

## Background

- Vitamin D deficiency has been associated with many health conditions such as osteoporosis, hypertension, diabetes, depression and adverse pregnancy outcomes.
- African American and Hispanic patients are at greater risk for vitamin D deficiency and also have poorer health outcomes.

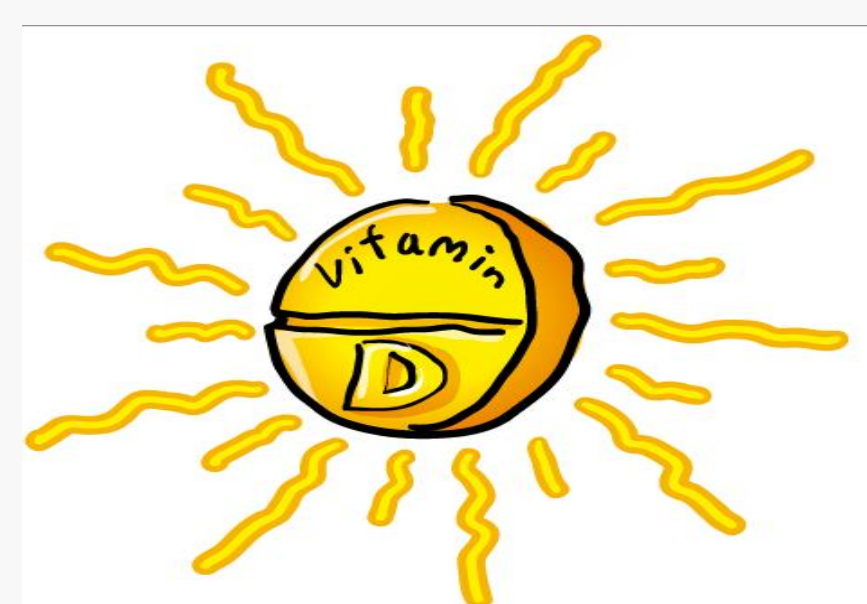
## Purpose

- To explore the ethnic differences between serum levels of vitamin D and the presence of comorbid conditions (hypertension, diabetes, prediabetes, obesity, anxiety and depression) in a population of women receiving care at an underserved health care center.

## Design

Descriptive design using a retrospective cohort.

- De-identified electronic medical record (EMR) data collected from June 2008 to June 2014 was utilized for this study
- Inclusion criteria: aged 15-50 years, serum vitamin D level, current or previous diagnosis of pregnancy



## Sample

Characteristics (n = 302)	M (SD)
Age	30.12 (6.7)
BMI	30.9 (8.9)
Vitamin D serum (ng/mL)	19.4 (9.2)
Race	Percentage (%)
Black	45%
Hispanic	55%

## Variables

### EMR Data Extracted:

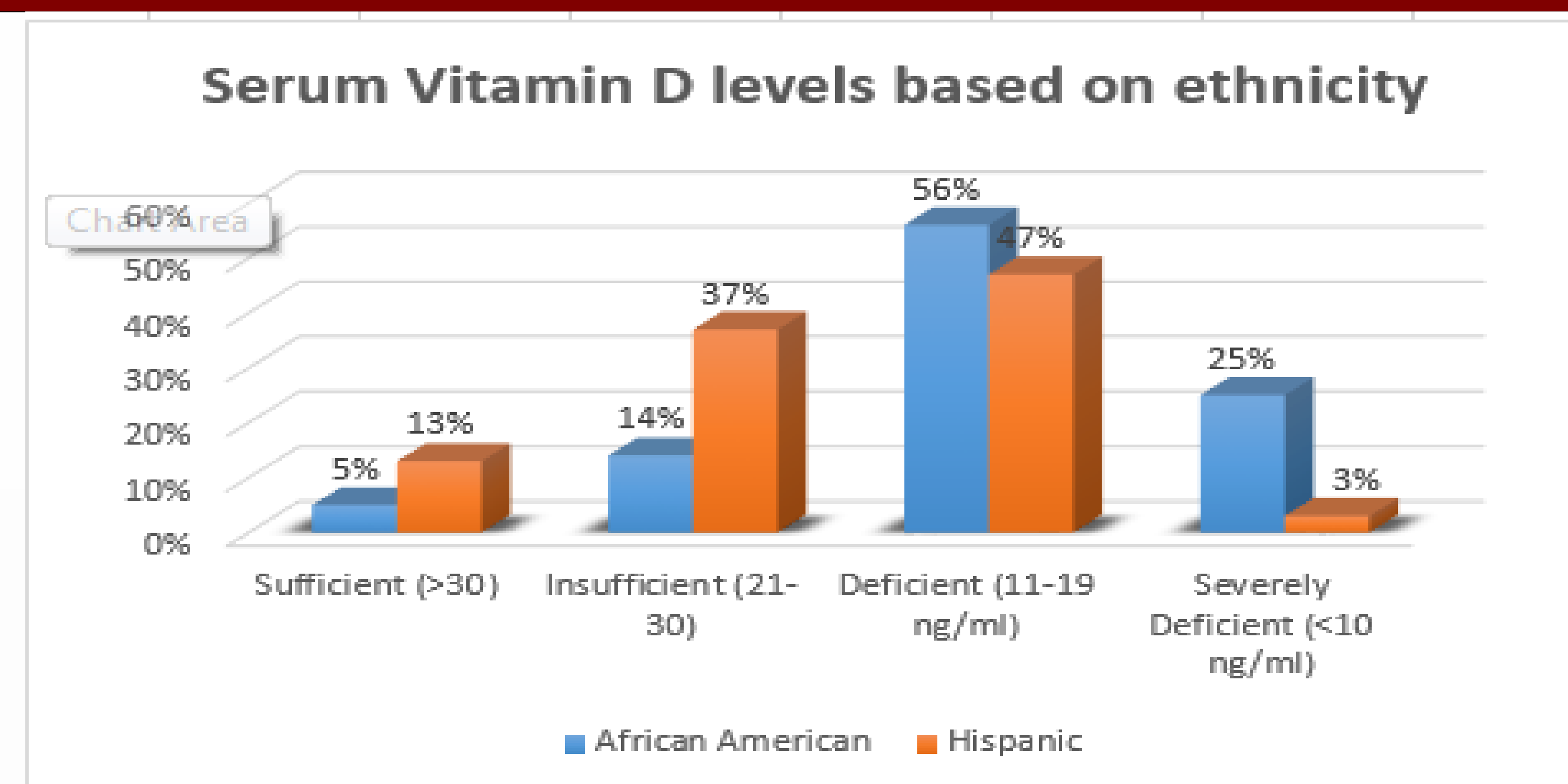
Age, Ethnicity,  
Type of insurance,  
Vitamin D levels,  
Body mass index  
HgbA1c, diabetes,  
Prediabetes,  
Hypertension  
Depression, Anxiety



## Results

Frequencies of Comorbidities Based on Ethnicity			
Comorbidities	African American (n=138)	Hispanic (n=164)	Total % of sample (n=302)
Obesity	73 (53%)	69 (42%)	142 (47%)
Depression	38 (28%)	56 (34%)	94 (31%)
Anxiety	21 (15%)	26 (16%)	47 (16%)
Depression & Anxiety	13 (9%)	23 (14%)	36 (12%)
Hypertension	12 (9%)	3 (1%)	15 (5%)
Diabetes	3 (2%)	7 (4%)	10 (3%)
Prediabetes	23 (17%)	14 (9%)	37 (12%)

## Results



\* Definitions of vitamin D levels based on the Endocrine Society guidelines

Differences in Vitamin D Categories for Selected Comorbidities		
Comorbidities	Vitamin D ≤30 ng/ml	Vitamin D > 30 ng/ml
Obesity*		
Normal BMI (<25)	16%	34%
Overweight (25-29)	34%	14%
^ Obese (30-40)	35%	45%
Morbidly Obese (> 40)	15%	7%
^ Depression	89%	11%
Anxiety	89%	11%
Depression & Anxiety	89%	11%
^ Hypertension	79%	21%
Diabetes	100%	0%
^ Prediabetes	89%	11%

\* BMI categories based on Centers for Disease Control definitions ^ Ethnic difference based on vitamin D status

## Conclusions

- Lower levels of vitamin D were more prevalent in women who were overweight and/or obese, had a diagnosis of depression and/or anxiety, hypertension, diabetes and prediabetes.
- Study highlights the importance of vitamin D screening in this vulnerable population who are of childbearing age since epidemiologic evidence indicates adverse pregnancy outcomes in women who are vitamin D deficient. African American women were more likely to be vitamin D deficient and had lower levels of vitamin D, and were more likely to be depressed if they were vitamin D deficient, have prediabetes, HTN, and have obesity when compared with Hispanic women.
- Limitation of this study is that it only captured women who had a diagnosis of comorbidities in their medical record. Also due to design, only crude associations can be made between vitamin D levels and comorbidities but warrants further investigation.