Examining Maternal Chronic Conditions and the Effects on Congenital Anomalies in Florida 2014 - 2017

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Research Excellence Initiative
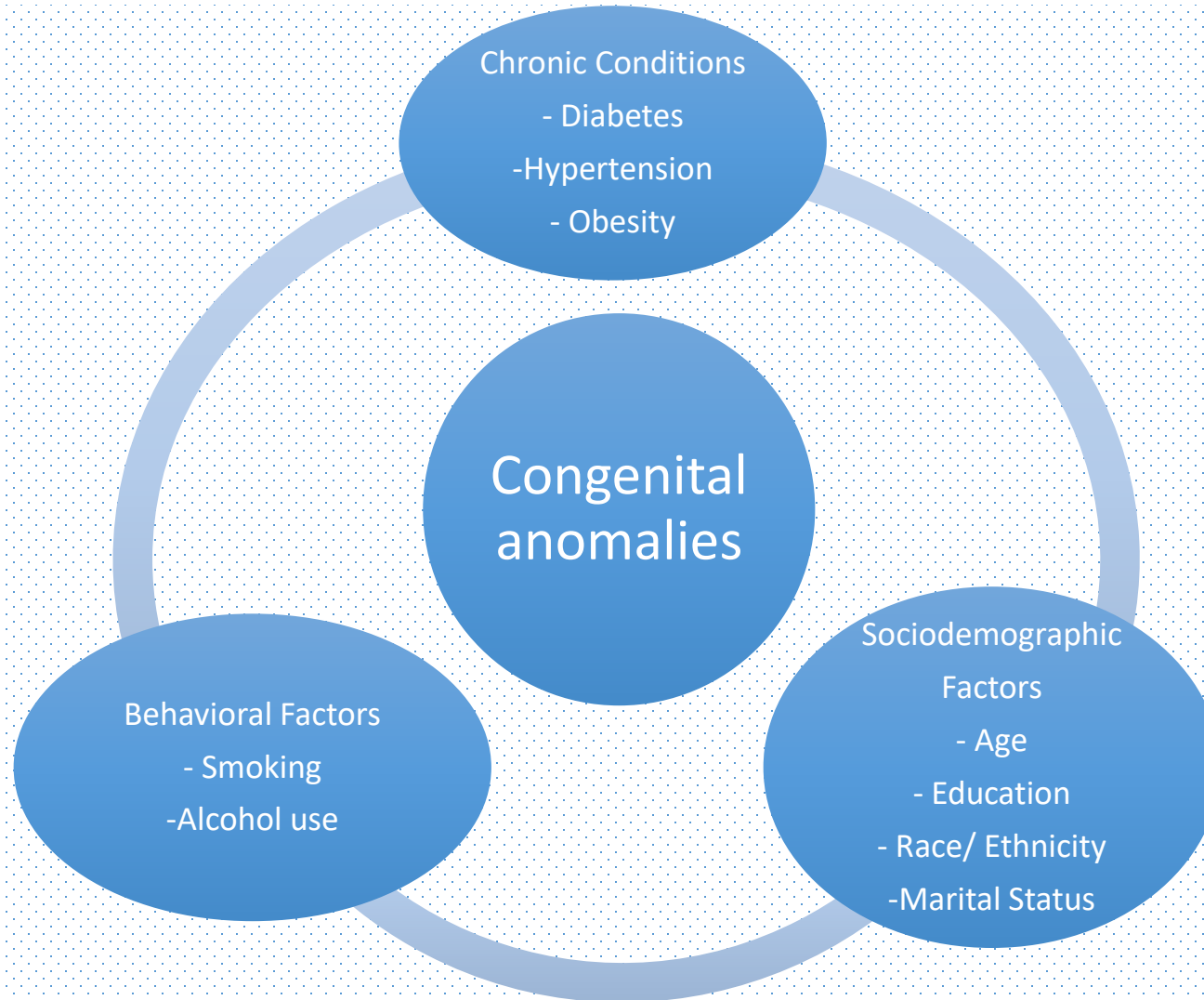
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Outline

➢Introduction

➢Objectives and Research Questions

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Introduction

➢ 70% of all deaths worldwide are attributable to chronic disease

➢ Occurrence is likely to increase in the coming decades

➢ Half of the US population is affected by at least one chronic disease

➢ More than half of reproductive-aged women (i.e., 19-49 years-old) are at risk of developing serious chronic disease

➢ The rate of preterm birth in Florida increased in 2017 moving from 10.15% in 2016 to 10.22% in 2017

Congenital anomalies Risk Factors

Chronic Conditions
- Diabetes
- Hypertension
- Obesity

Congenital anomalies

Behavioral Factors
- Smoking
- Alcohol use

Sociodemographic Factors
- Age
- Education
- Race/ Ethnicity
- Marital Status

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Objectives

To describe the characteristics of mothers in Florida for the period 2014-2017

To determine the prevalence of congenital anomalies in Florida for the period 2014-2017.

To investigate the association between maternal risk factors and the occurrence of congenital anomalies in Florida for the period 2014-2017.

Research Question

Maternal chronic conditions and the occurrence of congenital anomalies

- What are the characteristics of mothers who gave birth in Florida during 2014 -2017?
- What is the prevalence of congenital anomalies in Florida during 2014 -2017?
- What are the risk factors associated with the occurrence of congenital anomalies among mothers?
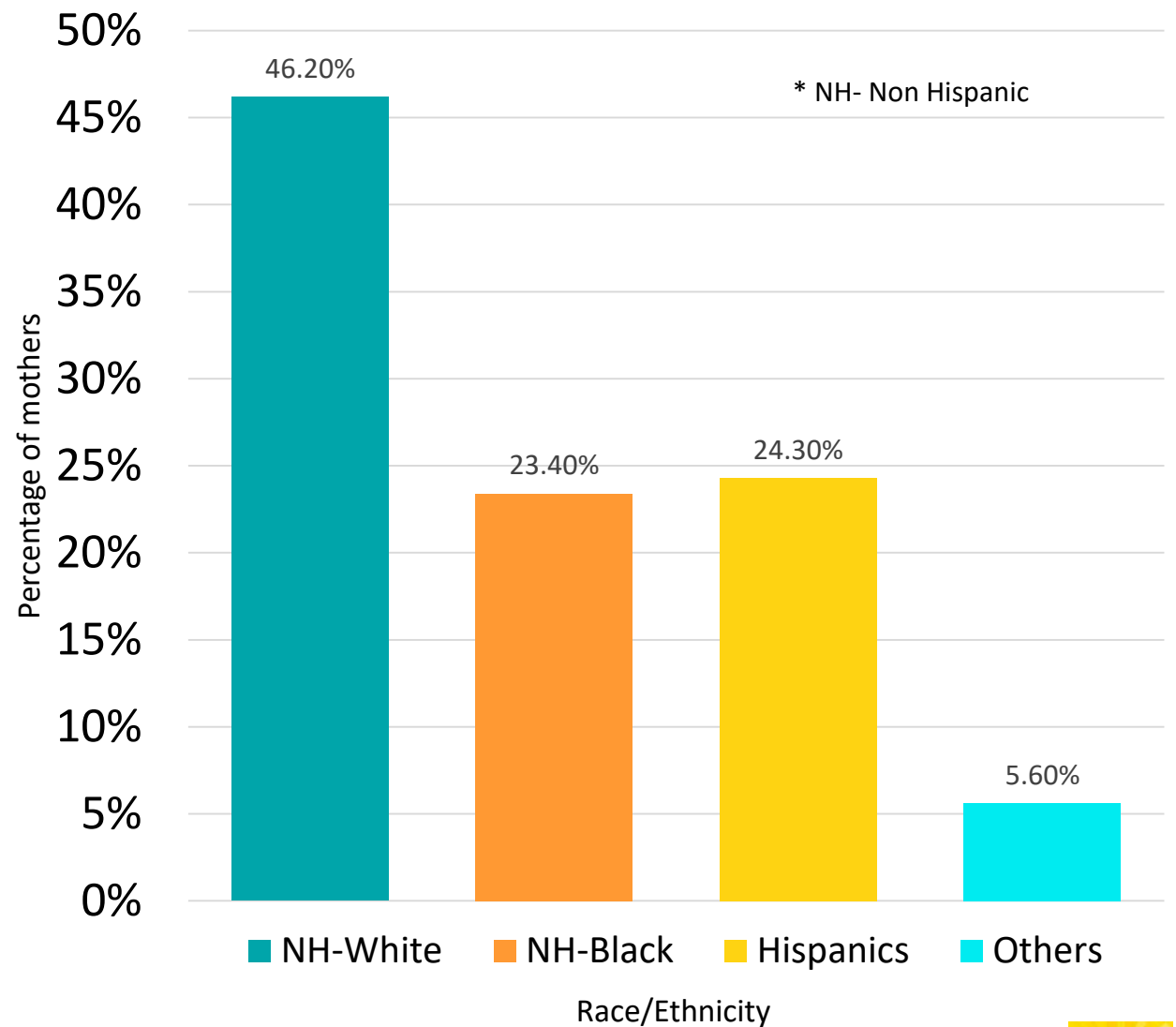
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Methods

➢ Study Population:

   ❖ Entire Florida population from 2014-2017

➢ Data Source:

   ❖ Florida Vital Statistics (2014-2017)

➢ Data Analysis:

   ❖ Descriptive study – chi-square

   ❖ Analytic study – logistic regression

   ❖ SAS 9.4- all calculations
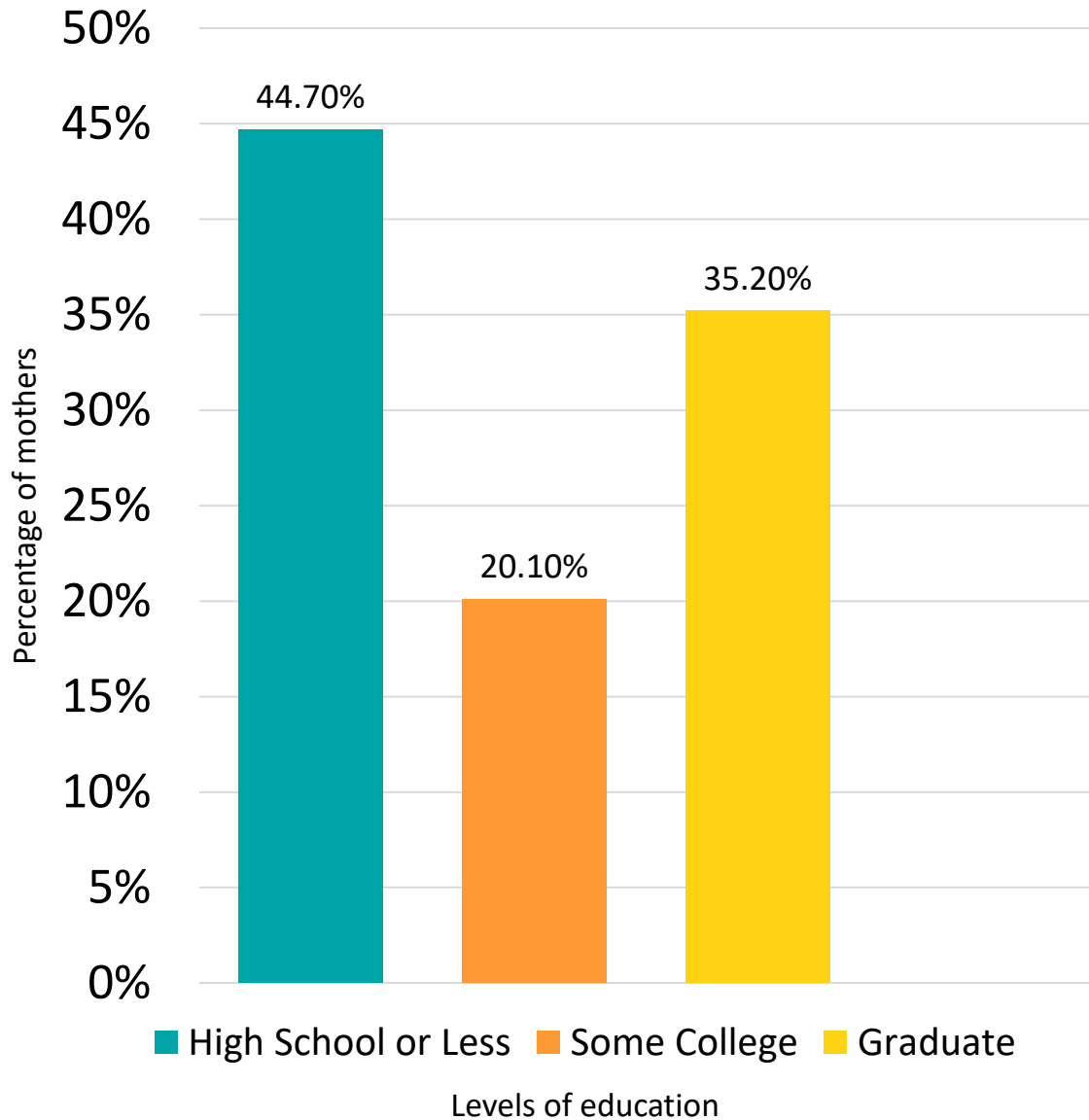
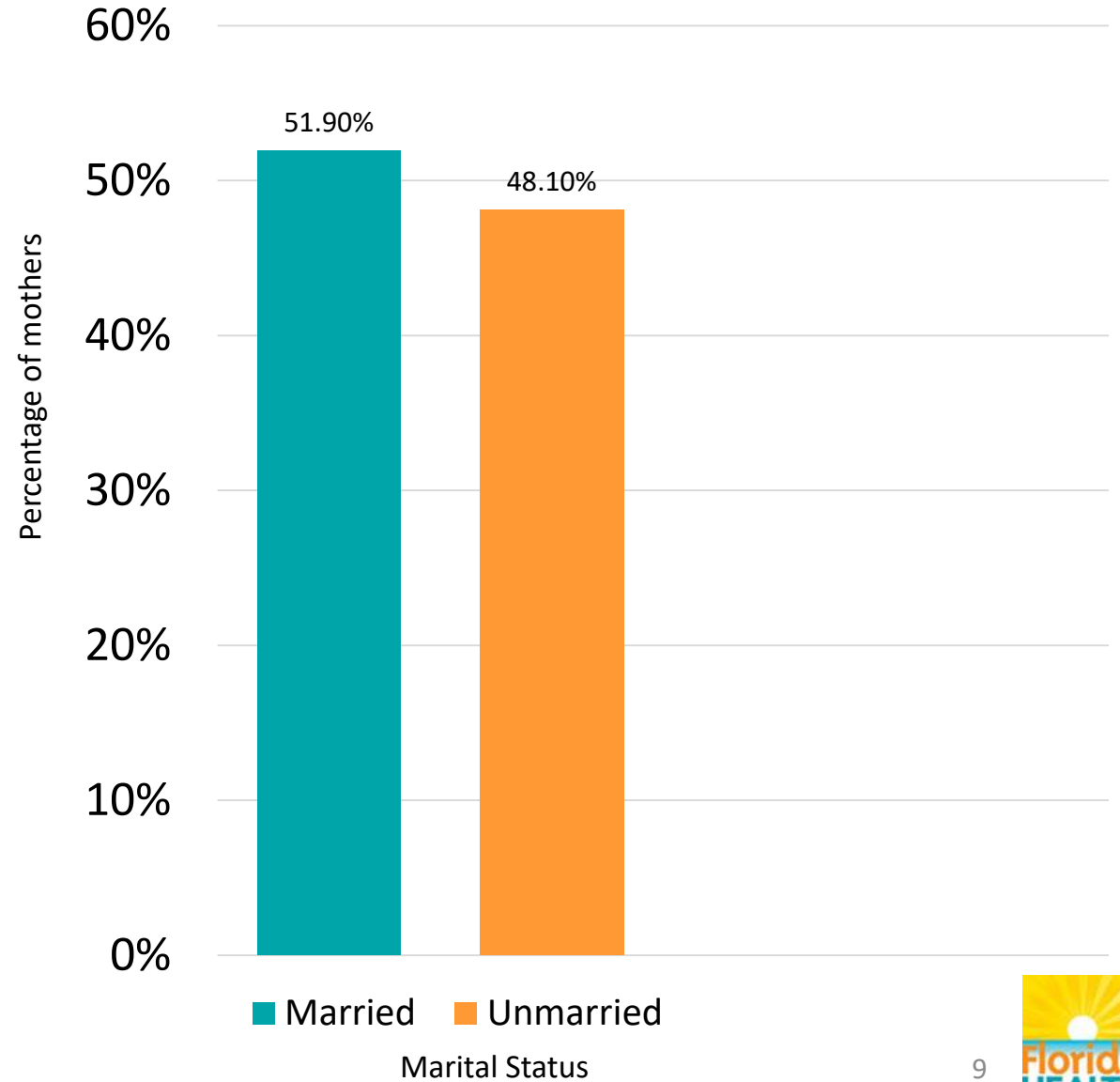Percentage of congenital anomalies by age in Florida, 2014 -2017
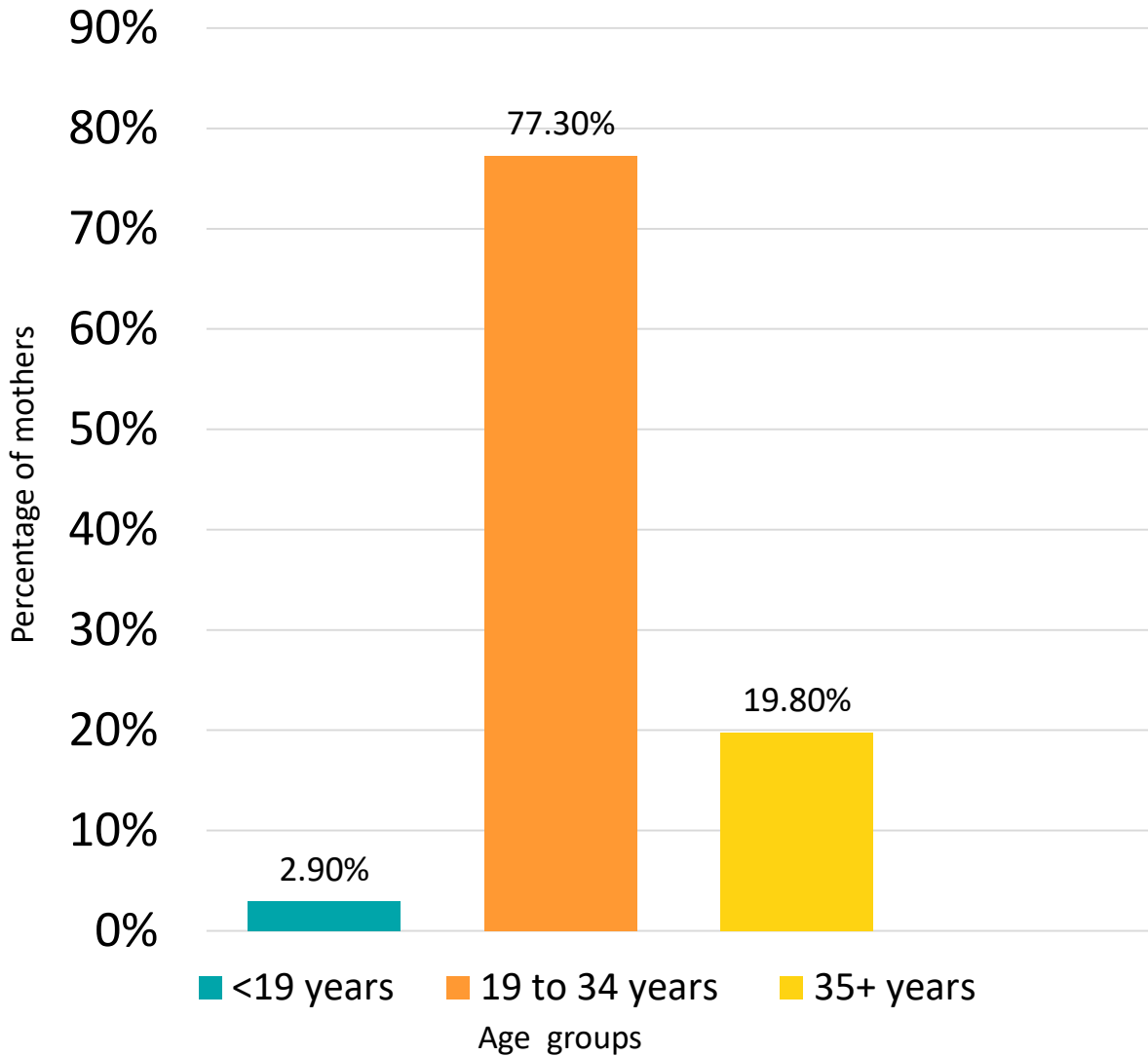
Percentage of congenital anomalies by race/ethnicity in Florida, 2014 -2017
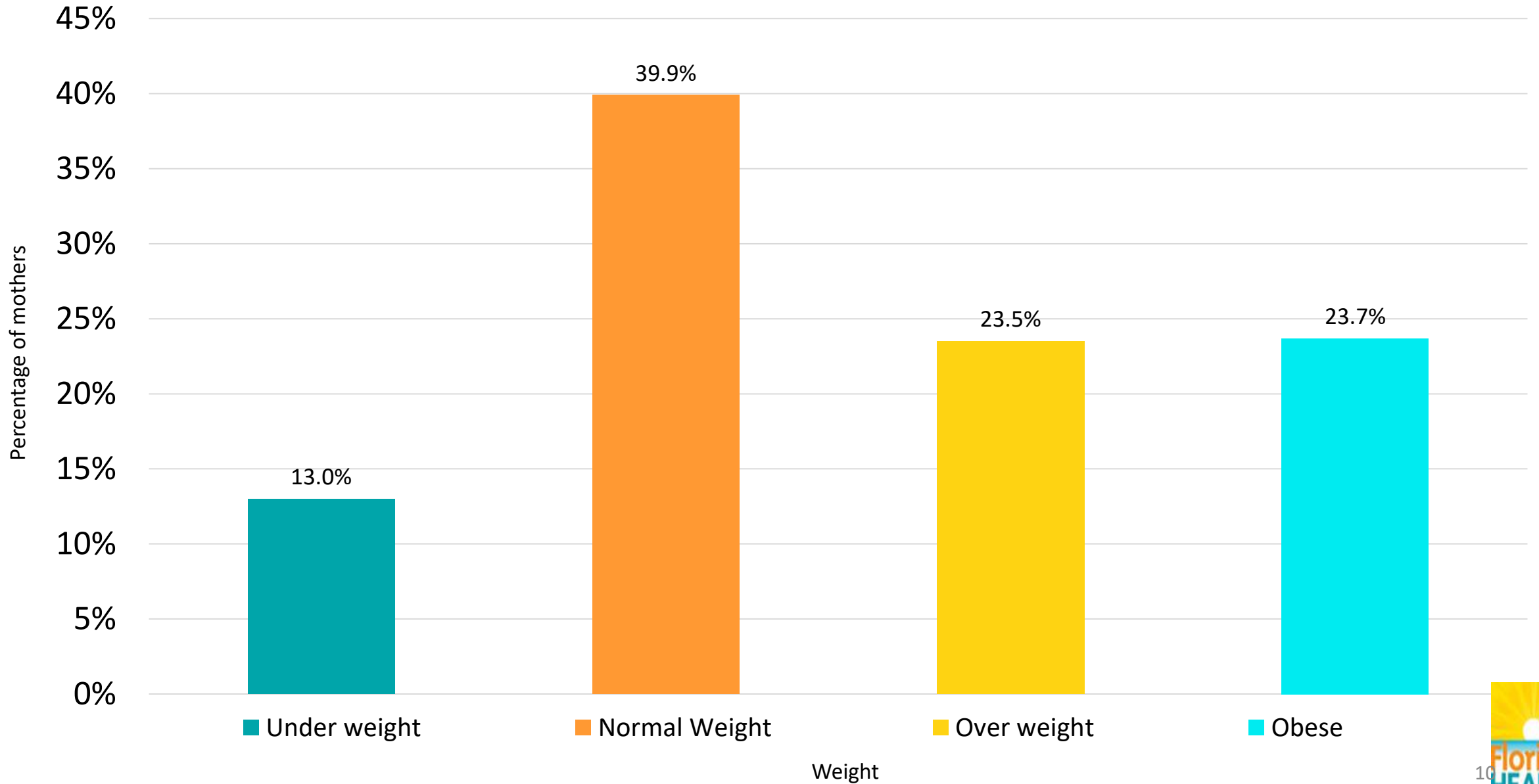
* NH- Non Hispanic

Percentage of congenital anomalies by education in Florida, 2014 -2017
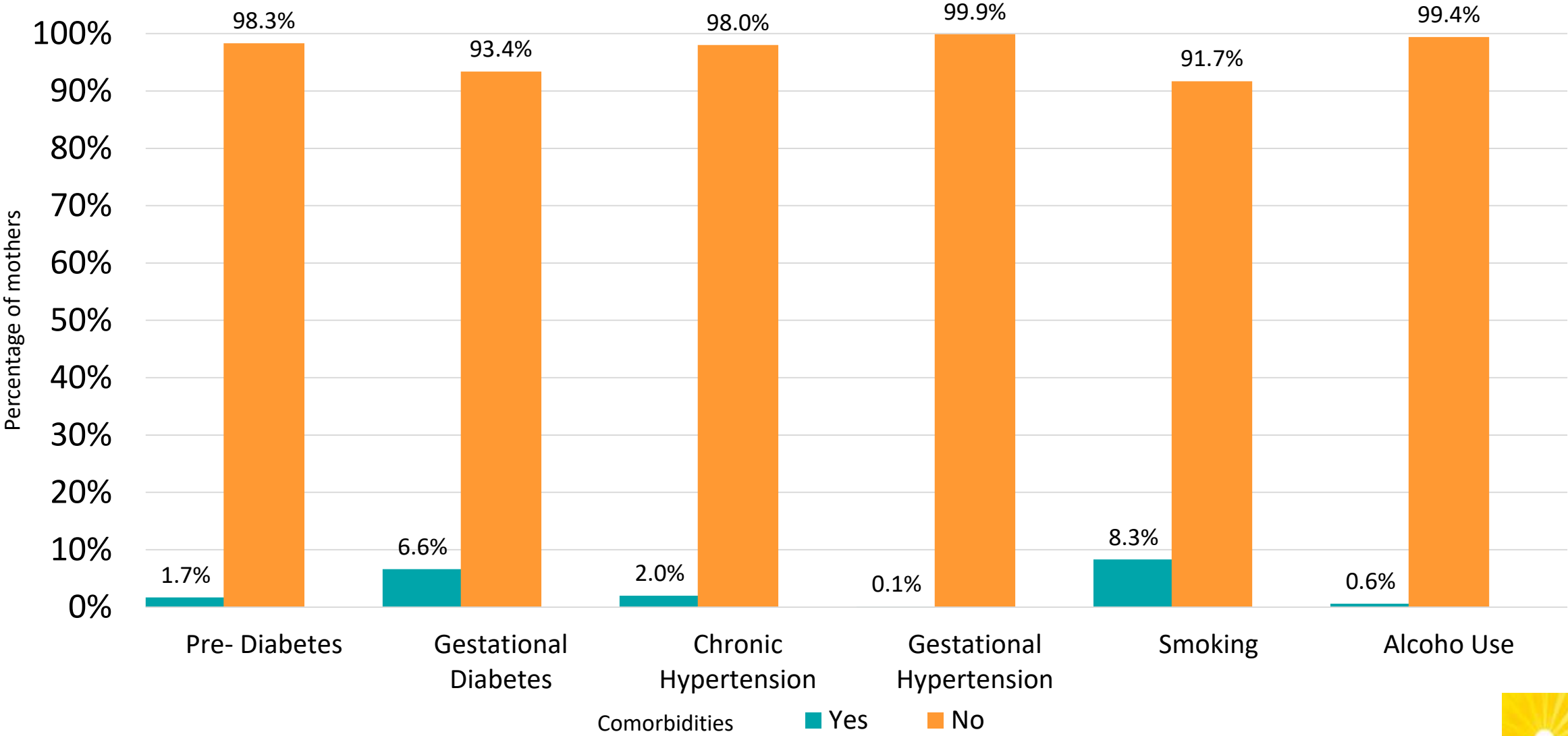
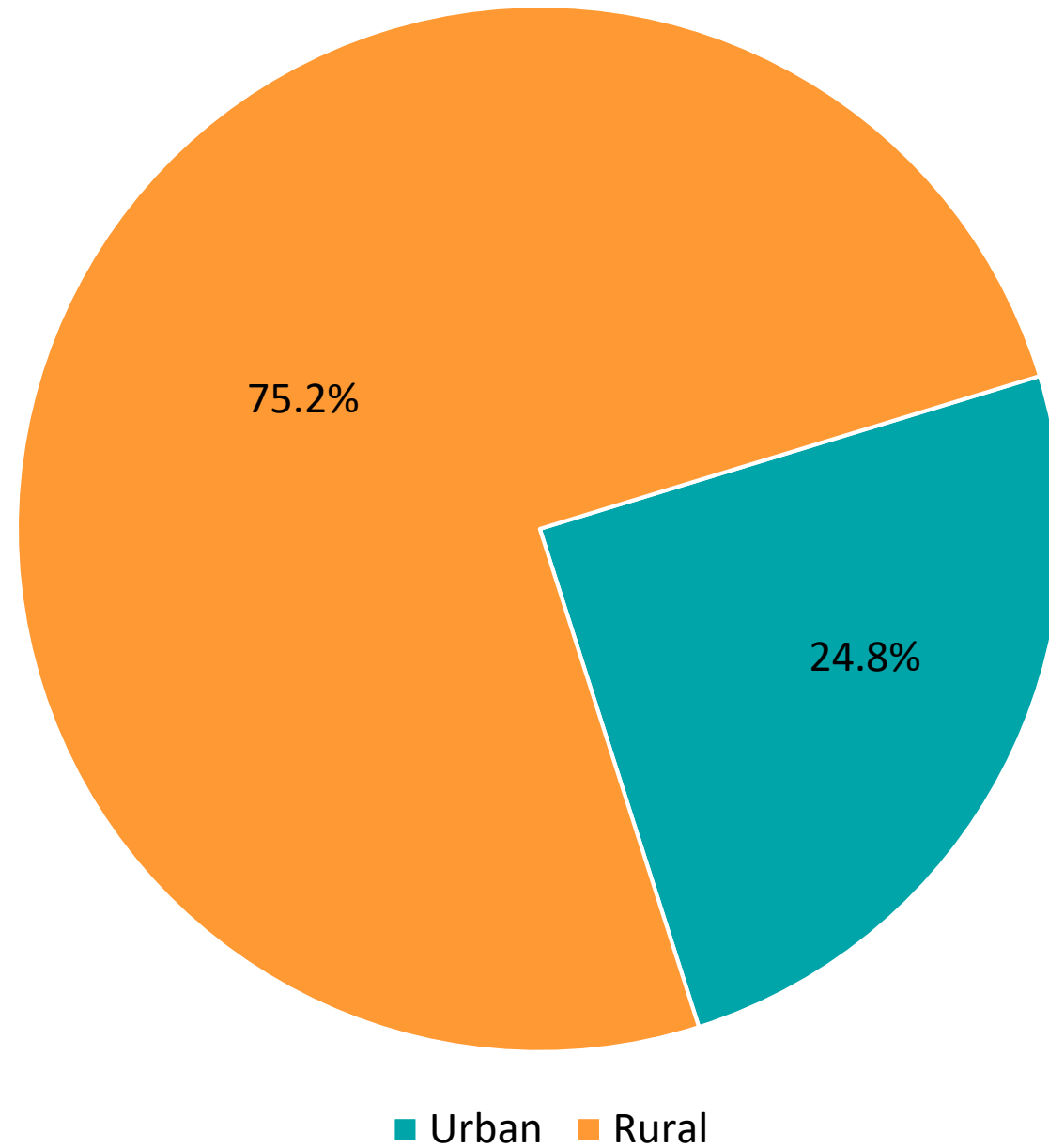Percentage of congenital anomalies by marital status in Florida, 2014 -2017

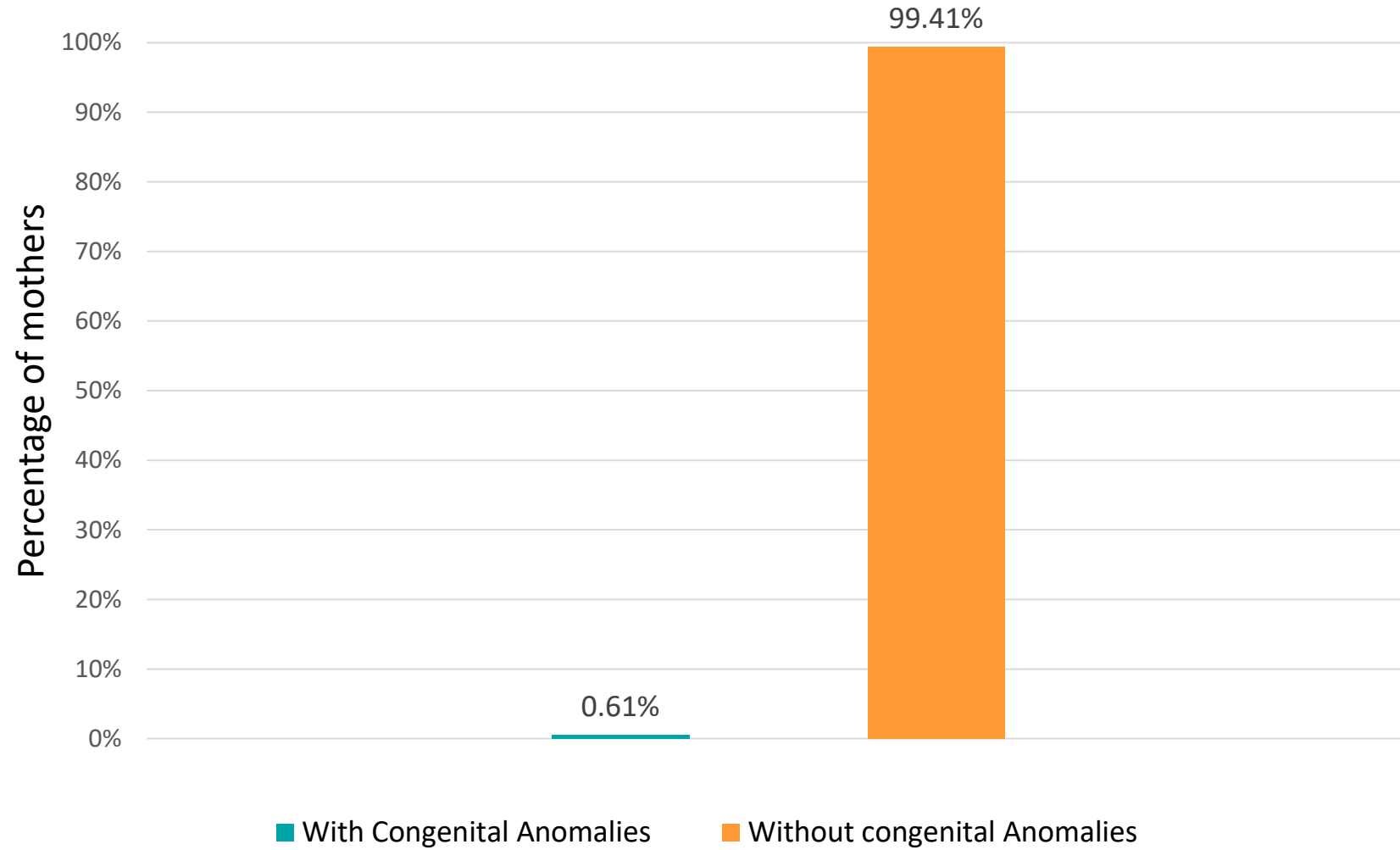Percentage of congenital anomalies by mothers Body Mass Index categories

Percentage of Congenital anomalies by Comorbidities

Congenital Anomalies by Urban/Rural Counties in Florida, 2014-2017

75.2%

24.8%

■ Urban ■ Rural

Percentage of Congenital anomalies in Florida 2014-2017

Logistic Regression Analysis- Sociodemographic Characteristics

	Odds Ratio	Confidence Interval
Age		
< 19 years	1	
19 to 34 years	0.9	(0.8-1.1)
35+ years	1.1	(0.9 -1.4)
Race/ Ethinicity		
NH-White	1	
NH-Black	1.0	(0.9 -1.1)
Hispanic	0.8	(0.8 - 0.9)
Other	1.0	(0.9 - 1.1)
Marital Status		
Married vs Unmarried	1.0	(0.9- 1.1)
Education:		
High School or Less	1	
Some College	1.0	(0.9 - 1.1)
Graduate	0.9	(0.9- 1.0)

Logistic Regression Analysis- Comorbidities Variables

	Odds Ratio	Confidence Interval
Pre-Pregnancy Diabetes		
Yes vs No	2.1	(1.7 - 2.6)
Gestational Diabetes		
Yes vs No	1.4	(1.3 - 1.6)
Chronic Hypertension		
Yes vs No	1.2	(1.0- 1.4)
Gestational Hypertension		
Yes vs No	2.5	(0.8 - 7.8)
Body Mass Index cat		
Underweight	1.4	(1.2 - 1.5)
Healthy weight	1	
Over weight	1.1	(1.0 - 1.1)
Obese	1.1	(1.0- 1.2)
Somking		
Yes vs No	1.2	(1.1 - 1.4)
Alcohol Use		
Yes vs No	1.1	(0.7 - 1.5)

Discussion

➢ Most birth in Florida are without congenital anomalies

➢ Mothers Located in rural are counties are more likely to report birth congenital anomalies

➢ There are differences by age, race/ethnicity, education and marital status

➢ However, Sociodemographic characteristics were not statistically significant in the regression model

➢ Maternal chronic conditions are associated with high risk of children developing congenital anomalies

Continued/Future Studies

➢ Map the prevalence of congenital anomalies by county from 2014-2017

➢ Analyze ten years trends in congenital anomalies from 2010 to 2017

➢ Analyze congenital hospitalizations in Florida, 2014-2017

➢ Analyze difference in age, race/ethnicity in rural vs. urban counties

Acknowledgements

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➢ Jamie Forrest, MSc

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➢ Megan McDonald, MPH

❖ Epidemiologist/Evaluator Manager-Florida Department of Health

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