Risk of food insecurity in mothers of children with special health care needs

THESIS SEMINAR AND DEFENSE OF
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Outline

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Background

Food Insecurity

- USDA definition:
  - "Limited or uncertain availability of food, or limited or uncertain ability to acquire foods in socially acceptable ways."
- Estimated prevalence in U.S.:
  - 11.3% of households nationwide
  - 16.7% of households with children under 6
  - 2.9 million households, corresponding to 12.8 million people
  - Potentially more than 10 million children
- In Oregon (2004-2006): 11.9%

Risk factors for food insecurity

- Income
  - 36.8% of families with income < 100% FPL report food insecurity at some point during the year
- Other risk factors:
  - Race/ethnicity
  - Caregiver's age, education, marital status, employment status
  - Insurance status
  - Enrollment in safety net programs: WIC, Food Stamps, TANF
  - Household structure
    - 31.9% of households headed by a single woman
    - 10.7% of households headed by a married couple
    - 15.9% of households headed by a single man

Poor health outcomes

- Food insecurity is associated with
  - Poor social support
  - Major depression, family stress
  - Higher odds of reporting multiple chronic conditions
  - Risk of obesity/overweight
- Children in food insecure households
  - Higher reports of poor child health, hospitalization, medical diagnoses, higher incidence of infections, diseases, behavioral/psychosocial dysfunction
- Mothers have been known to buffer their children by reducing their own food intake before reducing food for the child

Food Insecurity Screening by HCPs

- Food insecurity is not routinely screened for by health care providers
  - Fleegler study (2007)
- Oregon Childhood Hunger Initiative HCP survey
  - Majority of HCPs felt comfortable addressing food insecurity; indicated a willingness to screen using standardized tools
- Caregivers are reluctant to bring up food insecurity
  - "I need to know I can discuss this issue without worrying they [doctors] will take my children away because I do not have the resources to feed them." –Oregon food bank recipient

Identifying Food Insecurity

- Data have been collected by USDA since 1995
  - Current Population Survey – Food Security Supplement
  - Annually 50,000 households respond
- Screening tools
  - US Household Food Security Survey Module
    - 18-item form
    - Six-Item Short Form
- Single-item screening tools
  - Kleinman study
  - PRAMS question

Children with Special Health Care Needs (CSHCN)

- Maternal and Child Health Bureau definition (1998):
  - "Those who have or are at risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally."
- The CSHCN Screener
  - 1998 – CAHMI – Collaborative effort to operationalize the MCHB definition of CSHCN; Standardized screening tool necessary to identify the population.
  - 5-question parent survey of health consequences

    2 follow-up questions:
    - Nature of health consequence (medical, behavioral, other)
    - Has consequence lasted/is it expected to last 12 months or more?

Prevalence of CSHCN

- From 2005-2006 National Survey of Children with Special Health Care Needs:
  - 13.9% of children across U.S., or 10.2 million children
  - About 1 in 5 households in U.S. have a CSHCN
  - While only 14% of the population, 40% of medical expenses for children are accounted for by CSHCN.
- State-by-state prevalence range: 10% to 18.5%
  - In Oregon: 13.7%
  - 8.6% aged 0-5 years

Financial Burdens of Families with CSHCN

- Nationally, 26.4% of families with CSHCN report financial concerns.
  - 30% report employment problems.
- Oregon families with CSHCN:
  - 20% pay more than $1000 out-of-pocket in medical expenses per year for the child
  - 18.1% report that the child's condition causes financial problems
  - 8.7% spend more than 11 hours per week providing or coordinating the child's health care
  - 29.2% had to cut back or stop working to care for the child.

Study Rationale

- Elevated medical expenses related to care for a CSHCN can strain a family's resources.
  - Other monthly expenses must be paid in full; food budget can be adjusted
- Mothers still assume many of the responsibilities and burdens associated with child care; have been shown to buffer their children from food insecurity
- Is there an association between having a CSHCN and elevated risk of maternal food insecurity?
- No studies have been published on this specific association

Specific Aims

- Using Oregon PRAMS and PRAMS-2:

1. Estimate prevalence of food insecurity among Oregon mothers
2. Estimate prevalence of CSHCN among 2-year-olds in Oregon
3. Build a cross-sectional multivariate logistic regression model to asses whether having a CSHCN is associated with elevated odds of maternal food insecurity
4. Build a longitudinal model with reduced sample to examine whether having a 2-year-old CSHCN is predictive of a shift to food insecurity.

Hypothesis

- Mothers of CSHCN will be at elevated risk of food insecurity when compared to mothers whose children do not have special health care needs.

Methods

Oregon PRAMS

- Pregnancy Risk Assessment Monitoring System
  - Initiated by CDC in 1987
  - Surveys new mothers 2-6 months after live birth to assess perinatal health events and birth outcomes
  - Stratified random sampling of birth certificates
    - Oregon stratifies by race/ethnicity
      - American Indian/Alaska Native (Non-hispanic (NH))
      - Asian/Pacific Islander (NH)
      - African American (NH)
      - Hispanic
      - White (NH)
    - Low birth weight babies to white mothers

Oregon PRAMS-2

- 2005 PRAMS-2 developed by Oregon Department of Human Services (DHS)
- Designed to assess early childhood health issues with a longitudinal cohort design
- Two-year follow-up survey sent to women who previously responded to PRAMS
- 2006 - first round of PRAMS-2 surveys sent
  - Sent to all mothers who responded to 2004 PRAMS
    - Except for those whose babies had died, or who indicated “Do not contact me again” on the 2004 PRAMS survey

Survey Weights

- To generate a population-based sample
- Stratification
- Weights
  - Sampling weights
  - Non-response weights
  - Non-coverage weights
- Multiplying sampling, non-response and non-coverage weights
  - Interpreted as “the number of women like herself in the population that each respondent represents.”
- Advanced statistical software is necessary for analysis of weighted data

Survey Protocol

- Lengthy data collection process to promote high response rate
  Each monthly batch of live births
  - 1. Preletter
  - 2. Initial questionnaire packet mailed - 3-7 days after (1)
  - 3. Tickler - 7-10 days after (2)
  - 4. Second questionnaire packet mailed - 7-14 days after (3)
  - 5. Third questionnaire packet mailed - 7-14 days after (4)
  - 6. Telephone follow-up - 7-14 days after (5)
    - Over 2-3 weeks, up to 15 call attempts are made

Variable Coding: Outcome

- Outcome of interest: Food Insecurity
  - PRAMS Question: "During the *12 months before* your new baby was born, did you ever eat less than you felt you should because there was not enough money to buy food?"
  - PRAMS-2 Question: "In the *past 12 months*, did you ever eat less than you felt you should because there was not enough money to buy food?"
  - Closely resembles #5 from *Six-Item HFSS*: "In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?"
- Those who answered "Yes" were classified as food insecure for the respective time period (T1 or T2).
- 863 women responded to the PRAMS-2 FI question, those who did not respond were excluded.

Variable Coding: Outcome

- Shift to food insecurity
  - Outcome of interest for the longitudinal analysis
  - Reduced sample
    - Mothers who were FI at T1 were excluded (N = 84)
    - Final sample made up of 730 mothers; all food secure at T1
- Variable was created to represent shift to FI in follow-up period
  - Those who were food secure at T1, but food inscure at T2 (N = 62)

Variable Coding: Main Predictor

- Initially coded as dichotomous based on response to questions 79b and c in PRAMS-2
  - Moms who answered Yes to any one or more of the options were classified as having a CSHCN (1)
  - Those who answered No to all, were classified as not having a CSHCN (0)
- Later categorized to represent *number of* ongoing health service needs reported by mothers
  - 0 ongoing needs (No CSHCN)
  - 1 ongoing need
  - 2 or more ongoing needs
- Those who did not respond to all 10 items were excluded (n = 29)

79. Please circle Y (Yes) or N (No) for each of the following.

Does your two-year-old-child have…

b. An ongoing need (lasting 6 months or more) for:

(1) Specialty health care

(2) Behavioral health or mental health services

(3) Physical therapy

(4) Occupational therapy

(5) Speech services

c. An ongoing need (lasting 6 months or more) for:

(1) Medication

(2) Home health services

(3) Special diet

(4) Use of assistive devices

(5) Durable medical equipment

Variable Coding: Covariates

Variable	Possible responses	Coding for analysis
Annual household income	-Less than $10,000 -$10,000 to $14,999 -$15,000 to $19,999 -$20,000 to $24,999 -$25,000 to $29,999 -$30,000 to $34,999 -$35,000 to $49,999 -$50,000 or more	1 = 0-99% FPL 2 = ≥ 100% FPL
Maternal age	Date of birth (Continuous)	1 = younger than 25 2 = 25 – 29 years 3 = 30 years and older
Maternal race/ ethnicity (from birth certificate file)	-African American (NH) -American Indian/ Alaska Native (NH) -Asian/Pacific Islander (NH) -Hispanic -White (NH)	1 = African American 2 = AI/AN 3 = Asian/PI 4 = Hispanic 5 = White

Variable Coding: Covariates

Variable	Possible responses	Coding for analysis
Maternal education	-Less than 12th grade -12th grade or GED -More than 12th grade	1 = < 12 years 2 = 12 years/GED 3 = > 12 years
Marital status	-Never married -Married -Widowed -Divorced -Separated	1 = Married/Separated 2 = Unmarried (all else)
Maternal employment status	-Yes, full time -Yes, part time -No, but I am looking for work -No, I am not looking for work	1 = Full time 2 = Part time 3 = Unemployed, looking 4 = Unemployed, not looking
County type (from birth certificate file)	All Oregon counties	1 = Rural 2 = Urban

Variable Coding: Covariates

Variable	Possible responses	Coding for analysis
Child insurance status (current, T2)	-None -OHP, Medicaid, SCHIP -Medicare -Private Insurance -Military/CHAMPUS -Indian Health Service -Other	1 = Private/military 2 = Public 3 = Uninsured
Child ever on WIC	-No -Yes, on WIC now -Yes, but no longer on WIC	1 = Never on WIC 2 = Ever on WIC (now or previously)

Statistical Analysis

- Descriptive statistics
  - 1. One-way tables
    - Unweighted frequencies in each category
    - Weighted proportions with predefined sample weights
      - Survey Data Analysis menu in STATA
  - 2. Distribution of food insecurity by covariates
    - Two-way tables (weighted and unweighted)
    - Cell counts, chi-square statistics
- Weighted data were used for all other statistical procedures

Statistical Analysis

- Univariate logistic regression models
  - Food insecurity and CSHCN
  - All other covariates
    - Note: all covariates had been determined clinically significant based on non-statistical inference. All were eligible for inclusion into the final model.
- Assessment for confounding
  - Nine logistic regression models containing food insecurity, CSHCN + one other covariate
    - Predictors which changed OR between FI and CSHCN > 10% considered potential confounders

Statistical Analysis

- Multivariate logistic regression model
  - All covariates remained in the model due to clinical significance.
- Preliminary longitudinal model
  - Reduced sample: only moms who were food secure at T1
  - Outcome of interest: shift to food insecurity at T2
  - Univariate model with CSHCN
  - Same clinically-significant covariates

Results

Response Rate

- 2004 PRAMS sent surveys to 2,814 women
  - 1,968 responded
- 2006 PRAMS-2 sent surveys to 1,935 women
  - 865 responded
- Response rate: 51.1%
  - Corresponding to the weighted proportion of mothers who responded to *both surveys*, out of the total (1,935) who were sent both surveys.

Sample Characteristics

- Total for analysis = 835 met inclusion criteria
  - Complete responses for FI and CSHCN survey questions
- 84.9% had 12 or more years of education
- 79.1% were married
- 77.5% live in an urban county
- 72.9% had income > 100% FPL
- 54.6% were aged 30 or older

Sample Characteristics

- 33.2% reported that their child was currently on WIC
  - 16% were on WIC previously
  - 50.8% were never on WIC
- 62% of mothers were privately insured
  - 18.7% publicly insured
  - 19.4% uninsured
- 56.5% of children were privately insured
  - 34.7% publicly insured
  - 8.8% uninsured
- 19.5% of mothers reported their child was uninsured at some point in the two years since birth

Food Insecurity

- 12.8% (109) met the criteria for food insecurity at T2
- 11.9% (84) met the criteria for food insecurity at T1

- 6.6% (62) reported a shift to food insecurity in the follow-up period

Children with Special Health Care Needs

- 11.7% (125) met the dichotomous criteria for CSHCN

Number of services needed	n (weighted %)
0	710 (88.3)
1 ongoing need	69 (6.0)
2 or more ongoing needs	56 (5.7)

Characteristic	n (weighted %)
Total CSHCN	125 (11.7)
Specialty health care	42 (4.3)
Behavioral/mental health service	7 (1.5)
Physical therapy	17 (2.0)
Occupational therapy	16 (1.3)
Speech services	32 (3.7)
Medication	67 (5.8)
Home health services	15 (0.8)
Special Diet	28 (2.0)
Use of assistive devices	8 (0.2)
Durable medical equipment	14 (0.8)

Cross-sectional model: Univariate analysis

- Odds of food insecurity increased as the number of ongoing health service needs increased.
- Though the associations were not significant at 0.05.

CSHCN	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
0 needs	Referent	84 (11.7)		0.32
1 ongoing need	1.60 (0.52 – 4.9)	12 (17.6)	0.41	
2 or more ongoing needs	2.26 (0.68 – 7.52)	12 (23.1)	0.19	

Univariate models: Covariates

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Maternal age				
Younger than 25	3.59 (1.64 – 7.85)	34 (22.5)	0.01	0.005
25-29	2.29 (1.03 – 5.10)	27 (15.7)	0.04	
30 or older	Referent	46 (7.5)		
Maternal race/ethnicity				
African American(NH)	1.61 (0.79 – 3.30)	15 (19.3)	0.19	<0.001
AI/AN (NH)	3.26 (1.74 – 6.12)	27 (32.6)	< 0.001	
Asian/PI (NH)	0.49 (0.22 – 1.09)	9 (6.7)	0.08	
Hispanic	0.94 (0.48 – 1.85)	17 (12.3)	0.87	
White (NH)	Referent	41 (12.9)		
Maternal education				
Less than 12 years	2.58 (0.99 – 6.73)	23 (14.8)	0.053	<0.001
12 years or GED	4.56 (2.25 – 9.26)	46 (23.5)	< 0.001	
More than 12 years	Referent	38 (6.3)		

Univariate models: Covariates, continued

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Annual household income				
0-99% FPL	Referent	66 (29.1)		
≥ 100% FPL	0.19 (0.10 – 0.37)	43 (7.3)	< 0.001	<0.001
Child insurance status				
Private	Referent	39 (8.4)		
Public	2.97 (1.46 – 6.03)	55 (21.4)	0.003	0.0097
Uninsured	2.41 (0.81 – 7.14)	14 (18.1)	0.112	
Maternal employment status				
Full time	Referent	29 (11.2)		
Part time	1.19 (0.49 – 2.89)	28 (13.1)	0.70	0.042
Unemployed, looking for work	3.26 (1.22 – 8.70)	23 (29.1)	0.018	
Unemployed, not looking for work	0.82 (0.35 – 1.90)	28 (9.3)	0.642	

Univariate models: Covariates, continued

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Marital status				
Married	Referent	61 (9.0)		
Unmarried	3.78 (1.92 – 7.44)	48 (27.1)	< 0.001	<0.001
Child ever on WIC				
No	Referent	21 (5.7)		
Yes	4.14 (1.86 – 9.20)	88 (20.0)	0.001	0.001
County type				
Rural	Referent	34 (19.4)		
Urban	0.50 (0.25 – 0.998)	75 (10.8)	0.05	0.05

- All of the covariates were significantly associated with food insecurity at the 0.05 level.

Cross sectional model: Multivariate analysis

- After adjusting for covariates, a similar trend of increasing odds of FI as number of health services increased.
- Associations still not significant at 0.05

CSHCN	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
0 needs	Referent	84 (11.7)		0.54
1 ongoing need	1.23 (.037 – 3.21)	12 (17.6)	0.73	
2 or more ongoing needs	2.33 (0.49 – 10.99)	13 (23.1)	0.29	

Multivariate model: Covariates

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Maternal age				
Younger than 25	0.96 (0.28 – 3.21)	34 (22.5)	0.94	0.82
25-29 years	1.26 (0.48 – 3.29)	27 (15.7)	0.64	
30 or older years	Referent	46 (7.5)		
Maternal race/ethnicity				
African American (NH)	0.64 (0.22 – 1.92)	15 (19.3)	0.43	0.14
AI/AN (NH)	1.81 (0.76 – 4.30)	27 (32.6)	0.18	
Asian/PI (NH)	0.57 (0.21 – 1.60)	9 (6.7)	0.29	
Hispanic	0.53 (0.19 – 1.51)	17 (12.3)	0.24	
White (NH)	Referent	41 (12.9)		
Maternal education				
Less than 12 years	1.53 (0.37 – 6.30)	23 (14.8)	0.55	0.02
12 years or GED	3.77 (1.39 – 10.20)	46 (23.5)	0.009	
More than 12 years	Referent	38 (6.3)		

Multivariate model: Covariates, continued

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Annual household income				
0-99% FPL	Referent	66 (29.1)		
≥ 100% FPL	0.28 (0.08 – 0.94)	43 (7.3)	0.039	0.039
Child insurance status				
Private	Referent	39 (8.4)		0.80
Public	0.69 (0.16 – 3.11)	55 (21.4)	0.63	
Uninsured	0.62 (0.15 – 2.57)	14 (18.1)	0.51	
Maternal employment status				
Full time	Referent	29 (11.2)		0.34
Part time	1.21 (0.44 – 3.33)	28 (13.1)	0.71	
Unemployed, looking for work	2.42 (0.69 – 8.57)	23 (29.1)	0.17	
Unemployed, not looking for work	0.85 (0.33 – 2.20)	28 (9.3)	0.73	

Multivariate model: Covariates, continued

Characteristic	OR (95% CI)	Food Insecure n (weighted %)	p-value (Wald)	p-value (F-test)
Marital status				
Married	Referent	61 (9.0)		
Unmarried	1.57 (0.62 – 4.00)	48 (27.1)	0.34	0.34
Child ever on WIC				
No	Referent	21 (5.7)		
Yes	0.94 (0.23 – 3.86)	88 (20.0)	0.93	0.93
County type				
Rural	Referent	34 (19.4)		
Urban	0.52 (0.23 – 1.21)	75 (10.8)	0.13	0.13

- Possible confounding on maternal age, insurance status and WIC status.

Longitudinal model: Univariate analysis

- All women who were food insecure at Time 1 were excluded. Final sample n = 730
- Having a CSHCN (2 or more needs) marginally significantly associated with a shift to FI.

CSHCN	OR (95% CI)	Shift to FI n (weighted %)	p-value (Wald)	p-value (F-test)
0 needs	Referent	46 (6.9)		0.0047
1 ongoing need	0.51 (0.20 – 1.33)	8 (3.7)	0.17	
2 or more ongoing needs	3.61 (0.84 – 15.46)	8 (21.1)	0.08	

Longitudinal model: Multivariate analysis

- After adjusting for covariates, odds of shift to FI and having a CSHCN (2 or more ongoing needs) increased substantially; became highly significant
- Having a child with 1 ongoing health service need not significantly associated.

CSHCN	OR (95% CI)	Shift to FI n (weighted %)	p-value (Wald)	p-value (F-test)
0 needs	Referent	46 (6.9)		0.001
1 ongoing need	0.55 (0.16 – 1.88)	8 (3.7)	0.34	
2 or more ongoing needs	9.03 (2.47 – 33.04)	8 (21.1)	0.001	

Longitudinal model: Covariates

Characteristic	OR (95% CI)	Shift to FI n (weighted %)	p-value (Wald)	p-value (F-test)
Maternal age				
Younger than 25	0.90 (0.21 – 3.80)	19 (15.4)	0.88	0.46
25-29	1.83 (0.54 – 6.22)	14 (9.4)	0.33	
30 and older	Referent	29 (4.3)		
Maternal race				
African American (NH)	1.03 (0.24 – 4.52)	11 (18)	0.97	0.54
AI/AN (NH)	2.73 (0.82 – 9.17)	14 (22.1)	0.10	
Asian/PI (NH)	1.50 (0.41 – 5.45)	6 (4.7)	0.54	
Hispanic	1.15 (0.28 – 4.81)	9 (8.5)	0.84	
White (NH)	Referent	22 (7.1)		
Maternal education				
Less than 12 years	1.88 (0.25 – 14.33)	12 (10.0)	0.54	0.04
12 years or GED	5.24 (1.14 – 24.10)	28 (16.0)	0.03	
More than 12 years	Referent	20 (2.9)		

Longitudinal model: Covariates, continued

Characteristic	OR (95% CI)	Shift to FI n (weighted %)	p-value (Wald)	p-value (F-test)
Annual household income				
0-99% FPL	Referent	35 (20.0)		
≥ 100% FPL	0.40 (0.10 – 1.55)	27 (4.1)	0.19	0.19
Child insurance status				
Private	Referent	23 (4.3)		
Public	0.95 (0.18 – 5.04)	32 (15.2)	0.95	0.66
Uninsured	0.43 (0.05 – 3.48)	7 (9.6)	0.43	
Maternal employment status				
Full time	Referent	15 (4.4)		
Part time	2.78 (0.74 – 10.41)	18 (9.5)	0.13	0.008
Unemployed, looking for work	9.44 (1.72 – 51.70)	15 (26.4)	0.01	
Unemployed, not looking for work	0.89 (0.25 – 3.20)	13 (3.4)	0.86	

Longitudinal model: Covariates, continued

Characteristic	OR (95% CI)	Shift to FI n (weighted %)	p-value (Wald)
Marital status			
Married	Referent	32 (3.6)	
Unmarried	5.49 (1.74 – 17.34)	30 (25.1)	0.004
Child ever on WIC			
No	Referent	16 (4.1)	
Yes	0.24 (0.04 – 1.39)	46 (11.9)	0.11
County type			
Rural	Referent	17 (11.8)	
Urban	0.41 (0.12 – 1.37)	45 (6.4)	0.15

Discussion

Comparison with Previous Findings

Food Insecurity

- 12.8% (T2) and 11.9% (T1) of sample food insecure
  - 2004-2006 USDA FI estimate for Oregon: 11.9% (90% CI: 10.6% - 13.2%)

    Found by surveying 1,434,000 Oregonians
- PRAMS measure of FI is robust, appropriate

Comparison with Previous Findings

CSHCN

- 11.7% of sample classified as CSHCN
  - 2005-2006 NS-CSHCN estimated 8.6% of Oregon children 0-5
  - Expected that this study's estimate would be lower than NS-CSHCN estimate
  - Potential misclassification bias; drawback to CSHCN classification tool used for this study.
- Most commonly identified CSHCN based on medication
  - This likelihood replicates findings from large studies using The CSHCN Screener

Associations between FI and CSHCN

- Cross-sectional analysis
  - Trend of increasing odds of FI as CSHCN status increases
  - Not statistically significant
    - Related to power?

      A priori power analysis: minimum detectable OR of 2.3 with 80% power and alpha = 0.05

Associations between FI and CSHCN, cont'd

- Longitudinal analysis
  - Non-significant negative association between shift to FI and CSHCN - 1 ongoing need
    - Association in this direction not expected.
  - Significant association between shift to FI and CSHCN - 2 or more ongoing needs.
    - Supporting hypothesis that elevated medical expenses contribute to the risk of FI.
    - Having a child with ongoing need for 2 or more services predicts a shift to FI

Strengths

- First study to examine this association
- PRAMS/PRAMS-2 sampling and weighting schemes
  - Inferences from PRAMS studies can be generalized to the population of the State
  - PRAMS-2 as follow-up survey
    - Sampling frame changes by PRAMS or PRAMS-2 sample
    - PRAMS-2 data are re-weighted

Strengths

- PRAMS-2 as longitudinal cohort
  - Much of the FI literature is cross-sectional
  - This study provides data on FI over 2 time periods
  - Important information gleaned from this study about burdens faced by families of CSHCN
- One of first studies to use OR PRAMS-2 data
  - Two analyses allow for use of longitudinal design.

Limitations

- Differential loss-to-follow-up?
  - FI estimates were not different based on response to PRAMS-2
  - Statistically significant differences were detected for every other key variable
    - Education, marital status, insurance status, WIC status, age, income, race
  - Were those who were lost to follow-up at higher risk for FI?
    - If so, associations in this study are biased toward the null.

Limitations

- Definition of CSHCN
  - Two questions on PRAMS-2 could be used to assess CSHCN status.
  - Using #79b and c; the estimate was higher than expected
  - #80 is worded closely to the CSHCN Screener, but lacks a time component
  - This information is useful for future revisions of the PRAMS-2 survey
- Potential for reporting bias
  - Sensitive nature of questions
  - But anonymous, confidential nature of survey addresses that; more accurate than in-person or phone surveys

PRAMS-2 Question #80

Please circle Y (Yes) or N (No) for each of the following.

Does your two-year-old.....?

a.) Need more time at doctor's visits than usual for children his/her age

b.) Need more frequent office visits than usual for children his/her age

c.) Need or use more medical or mental health services than usual for children his/her age

d.) Currently need or use medicine (other than vitamins) prescribed by a doctor

e.) Seem limited or prevented in any way in his or her ability to do the things most two-year-olds can do

f.) Experience any kind of emotional, developmental or behavioral problem for which he/she needs treatment or counseling

Public Health Implications

- Supports implementing routine FI screening by HCPs
  - Potential for outreach
    - Referral to WIC, Food Stamp Program, School Lunch Program
    - Community resources: food pantries, community gardening
  - Stigma reduction and information sharing
    - 79% of households reporting FI did not use a food pantry
    - 69% knew the pantry existed but did not make use of it
    - 19% were not aware of a food pantry

Future Studies

- Similar study using more than 1 year of PRAMS-2 data as more years become available.
- Wide variety of questions on PRAMS and PRAMS-2 surveys
  - More information regarding FI, triggers to FI
  - More information about families of CSHCN
- More longitudinal FI data: more time points
  - Long-term health issues for children and adults?
  - Persistence of FI – seasonal? Chronic?
- CSHCN studies using validated screening tools

Conclusions

- First study to examine association between FI and CSHCN
- Identifies a population at-risk for FI
  - Cross-sectional analysis: not significant, but potential trend observed
  - Longitudinal: significant increased odds of FI for mothers of CSHCN with 2 or more ongoing needs
- Provides support for more routine FI screening and referrals in health care settings

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Questions?

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