

# Preventing Perinatal Depression, Substance Use, and Self-Harm Ideation to Design Injury Related Maternal Early Warning Systems and Reduce Maternal Morbidity and Mortality

Qing Li, M.D., Dr.P.H., Elias Provencio-Vasquez, Ph.D., R.N., Vincent J Palusci, M.D., Lei Zhang, Ph.D., Lynette Feder L, Ph.D., Ezra S. Susser, M.D., Dr.P.H.

## INTRODUCTION

Respond to the trans-NIH Implementing a Maternal health and PRegnancy Outcomes Vision for Everyone (IMPROVE) initiative

Homicide, suicide, and drug overdose are the leading and preventable causes of pregnancy-associated deaths in the U.S.<sup>1</sup> However, their risk factors, such as maternal depression (MD), substance use (SU), and self-harm ideation (SHI) have not been evaluated in maternal early warning systems for screening and prevention. Relationship education is an evidence-based preventive intervention to address marital distress and partner violence.<sup>2</sup>

**Objectives:** To evaluate the effectiveness of a nurse home visiting program augmented with comprehensive relationship education on preventing MD, SU, and SHI.

## METHODS

We performed secondary analyses of a longitudinal randomized controlled trial with data collection from 2007 to 2010.<sup>3,4</sup> In the Nurse Family Partnership (NFP) program in Oregon, 238 first-time, low-income pregnant women were randomized to a standard or augmented program when nurses delivered the *Within My Reach* comprehensive relationship education curriculum.

## CONCLUSION

The NFP program augmented with relationship education did not affect MD, SU, or SHI.

These findings inform efforts to build a consortium, engage fathers, enhance coparenting, identify settings, and design and implement a hybrid effectiveness-implementation pilot trial of injury related maternal early warning systems to prevent these risk factors collectively.

Our study responds to RFA-MH-22-200 to address mental health disparities through aggregating and mining data sets and promote scientific equity.

**Table 1.** Maternal demographics at baseline and maternal depression, substance use, and self-harm ideation over three waves in a trial, Oregon, 2007 to 2010.

Two Groups	Standard (n=105)	Augmented (n=133)	p value
<b>Age</b>	20.7 (4.7)	20.3 (4.0)	0.50
<b>Race/Ethnicity</b>			
White	38 (36%)	32 (24%)	0.04*
Hispanic	44 (42%)	75 (56%)	0.03*
Others	22 (21%)	26 (20%)	0.79
Missing	1 (1%)	0	
<b>U.S.-born</b>	66 (63%)	71 (53%)	0.14
<b>High school graduate</b>	56 (54%)	51 (39%)	0.02*
<b>Annual household income</b>			
<\$20,000	60 (58%)	61 (47%)	0.10
Missing	2 (2%)	4 (3%)	
<b>Employed</b>	63 (62%)	65 (50%)	0.07
Missing	4 (4%)	4 (4%)	
<b>Partner relationship</b>			
Married or engaged	34 (47%)	31 (38%)	0.27
Missing	32 (30%)	26 (20%)	
	<b>N, Mean, SD, Variance</b>		
<b>Maternal depression</b>	638, 6.6, 5.9, 34.3		
Baseline	105, 7.5, 6.0, 35.5	133, 6.4, 5.8, 34.0	0.15
Year 1	93, 7.0, 6.0, 35.6	116, 5.3, 5.5, 30.4	0.04*
Year 2	86, 7.3, 5.7, 33.0	105, 6.6, 6.0, 35.8	0.46
<b>Substance use</b>	638, 1.5, 3.0, 9.0		
Baseline	105, 1.7, 3.7, 13.6	133, 1.5, 3.1, 9.3	0.58
Year 1	93, 1.4, 2.7, 7.0	116, 1.3, 3.0, 8.7	0.85
Year 2	86, 2.0, 3.2, 10.3	105, 1.4, 2.3, 5.2	0.14
<b>Self-harm ideation</b>	<b>Count of Answer</b> N, 0, 1, 2, 3		
Baseline	105, 97, 5, 3, 0	133, 126, 4, 2, 1	6%
Year 1	93, 83, 4, 5, 1	116, 111, 4, 0, 1	7%
Year 2	86, 76, 6, 4, 0	105, 97, 3, 3, 2	9%

Notes: N: Number. SD: Standard Deviation. \*p <0.05

Contact [gli2@umc.edu](mailto:gli2@umc.edu) R49CE000556, PI Qing Li; U49CE000516, PI Lynette Feder

## METHODS (Continued)

At pregnancy, and 1-year and 2-year follow-up, research assistants interviewed mothers using the Edinburgh Postpartum Depression Scale including an SHI item, Alcohol Use Disorder Identification Test, and Drug Abuse Screening Test. Multilevel zero-inflated negative binomial regression models and the proportional odds model of generalized estimating equations were performed, adjusting for age, race/ethnicity, educational level, and nativity status.

## RESULTS

Maternal characteristics and 3 risk factors were in Table 1. The augmented program did not reduce any of 3 targeted risk factors over the two-year follow-up. The wave and intervention interaction terms were not significant (p values >0.05) and had limited powers (e.g., <10%) in power analyses.

## REFERENCES

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