

Background

- ❖ Environmental context has been increasingly recognized as an important determinant of health behavior. Neighborhood safety is an environmental level variable that has been associated with birth outcomes.
- ❖ Experience of stressful life events during pregnancy can negatively impact birth outcomes of a baby through physiological, psychological, and behavioral pathways.
- ❖ Complications of pregnancy are usually attributed to biomedical risk factors.
- ❖ There is circumstantial evidence that some psychosocial factors also contribute to preeclampsia, intrauterine growth restriction, and other pregnancy-related complications.

Objectives

- ❖ Assess the relationship between perceived neighborhood safety (NBS), maternal stress, and pregnancy complications.

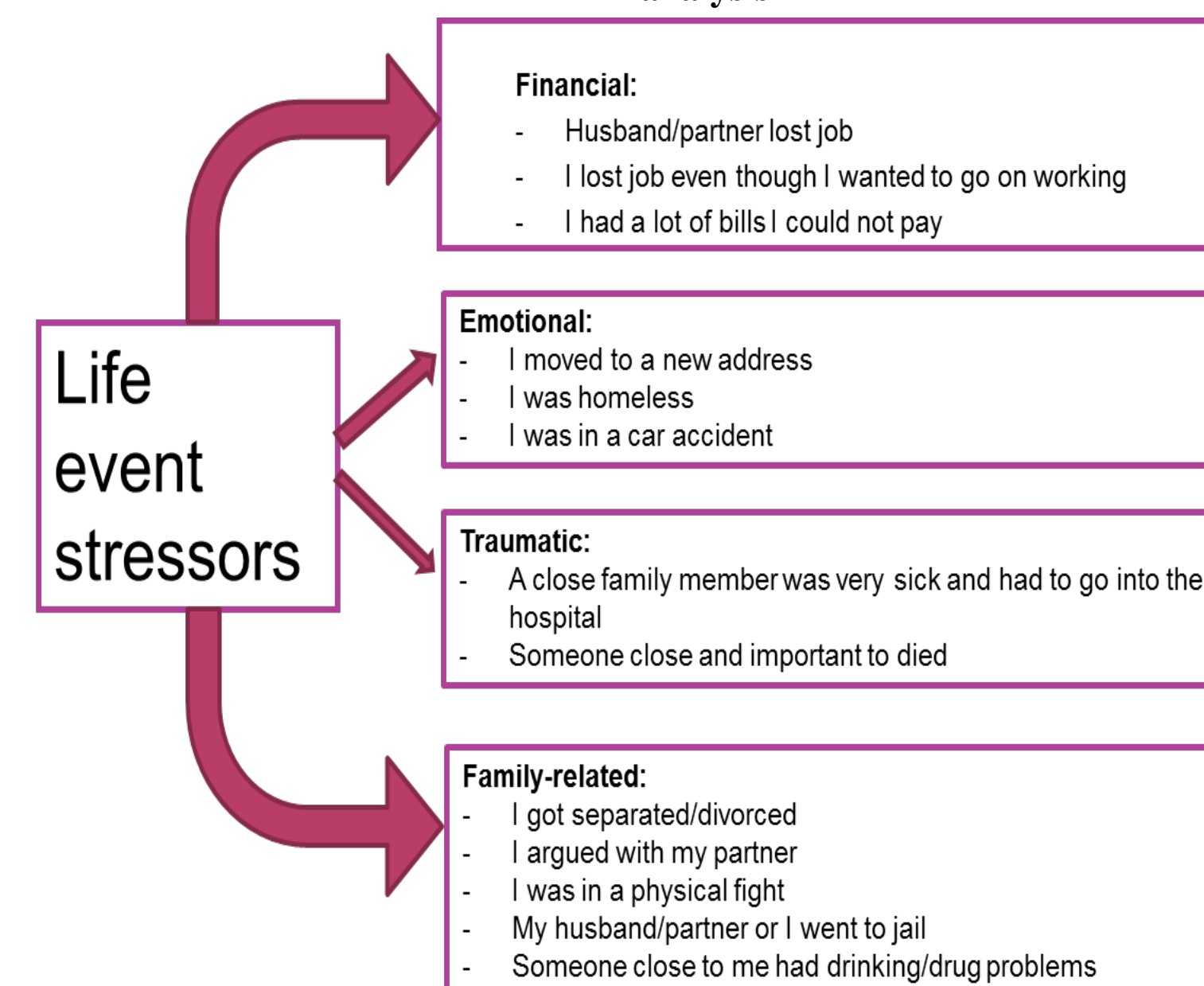
Methodology

- ❖ Design: A cross-sectional study
- ❖ Study population: Women who had a live birth in Los Angeles County in 2010 Data source: The 2010 LAMB survey data.
- ❖ LAMB is a population-based mail survey with telephone follow-up for non-respondents. LAMB utilized a stratified random sampling design.
- ❖ Independent variables:
 - Stress: 13-item life event scale (Fig.1)
 - Neighborhood Safety: "How would you rate your neighborhood in terms of safety from violence?"
- ❖ Dependent Variables:
 - Pregnancy complication: Any combination of preeclampsia, early labor, early water break, fetal growth restriction, incompetent cervix, problems with placenta, bacterial vaginosis, kidney infection, STI, severe nausea, or was put on bed rest.

Statistical Analysis

- ❖ Following previously published methods (1), life events were grouped into 4 domains (Fig 1).
- ❖ Bivariate analyses were used to assess bivariate associations of variables of interest.
- ❖ Multivariate logistic regression was used to model the association between stressor, NBS and pregnancy complications.
- ❖ Covariates in the final model were selected based on literature review, bivariate analysis and backward selection approach.
- ❖ Sampling weights were used to represent all LA County live births in 2010

Figure 1. Grouped life event stressors based on cluster analysis



Results

- ❖ Only included White, African American, Latina, and Asian/PI singleton births
- ❖ Final sample size: 6,085 (adjusted response rate = 56%)
- ❖ 38% reported stress in two or more stress domains, denoting high stress
- ❖ 14% reported very poor to fair neighborhood safety during pregnancy
- ❖ 60% reported pregnancy complication(s).

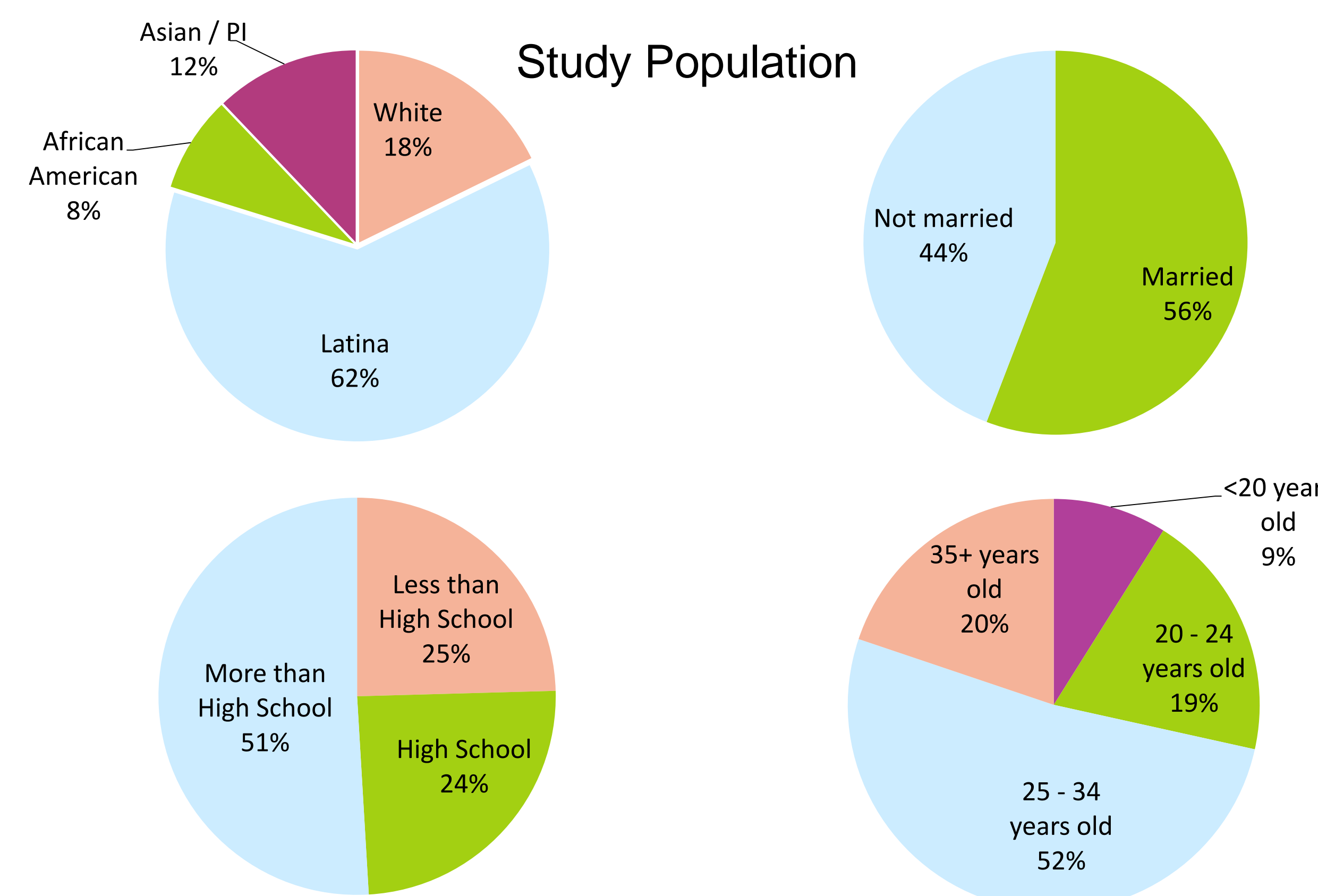


Table 2: Odds of Having Pregnancy Complications (Adjusted Odds Ratio Estimates*)

Effect	Group of Interest	Reference Group	Point Estimate	95% Wald Confidence Limits	
STRESSFUL LIFE EVENT	High Stress	Low Stress	1.3	1.11	1.6
NEIGHBORHOOD SAFETY FROM VIOLENCE	Not Very Safe	Very Safe	1.3	1.04	1.77
MEDI-CAL PAID DELIVERY	Yes	No	1.08	0.87	1.34
MATERNAL RACE/ETHNICITY	Asian/ PI	White	0.97	0.78	1.21
	African American	White	1.3	1.1	1.56
	Hispanic	White	1.3	1.1	1.8
PREVIOUS OBSTETRIC HISTORY	Previous Fetal/Infant lost	No Previous Infant/ Fetal Lost	1.2	1.1	1.4
PREVIOUS MEDICAL CONDITIONS	Had Medical Problem	No Medical Problem	1.7	1.4	2.1
MATERNAL WEIGHT PRIOR TO PREGNANCY	Overweight/Obese	Not Overweight/Obese	1.2	1.02	1.4

*Final model adjusted for: maternal race, maternal age, education, marital status, insurance, pre-pregnancy conditions, obstetric history, & weight status before pregnancy.



- ❖ Women with high stress were 1.3 times more likely to have a pregnancy complication, compared to women with no/low stress
- ❖ Women who lived in an unsafe neighborhood were also 1.3 times more likely to have a pregnancy complication, compared to women who lived in a safe neighborhood.
- ❖ Compared to White mothers, African American and Latino mothers were more likely to report pregnancy complications (aOR = 1.41; 95% CI: 1.15-1.80; aOR=1.27, CI: 1.10-1.66, respectively).

Table 1. Selected Characteristics of the Study Population by Pregnancy Complications

Independent Variables	Prevalence of Pregnancy Complications	p-value
MOTHER'S RACE/ETHNICITY		
White	50%	<0.0001
Latina	66%	
African American	68%	
Asian / PI	56%	
MATERNAL AGE		
<20 years old	66%	0.139
20 - 24 years old	69%	
25 - 34 years old	60%	
35+ years old	61%	
MARITAL STATUS		
Married	58%	0.02
Not married	67%	
MEDI-CAL PAID DELIVERY		
Yes	67%	<0.0001
No	58%	
MATERNAL WEIGHT PRIOR TO PREGNANCY		
Overweight/Obese	67%	<0.0001
Not overweight/Obese	58%	
PRENATAL CARE		
Late PNC	62%	0.173
Not Late PNC	62%	
PREVIOUS OBSTETRIC HISTORY		
Previous Fetal/ Infant Lost	65%	<0.0001
No Previous Fetal/ Infant Lost	60%	
PREVIOUS MEDICAL CONDITIONS		
Had Medical Problem	74%	<0.0001
No Medical Problem	58%	
STRESSFUL LIFE EVENT		
Stressful Life Events (High)	58%	<0.0001
Stressful Life Events (Low)	69%	
NEIGHBORHOOD SAFETY FROM VIOLENCE		
Safe	62%	<0.0001
Not Safe	71%	

Discussion

- ❖ Stressful life events and living in unsafe neighborhood during pregnancy were associated with pregnancy complications.
- ❖ **Implications:** This study supports public health programs/initiatives to help women of reproductive age develop life skills, learn strategies for reducing stress, especially for African American and Latino women. Findings also encourage collaboration among leaders and policymakers in housing, education, health, and economic development to make LA neighborhoods healthier places to live for everyone.
- ❖ More research is needed to assess the types and amount of social support critical to mitigate the negative impact of stress and unsafe neighborhood on pregnant women.
- ❖ **Limitations:** Due to the cross-sectional study design, there could potentially be recall bias in the responses. There may be unmeasured confounders and/or effect modifiers that we did not consider in this study. The results from this study are only generalizable to LA County population.