



**PREGNANCY-RELATED HEALTHCARE USE
AND EXPENDITURES IN THE US:
THE ROLE OF PRECONCEPTION AND
ANTEPARTUM MENTAL HEALTH STATUS**



SCHOOL OF MEDICINE
AND PUBLIC HEALTH



Population
Health
Sciences

10/29/12 Kara Mandell, MA

Presenter Disclosures

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no relationships to disclose+

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Background

- Women's mental health is an important predictor of adverse obstetric outcomes.
- Poor mental health is associated with health care utilization and expenditure patterns.
- Little is known about how women's mental health affects healthcare utilization and medical expenditures during pregnancy.

Study Aims

- To determine if and to what extent women's mental health status prior to and during pregnancy impacted subsequent healthcare use and expenditures during pregnancy.

Study Design

- Complete data from 10 full panels of the 1996-2006 Medical Expenditure Panel Survey (MEPS)
 - Supplemental data from the Pregnancy Detail File
- Nationally representative sample of the civilian non-institutionalized population in the U.S.
- Data collection occurred in five rounds over a 2-year period

Sample

- Women were included in the sample if they:
 - ▣ Experienced an entire pregnancy within the survey period
 - ▣ Had a live-birth within the survey period
 - ▣ Had a definite pregnancy period
- Sample Size
 - ▣ n=2,347
 - ▣ Representing 3,853,840 women

Main Outcome Variables

- Health care utilization, charges and expenditures from the MEPS Household Event Files:
 - ▣ Emergency room
 - ▣ Inpatient
 - ▣ Office-based or outpatient

Main Independent Variables

- Poor Mental Health
 - ▣ From women's self report of symptoms of mental health conditions
 - ▣ Global mental health rating of "fair" or "poor"
 - ▣ Before conception or during pregnancy

Control Variables

- Maternal and family sociodemographic factors:
 - ▣ Race/ethnicity
 - ▣ Age
 - ▣ Education
 - ▣ Marital/partner status
 - ▣ Health insurance status
 - ▣ Family income
- Pregnancy related variables:
 - ▣ Pregnancy complications
 - ▣ Length of gestation

Analytic Approach

- Data were weighted to reflect complex sampling design
- 2 and Kruskal Wallis tests for descriptive analyses
- Mean healthcare use, charges, and expenditures were estimated using two-part models
 - ▣ Confidence intervals estimated using bootstrapping techniques

Descriptive Results

- Women with poor mental health before or during pregnancy were more likely to:
 - ▣ Younger (<20 years)
 - ▣ Never married or divorced
 - ▣ No or some high school
 - ▣ Publicly insured
 - ▣ Below 100% of FPL
 - ▣ Have a pregnancy complication

Poor Mental Health Status Associated with Pregnancy-Related **Emergency Room** Visits and Expenditures

Mean Pregnancy-Related ER Utilization and Expenditures (95% CI)	Poor Mental Health	
	Yes	No
Utilization (number of visits)****	0.41 (0.31-0.53)	0.24 (0.21-0.27)
Total Charges (\$)****	706.19 (408.44-1186.44)	270.54 (229.92-338.38)
Total Expenditures (\$)****	200.10 (104.24-366.80)	116.95 (93.63-158.06)
Total Out-of-Pocket Expenditures (\$)****	23.64 (3.54-64.70)	8.07 (5.09-12.17)

Adjusting for: age, race/ethnicity, marital status, educational attainment, insurance coverage, family income, pregnancy complications, and weeks of gestation.

****p<0.0001

Poor Mental Health Status Associated with Pregnancy-Related **Outpatient** Visits, But Not Total Expenditures

Mean Pregnancy-Related Outpatient Utilization and Expenditures (95% CI)	Poor Mental Health	
	Yes	No
Utilization (number of visits)****	10.72 (9.55-11.97)	10.21 (9.97-10.49)
Total Charges (\$)****	3,291.65 (2747.60-3886.80)	3,012.16 (2839.10-3227.25)
Total Expenditures (\$)	1,576.44 (1331.45-1855.02)	1,584.01 (1495.05-1688.36)
Total Out-of-Pocket Expenditures (\$)****	120.41 (75.95-183.88)	198.65 (168.62-235.08)

Adjusting for: age, race/ethnicity, marital status, educational attainment, insurance coverage, family income, pregnancy complications, and weeks of gestation.

****p<0.0001

Poor Mental Health Status Associated with Pregnancy-Related **Inpatient** Visits and Expenditures

Mean Pregnancy-Related Inpatient Utilization and Expenditures (95% CI)	Poor Mental Health	
	Yes	No
Utilization (number of visits)****	0.92 (0.83-1.00)	0.88 (0.86-0.91)
Total Charges (\$)****	10,701.48 (9377.26-12167.08)	10,465.85 (10021.19-10921.92)
Total Expenditures (\$)****	4,710.01 (3994.41-5450.20)	4,782.58 (4565.86-5028.85)
Total Out-of-Pocket Expenditures (\$)****	153.61 (75.29-297.30)	234.97 (203.47-309.21)

Adjusting for: age, race/ethnicity, marital status, educational attainment, insurance coverage, family income, pregnancy complications, and weeks of gestation.

****p<0.0001

Total Mean Pregnancy-Related Utilization, Charges and Expenditures

Expected Mean Pregnancy-Related Utilization and Expenditures	Poor Mental Health	
	Yes	No
Total Visits	12.06	11.33
Total Charges (\$)	14,699.32	13,748.55
Total Expenditures (\$)	6,486.55	6,483.53
Total Out-of-Pocket Expenditures (\$)	297.66	441.69

Sum of totals from adjusted analyses.

Conclusions

- Women with poor mental health are more likely to receive pregnancy-related care in all settings.
 - May be supplementing prenatal care in office-based setting with pregnancy-related ER visits.
- Poor mental health was associated with higher outpatient charges, but not higher expenditures.
- Poor mental health was associated with lower outpatient and inpatient out-of-pocket costs.
 - May be related to insurance coverage.

Implications

- Poor mental health may increase the cost of healthcare during the prenatal period.
- Healthcare providers should identify, monitor, and treat women's mental health problems prior to and during pregnancy.
- Improving access to prenatal care and mental health services will be important upstream interventions.

Limitations

- Data on preconception/pregnancy period mental health may underestimate lifetime prevalence of poor mental health.

Thank you!

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- This research was supported by:
 - University of Wisconsin Institute for Research on Poverty
 - National Institute of General Medical Sciences
 - National Institutes of Health

Backup Slides

~7% of Women Report Poor Mental Health Prior to or During Pregnancy

	Weighted and Un-Weighted Sample Size		Poor Mental Health	
	Total	Yes	No	
Weighted N	3,853,840	275,026	3,578,814	
Weighted %		7.14%	92.86%	
Un-Weighted N	2,347	204	2,143	
Un-Weighted %		8.69%	91.31%	

Women With Poor Mental Health More Likely To Be Never Married, Divorced

Marital status****	Poor Mental Health		
	Total	Yes	No
Married, lives with partner****	75.3%	51.4%	77.2%
Never married****	21.0%	37.6%	19.8%
Divorced, separated, widowed****	3.7%	11.0%	3.1%

Unadjusted analyses; ****p<0.0001

Women With Poor Mental Health Less Educated

Education status****	Poor Mental Health		
	Total	Yes	No
No or some high school****	22.5%	41.80%	21.0%
High school graduate	26.6%	27.00%	26.6%
Some college	21.7%	18.70%	21.9%
College or beyond****	29.2%	12.40%	30.5%

Unadjusted analyses; ****p<0.0001

Women Reporting Poor Mental Health More Likely To Receive Publicly-Funded Insurance

Health Insurance Status****	Poor Mental Health		
	Total	Yes	No
Private insurance only****	68.8%	50.7%	##
Any publicly funded insurance****	20.9%	37.7%	##
No insurance	10.3%	11.6%	##

Unadjusted analyses; ****p<0.0001

Women With Poor Mental Health More Likely To Be Below 100% FPL

Ratio of family income to poverty threshold****	Poor Mental Health		
	Total	Yes	No
Below 100% (Poor)****	21.0%	38.7%	19.7%
100-199% (Near poor/Low)	20.0%	23.7%	19.7%
200-399% (Middle)*	28.2%	20.2%	28.8%
400%+ (High)***	30.8%	17.4%	31.8%

Unadjusted analyses; *p<0.1; **p<0.01; ***p<0.001; ****p<0.0001

Women With Poor Mental Health Younger, But No Difference in Race

	Poor Mental Health		
	Total	Yes	No
Age****			
14-19****	9.2%	21.5%	8.2%
20-24	25.5%	21.3%	25.8%
25-29	27.9%	25.2%	28.1%
30-34	24.4%	21.2%	24.7%
35+	13.0%	10.8%	13.1%
Race/Ethnicity			
White (Non-Hispanic)	61.8%	60.1%	62.0%
Black (Non-Hispanic)	12.3%	13.5%	12.2%
Hispanic	19.6%	20.4%	19.6%
Other (Non-Hispanic)	6.3%	6.0%	6.3%

Unadjusted analyses; ****p<0.0001

Poor Mental Health Status Associated with Higher Pregnancy-Related ER Visits and Expenditures

Mean Pregnancy-Related ER Utilization and Expenditures	Poor Mental Health		
	Total	Yes	No
Utilization (number of visits) **	0.2	0.4	0.2
Total Charges (\$) *	244.90	602.44	217.43
Total Expenditures (\$) *	108.53	210.31	100.71
Total Out-of-Pocket Expenditures (\$)	8.79	22.48	7.74

Unadjusted analyses; *p<0.1; **p<0.01

Poor Mental Health Status Associated with Lower Pregnancy-Related Outpatient Out-of-Pocket Expenditures

Mean Pregnancy-Related Outpatient/Office Utilization and Expenditures	Poor Mental Health		
	Total	Yes	No
Utilization (number of visits)	10.8	11.2	10.8
Total Charges (\$)	3,010.27	3,089.95	3,004.14
Total Expenditures (\$)	1,639.99	1,519.30	1,649.27
Total Out-of-Pocket Expenditures (\$) **	189.12	103.25	195.72

Unadjusted analyses; **p<0.01

Poor Mental Health Status Associated with Lower Out-of-Pocket Inpatient Expenditures

Mean Pregnancy-Related Inpatient Utilization and Expenditures	Poor Mental Health		
	Total	Yes	No
Utilization (number of visits)	0.9	1.0	0.9
Total Charges (\$)	10,308.00	10,425.00	10,299.00
Total Expenditures (\$)	4,911.39	4,972.93	4,906.66
Total Out-of-Pocket Expenditures (\$) *	228.22	128.11	235.91

Unadjusted analyses; *p<0.1