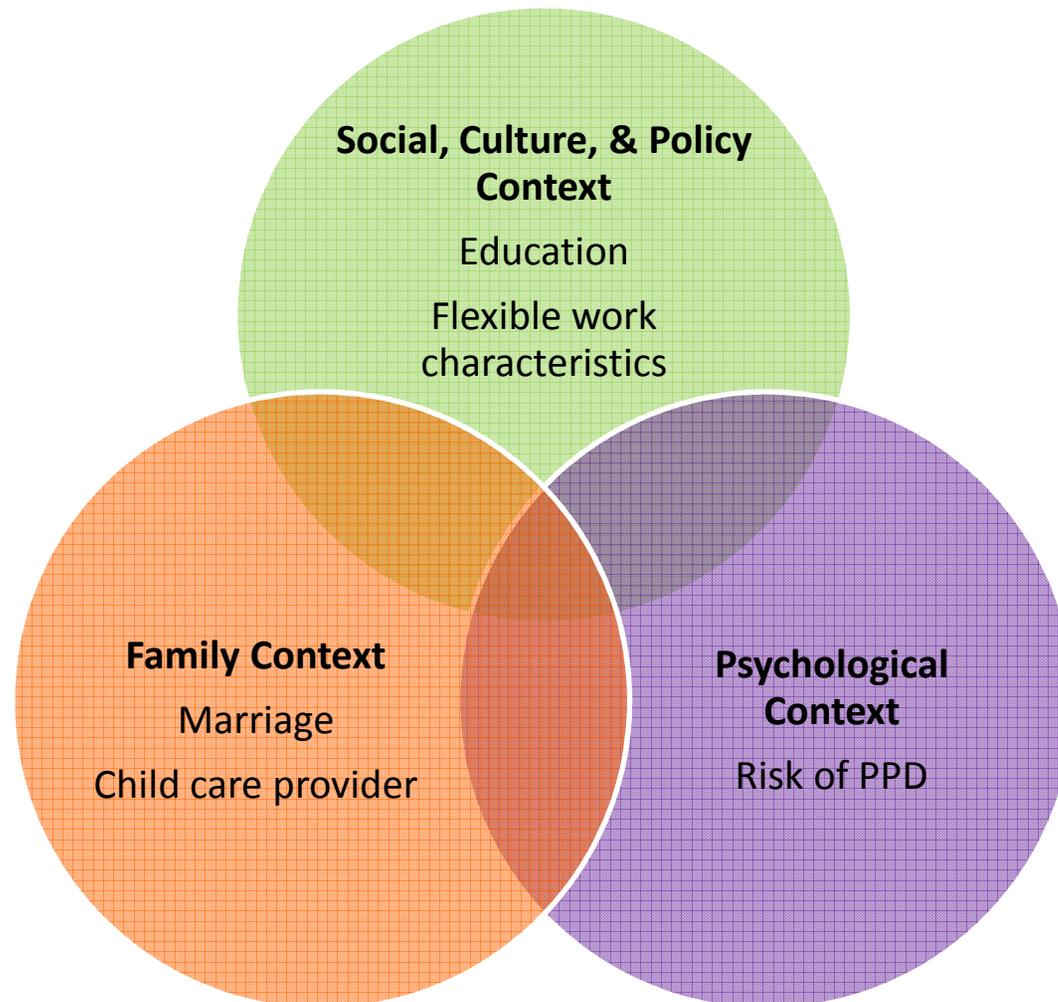
Variable (n)	Odds ratio	95% CI
non-White vs. White	0.80	0.51-1.26
Mother's age	1.01	0.98-1.04
<b>College vs. Some college</b>	<b>2.14</b>	<b>1.58-2.89*</b>
High school vs. Some college	0.75	0.49-1.13
Prenatal care, 1 <sup>st</sup> vs. 3rd	0.90	0.42-1.13
Prenatal care, 2 <sup>nd</sup> vs. 3rd	0.53	0.21-1.34
Health Insurance, Yes vs. No	0.64	0.35-1.16
<b>Married vs. Not married</b>	<b>2.19</b>	<b>1.43-3.37*</b>
Parity	1.07	0.94-1.21
<b>Plan to work, Yes vs. No</b>	<b>0.57</b>	<b>0.43-0.74*</b>
Family income % poverty	1.00	1.00-1.00
Midwest vs. West	0.76	0.54-1.08
Northwest vs. West	0.71	0.46-1.10
<b>South vs. West</b>	<b>0.67</b>	<b>0.47-0.95*</b>
<b>PPD, Probable vs. Unlikely</b>	<b>0.43</b>	<b>0.28-0.66*</b>
<b>PPD, Possible vs. Unlikely</b>	<b>0.61</b>	<b>0.44-0.84*</b>

## Working cohort model for EBF $\geq$ 4 months

Variable (n)	Odds ratio	95% CI
non-White vs. White	0.95	0.42-2.13
Mother's age	1.00	0.95-1.06
College vs. Some college	1.72	0.98-3.03
High school vs. Some college	0.69	0.30-1.57
Age of infant at return to work	1.046	0.97-1.13
<b>Working at home, No vs. Yes</b>	<b>0.41</b>	<b>0.19-0.87*</b>
Health insurance, Yes vs. No	0.69	0.20-2.40
Married vs. Not married	1.38	0.69-2.76
Parity	1.08	0.85-1.36
Prenatal work, Yes vs. No	1.76	0.55-5.61
Plan to work, Yes vs. No	1.15	0.49-2.71
Work, 1-19 hrs. vs. 35 or more	1.73	0.99-3.02
Work, 20-24 hrs. vs. 35 or more	1.52	0.82-2.80
Family income % poverty level	1.00	1.00-1.00
South vs. West	0.82	0.41-1.66
Work setting, not office vs. office	1.34	0.66-2.70
PPD, Probable vs. Unlikely	0.43	0.18-1.07
<b>PPD, Possible vs. Unlikely</b>	<b>0.53</b>	<b>0.29-0.97*</b>

## Discussion:

# Access to life course health benefits of EBF



# Limitations

- Bias due to IFPS II sampling frame of consumer panel
- Missing & incomplete data
- Work & child care variables are complex and interact with multiple contexts of LCHD
  - Women's self-report, not actual policies

# Policy implications

- Paid family medical leave
- Workplace policy
- Child care center policy
  - Education
    - Benefits of EBF

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# Questions/Discussion



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