

# Overweight and Obesity in Nevada

## A Comparison of Behavioral Risk Factor Surveillance System and Department of Motor Vehicles Data

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# Overview

- Problem statement
- Objective
- Background
- Analysis
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- Conclusion
- Questions

# Public Health Issue

- Obesity is a major public health issue affecting adults and children.
- Being overweight or obese increases the risk of various health conditions.
- In 2012, 62.5% Nevada adults were overweight or obese compared to 64.2% nationwide.<sup>1</sup>

# Objective

- To explore whether body mass index (BMI) computed from DMV data is comparable to BMI from BRFSS data.

# Background

## BRFSS

- Established in 1984 by CDC
- Largest health survey system in the world
- Cross-sectional, state-based survey
- Used widely to monitor public health

# Background

## BRFSS

- Core and optional modules and state-added questions
- Gathers information on:
  - Chronic diseases and conditions
  - Health-risk behaviors
  - Emerging health problem
  - Preventive services

# Background

## DMV

- Nevada's DMV records release to third parties is governed by NRS 481.063.
- Some entities that can access DMV data include:
  - Government agencies
  - Researchers
  - Car insurance companies
  - Dealers of motor vehicles
  - Employers
  - Private investigators
  - Reporters

# Background

## DMV

- Information available on DMV data include:
  - Name
  - Date of Birth
  - Height
  - Weight
  - Mailing and physical address
  - Date of issuance
  - Sex

# BRFSS and DMV Data

- Inaccurate height and weight
  - Under reporting for weight and BMI<sup>3,5,6</sup>
  - Over reporting of height<sup>3,5,6</sup>
  - Underestimating overweight and obesity <sup>6</sup>

# Body Mass Index (BMI)

$$\text{Body mass index} = \frac{\text{weight (kg)}}{[\text{height (m)}]^2}$$

## **Example:**

Weight = 68 kg, Height = 165 cm (1.65m)

$$\text{BMI calculation: } 68 \div (1.65)^2 = 24.98$$

# BMI Interpretation

- CDC's standard weight status categories<sup>2</sup>

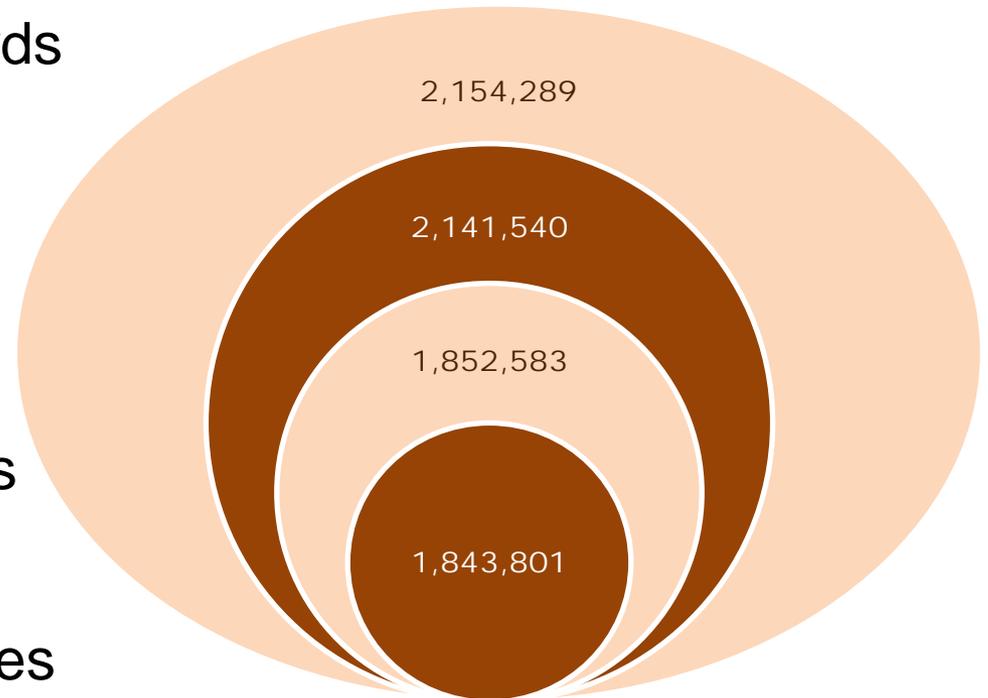
BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Healthy Weight
25.0 – 29.9	Overweight
30.0 and Above	Obese

# DMV Data Analysis

In 2012, 2,154,289 total records

The following records were excluded:

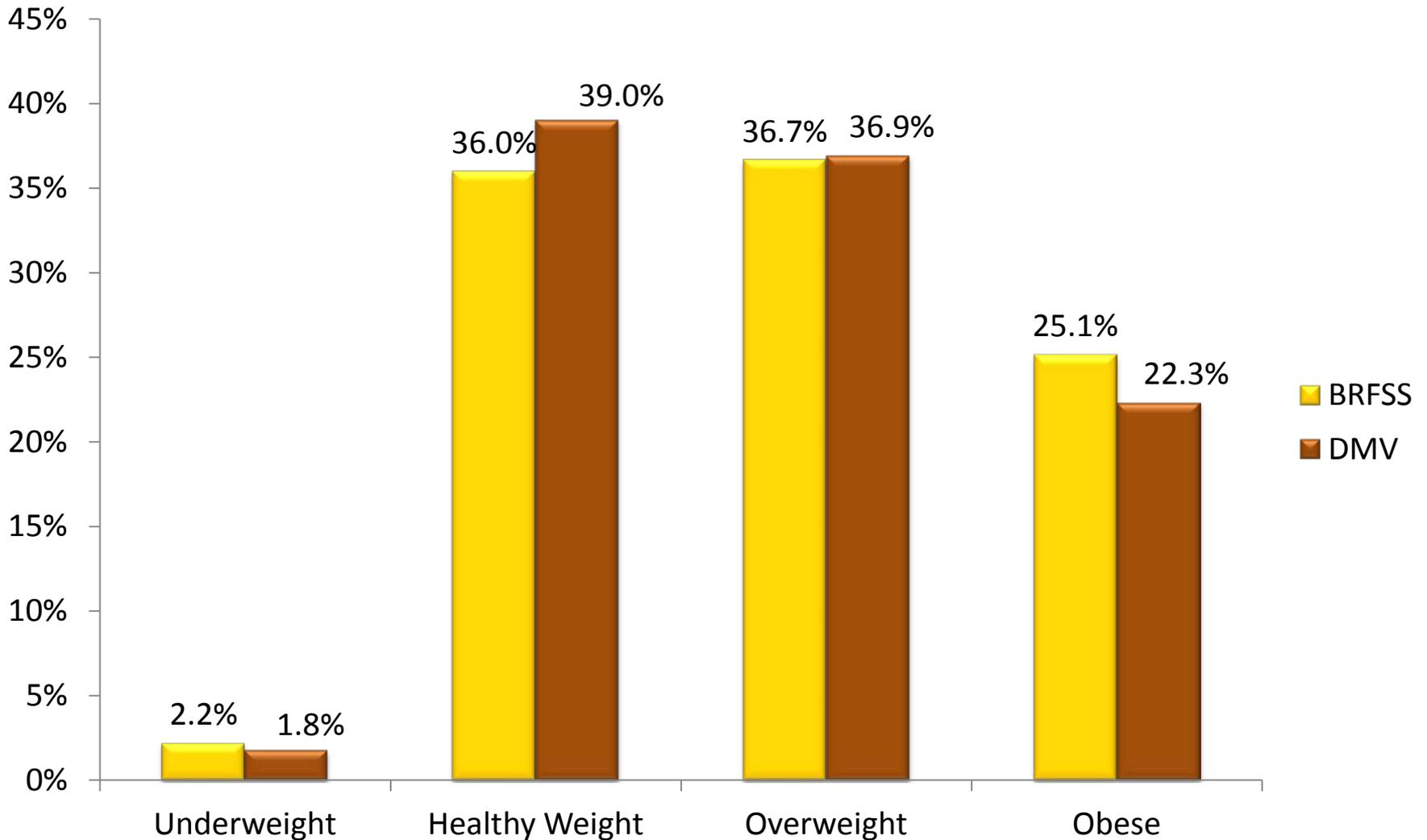
- Issue years 1976-2007
- Duplicates
- No Nevada physical address
- Ages 10-19 years
- Biologically implausible values for height and BMI



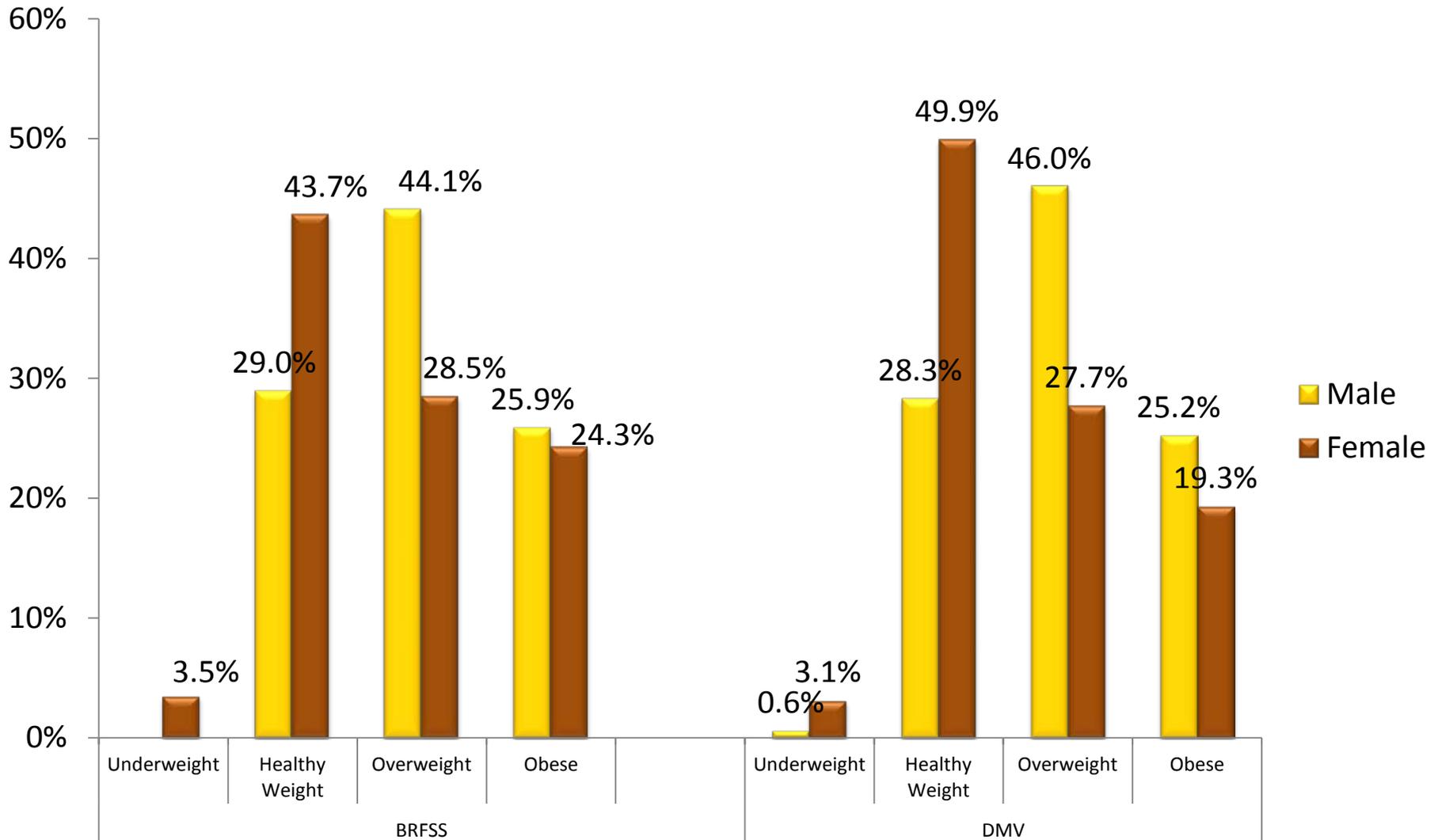
# Results

- Overall, BRFSS and DMV BMI estimates appear similar.
- BMI differences by sex
- DMV male estimates are within BRFSS confidence intervals (CIs)
- Only overweight DMV female estimate is within the BRFSS CIs

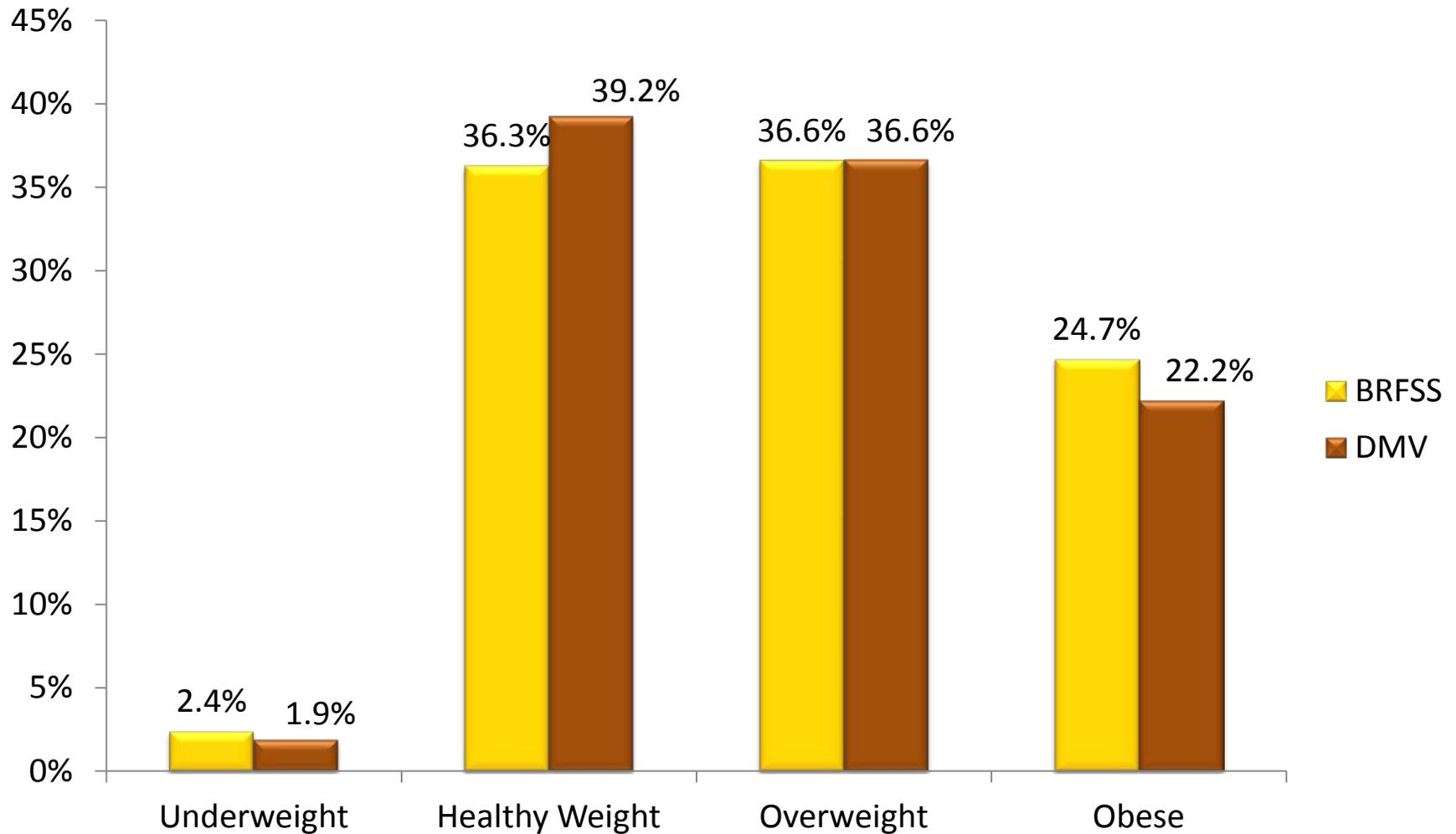
# Nevada: BRFSS 2011 vs. DMV 2008-2012



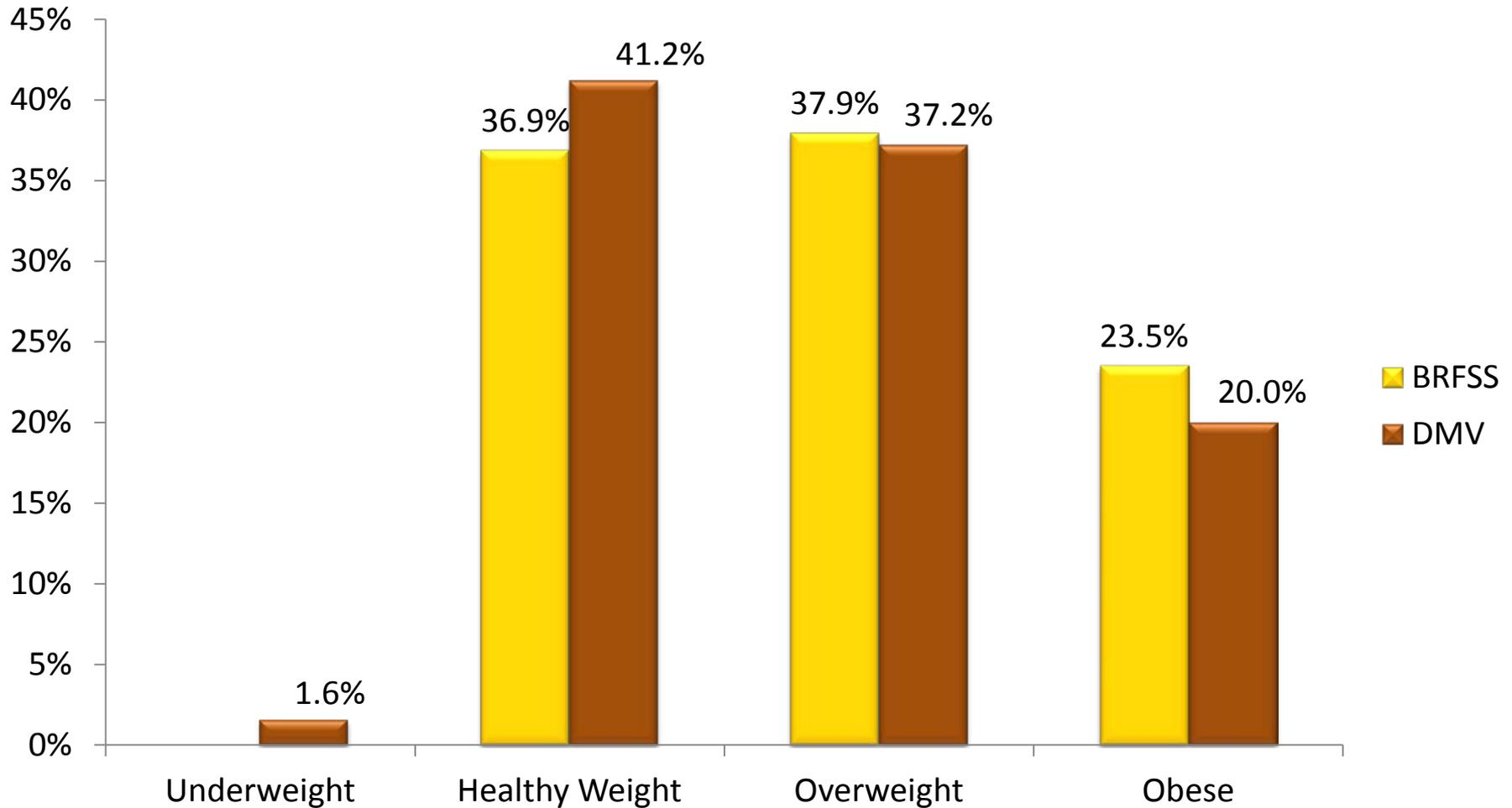
# Nevada: BRFSS 2011 vs. DMV 2008-2012 (by Sex)



# Clark : BRFSS 2011 vs. DMV 2008-2012



# Washoe : BRFSS 2011 vs. DMV 2008-2012



# Strengths of BRFSS data

- Sampling is representative
- Data is collected in all 50 states DC, Guam, and U.S. Virgin Islands
- Data is collected annually
- Data is readily available

# Strengths of DMV data

- Overall estimates similar to BRFSS, however, by sex estimates are different
- Provides adequate counts for analysis in all Nevada counties
- Height and weight data for individuals aged 10 + years
- Minimal cost for acquiring data
- Street address

# Limitations

- **BRFSS**

- Self-report
- Small counts for counties
- Persons without phones

- **DMV**

- Self-report
- Seasonal residents
- Persons without a license or ID card

# Conclusion

- BRFSS is a good source for health data.
- All self-reported data is subject to bias.
- Nevada DMV renewal form contains height and weight items.

# Acknowledgement

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**Thank you!**



# Questions?

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