

2018 Obesity Data Deck

**Chronic Disease Epidemiology Section
Epidemiology Branch
Center for Public Health Practice**

**Chronic Disease Branch
Center for Health Advancement**



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Acronyms

- BRFSS - Behavioral Risk Factor Surveillance System
- YRBS - Youth Risk Behavior Survey
- ACHI - Arkansas Center for Health Improvement
- WIC – Women, Children, and Infants

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SECTION I. INTRODUCTION

Obesity Data Deck

- Purpose

To provide a comprehensive set of charts describing multiple impacts of **overweight and obesity** in Arkansas with selected U.S. comparisons.

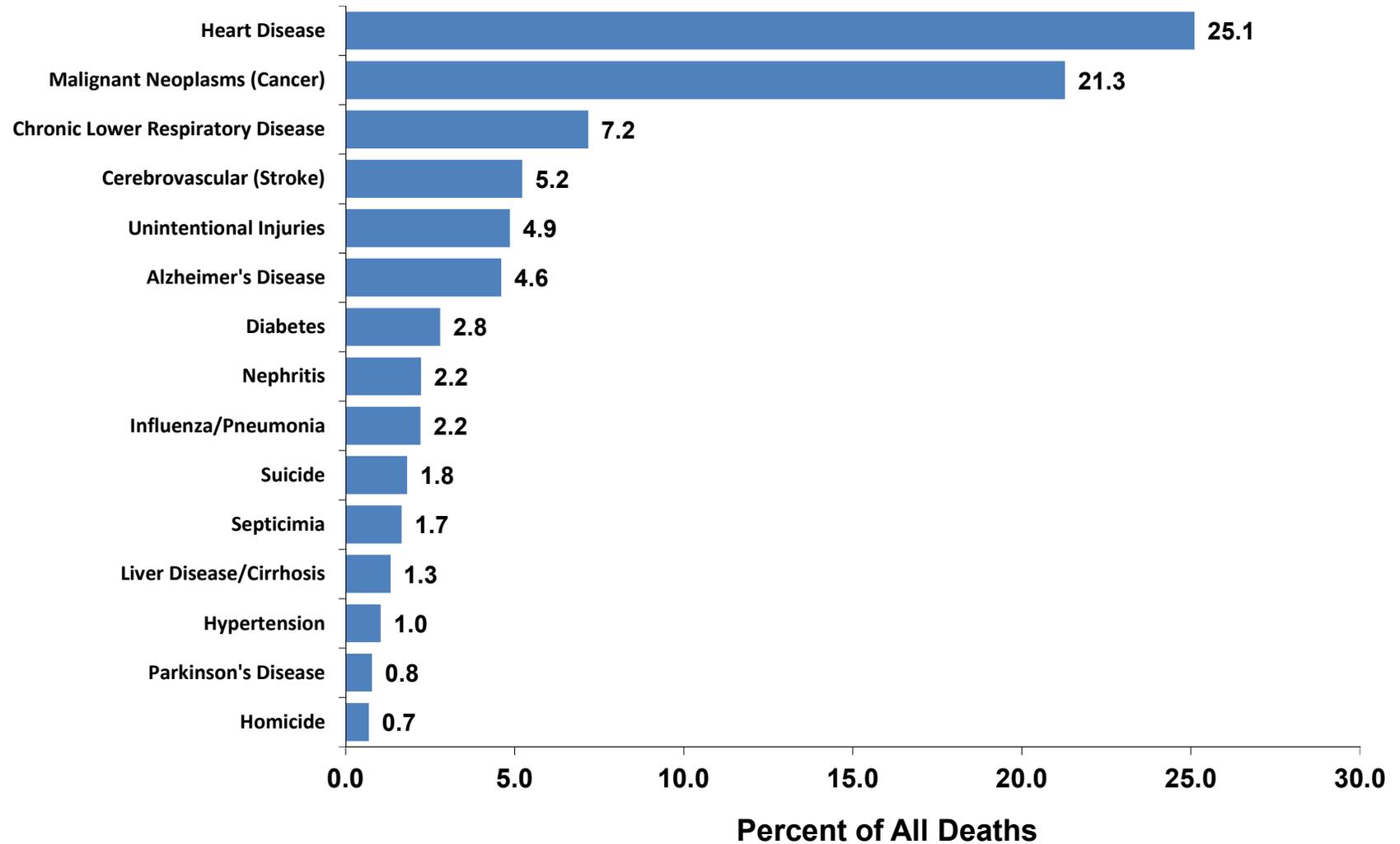
- Burden

Being overweight or obese increases a person's risk for developing various adverse health conditions, many of which are included in this data deck.

Health Consequences of Overweight and Obesity

- Coronary heart disease
- Type 2 diabetes
- Cancers
- Hypertension (high blood pressure)
- Dyslipidemia (for example, high total cholesterol or high levels of triglycerides)
- Stroke
- Liver and Gallbladder disease
- Sleep apnea and breathing problems
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Gynecological problems (abnormal periods, infertility)

Top Fifteen Leading Causes of Death (All Ages) Arkansas, 2015



BMI Calculation

- Body Mass Index (BMI)

$$= \left(\frac{\textit{weight in pounds}}{(\textit{height in inches}) \times (\textit{height in inches})} \right) \times 703$$

or

$$= \frac{\textit{weight in kilograms}}{(\textit{height in meters}) \times (\textit{height in meters})}$$

Standard Weight Classification Categories for Adults

BMI	Weight Classification
Below 18.5	Underweight
18.5-24.9	Healthy weight
25.0-29.9	Overweight
30.0 and Above	Obese

BMI Table for Adults

Body Mass Index Table																																				
	Normal						Overweight					Obese								Extreme Obesity																
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Height (inches)	Body Weight (pounds)																																			
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Source: Adapted from Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.

How to Interpret BMI for Children

- Interpretation for children's BMI takes into account height and weight measurements, sex, and age.
- CDC recommends that health care providers use the growth standards for infants, children, and adolescents in the U.S.
 - Ages 0 to 2 years: WHO growth standards
 - Ages 2 years and older: CDC growth charts

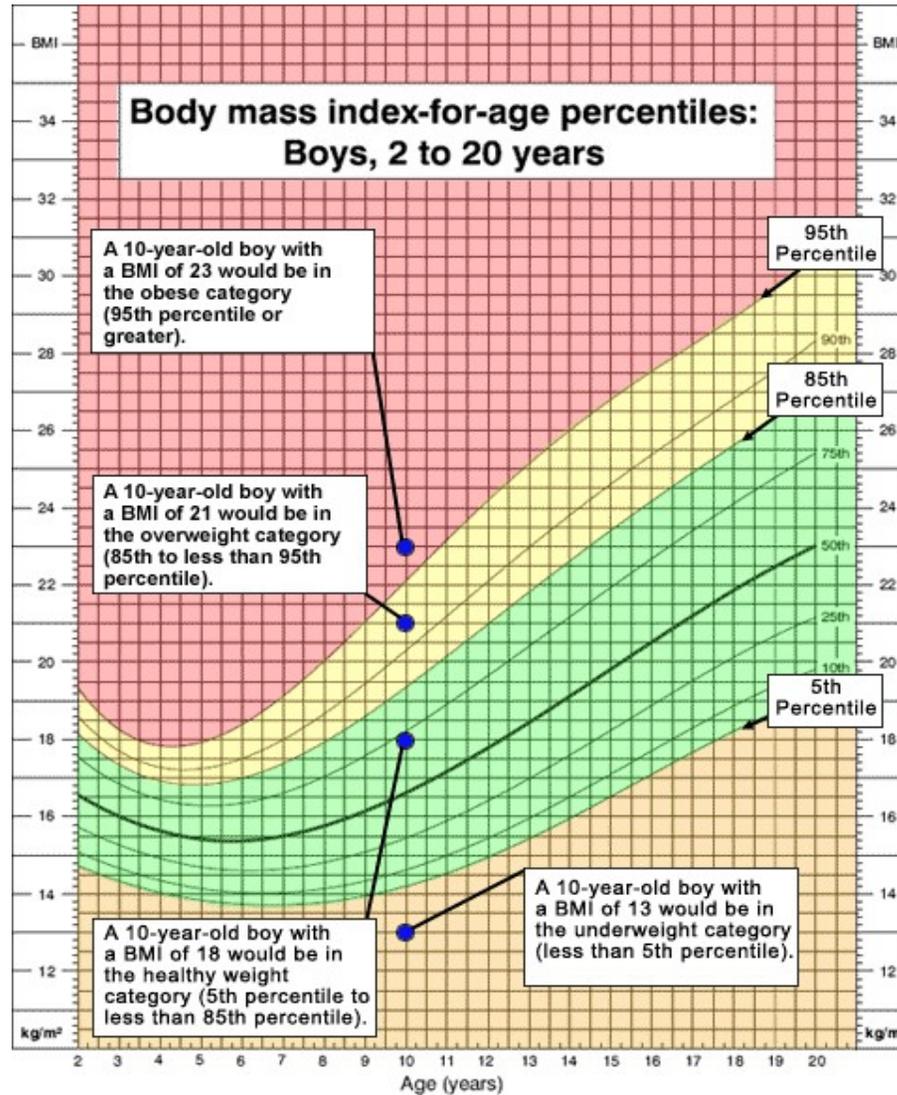
World Health Organization (WHO) growth charts: <http://www.who.int/childgrowth/en>

Centers for Disease Control and Prevention (CDC) growth charts: http://www.cdc.gov/growthcharts/clinical_charts.htm

BMI Percentile Classification for Children

Percentile Range	Weight Status Category
Less than the 5th percentile	Underweight
5th percentile to less than the 85th percentile	Healthy weight
85th to less than the 95th percentile	Overweight
95th percentile or greater	Obese

Growth Chart Example

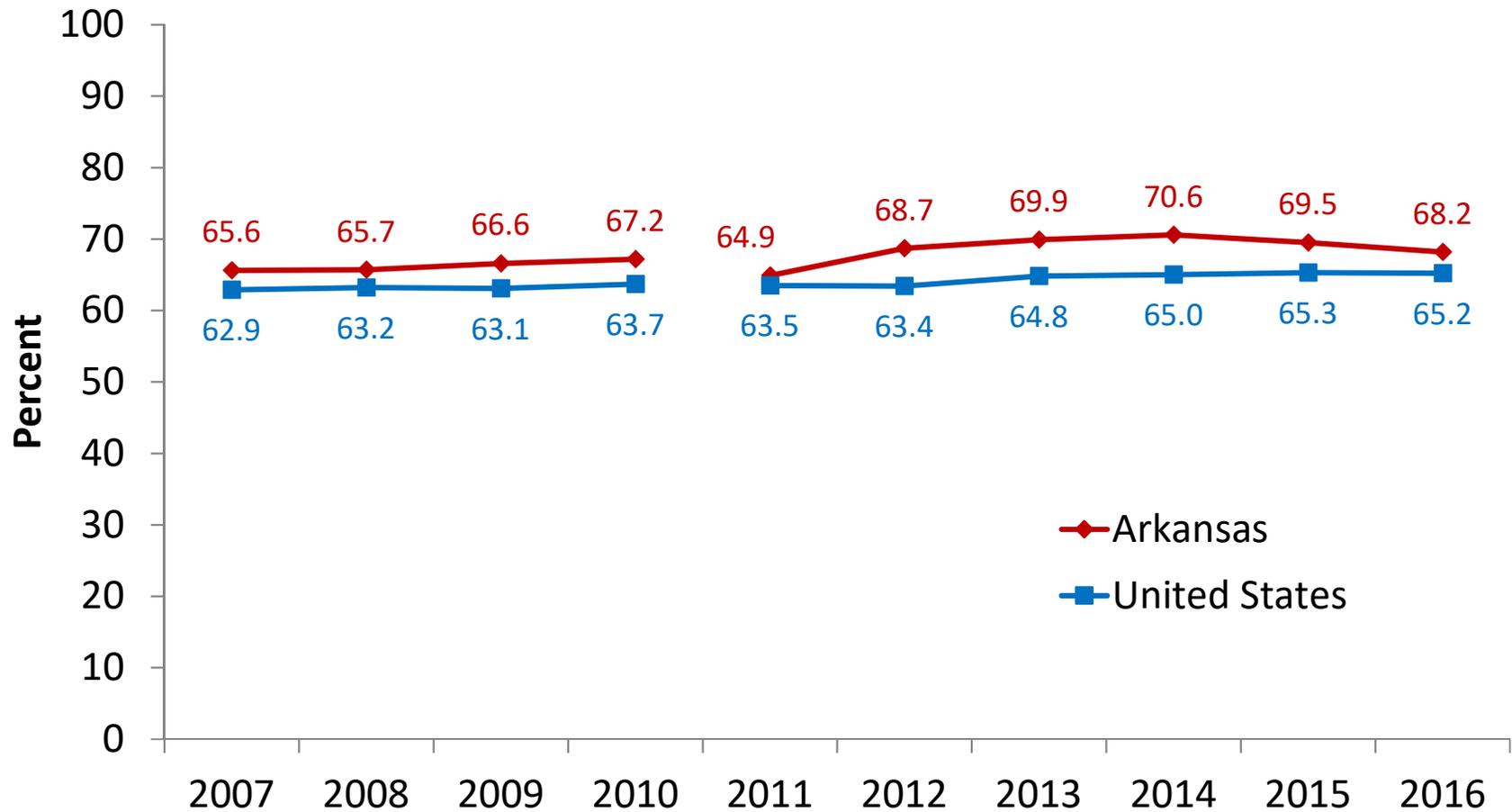


Centers for Disease Control and Prevention (CDC) About Children & Teen BMI:
https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

**SECTION II. ADULTS
(AGES 18 AND OLDER)**

A. BRFSS TREND DATA (2007-2016)

Adult Overweight and Obesity Prevalence Arkansas and U.S., 2007-2016

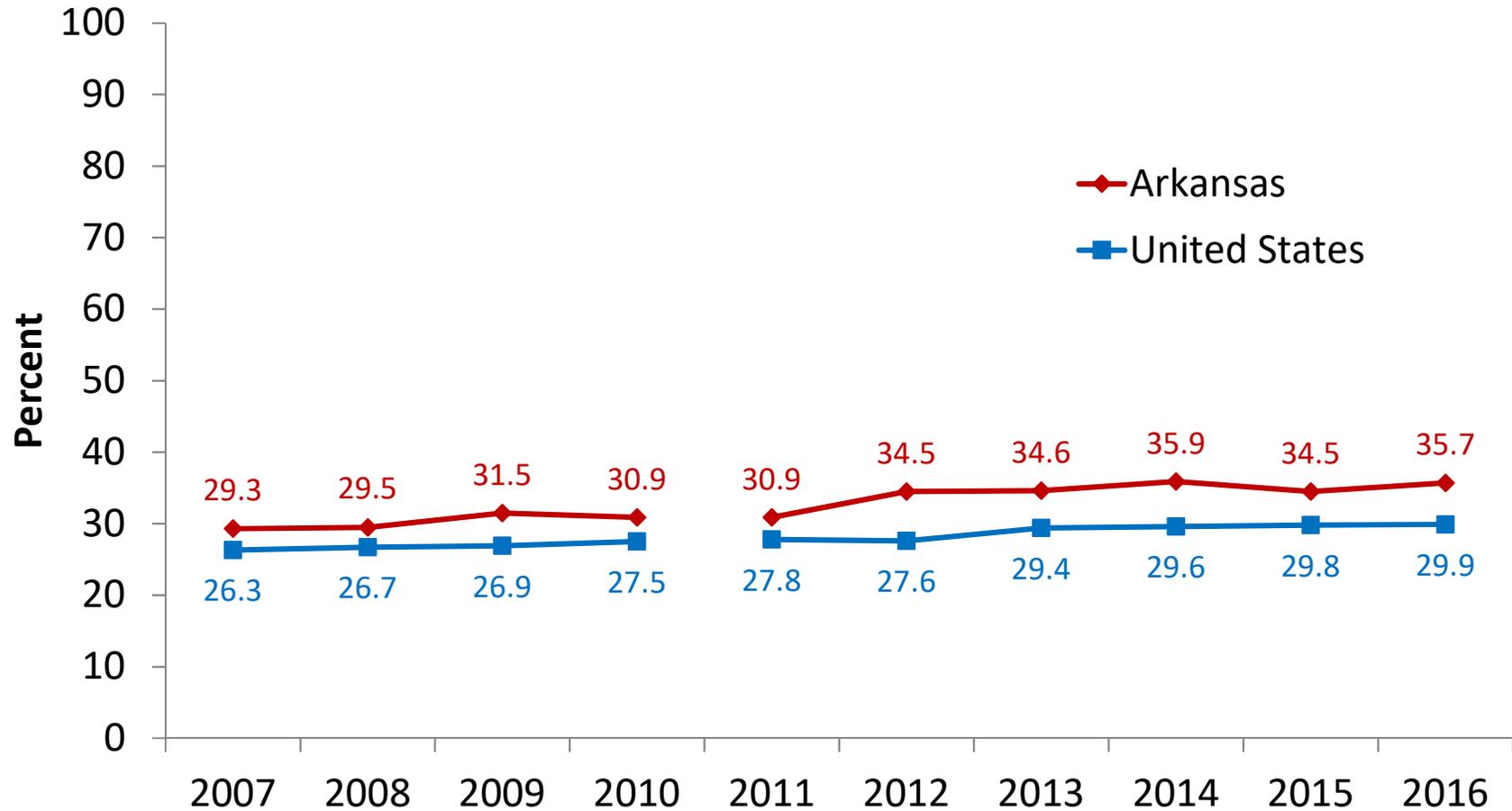


Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

Adult Obesity Prevalence Arkansas and U.S., 2007-2016

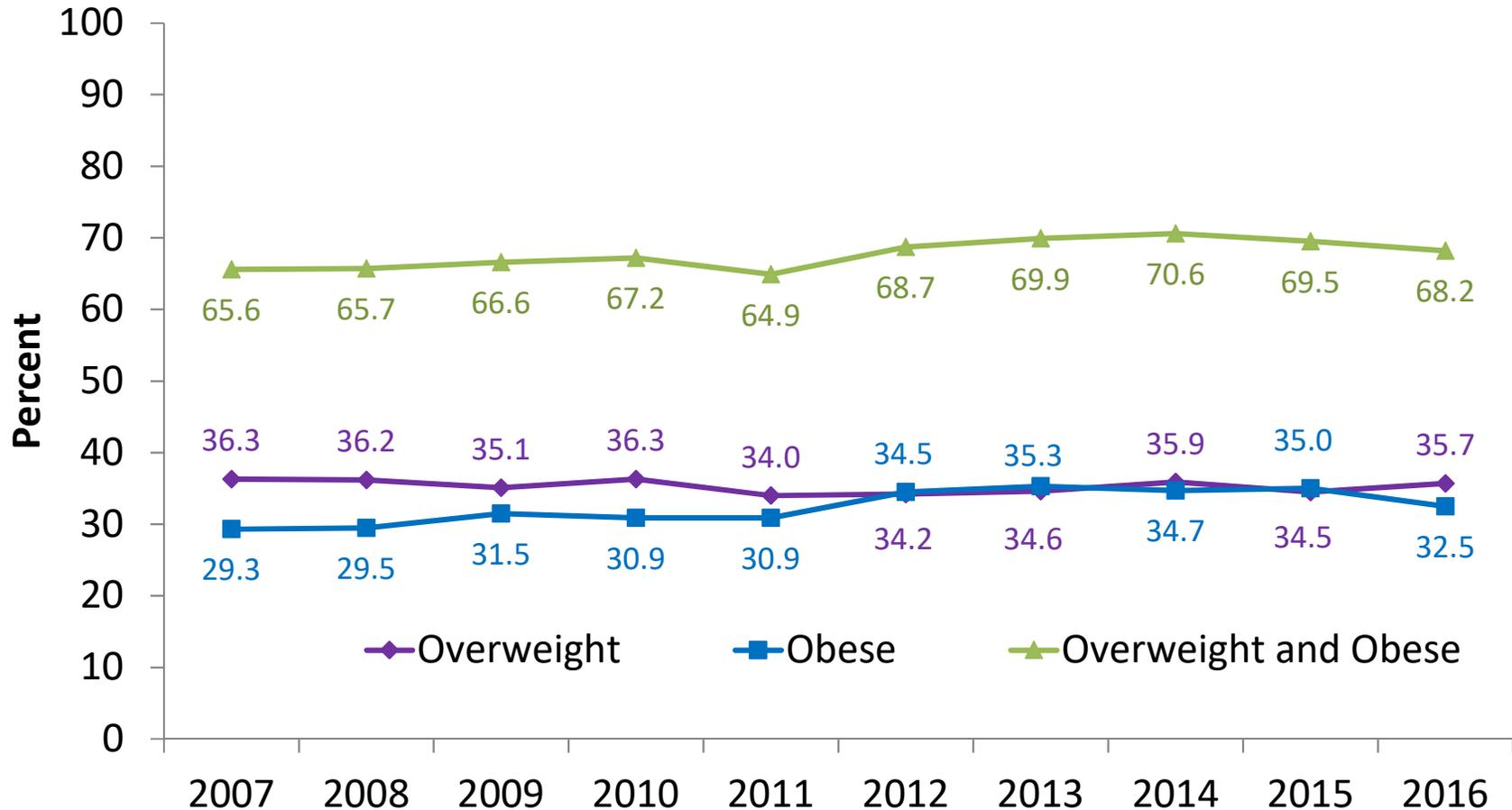


Source: BRFSS

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Adult Overweight and Obesity Prevalence Arkansas, 2007-2016

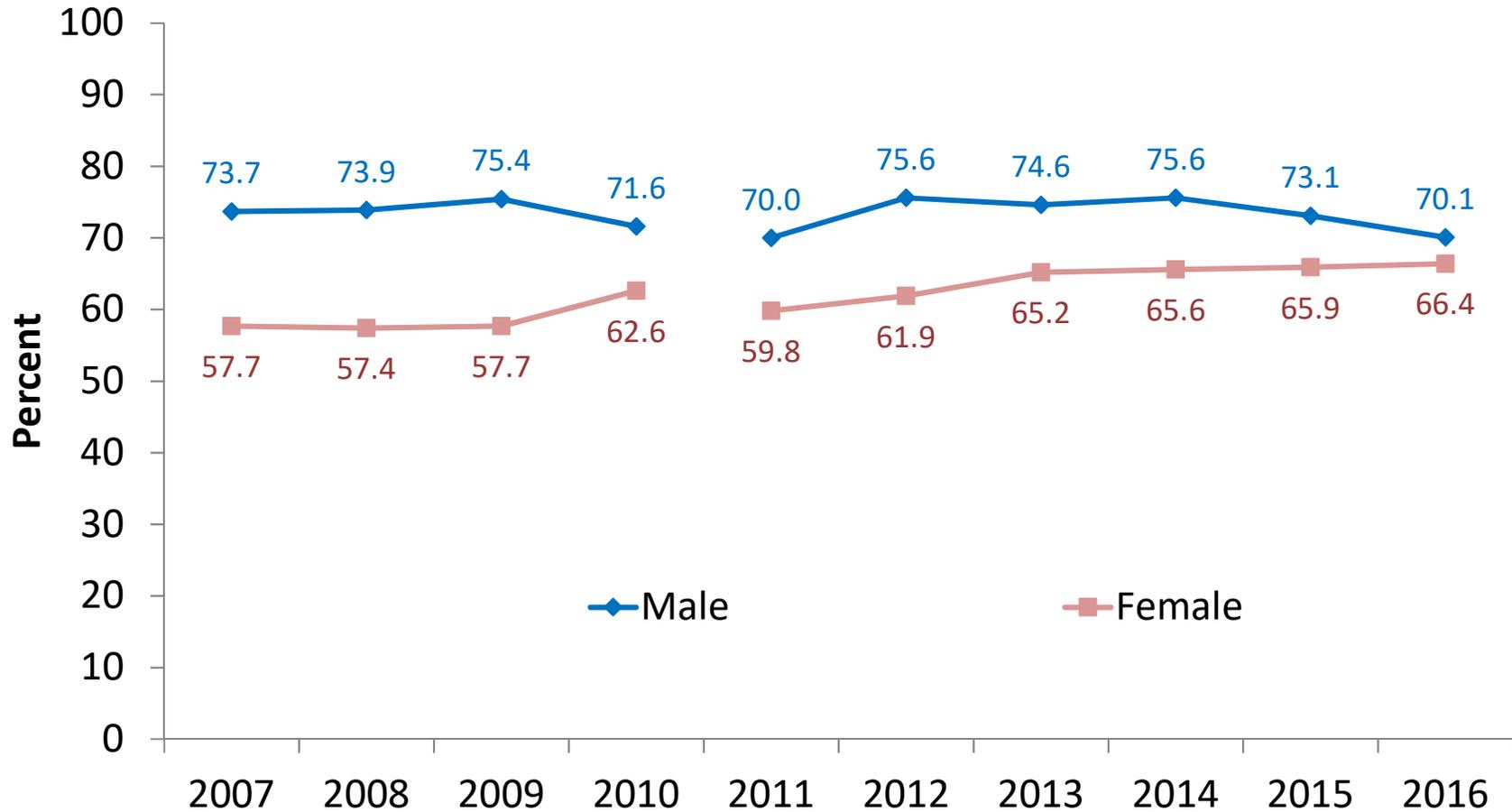


Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

Adult Overweight and Obesity Prevalence, by Gender Arkansas, 2007-2016

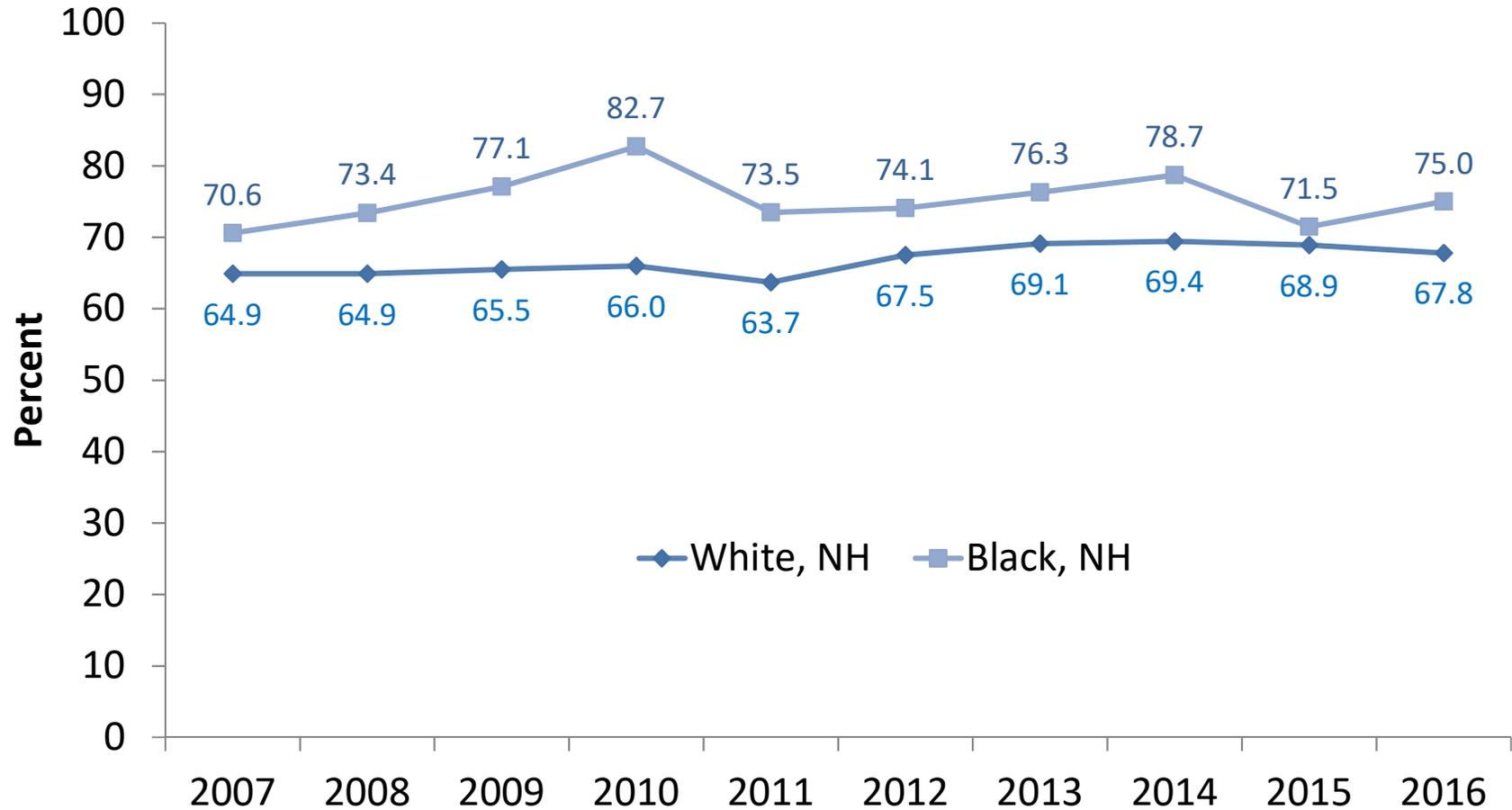


Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

Adult Overweight and Obesity Prevalence, by Race/Ethnicity Arkansas, 2007-2016



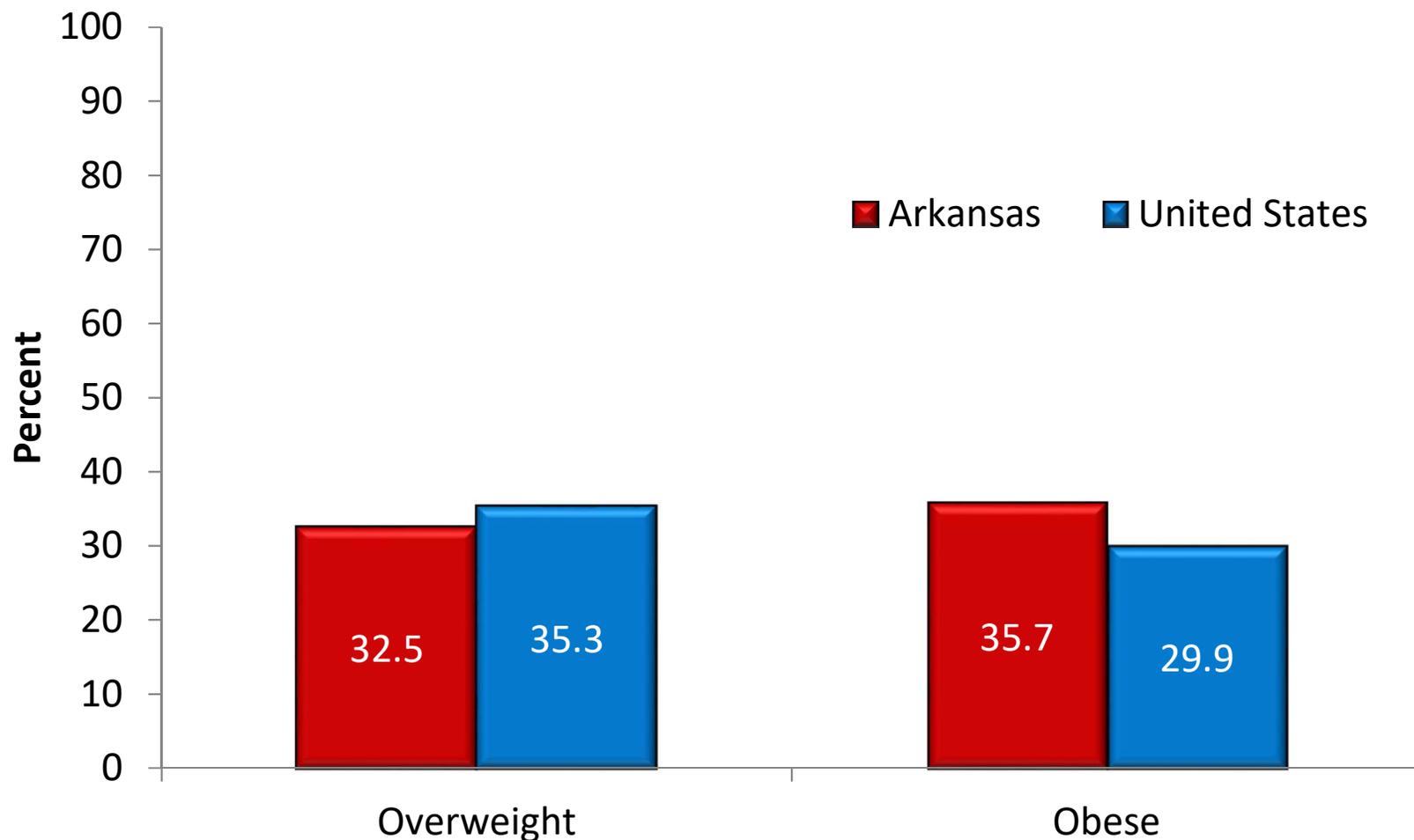
Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; NH = Non-Hispanic

B. BRFSS DATA, 2016

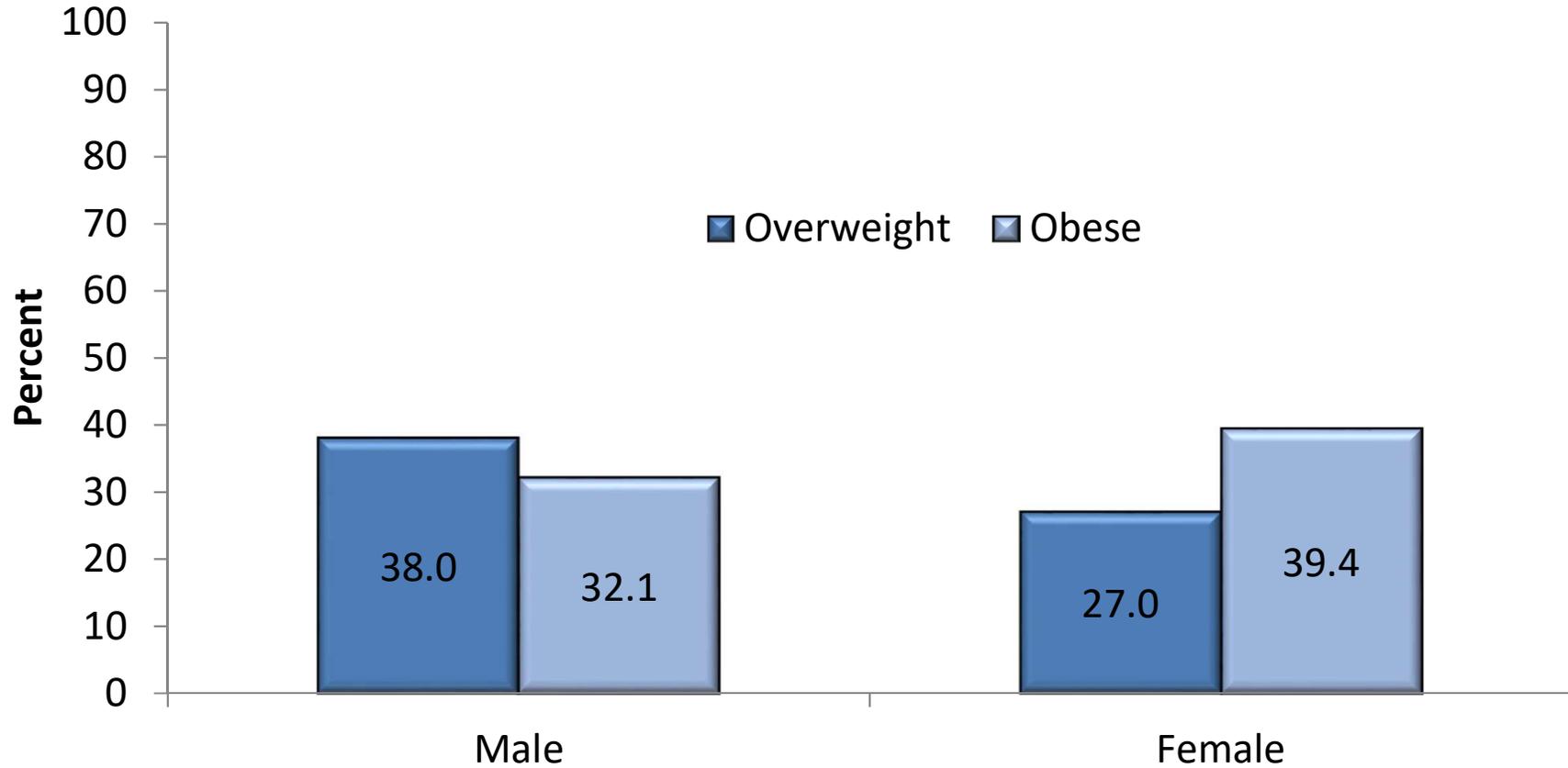
Adult Overweight and Obesity Prevalence Arkansas and U.S., 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

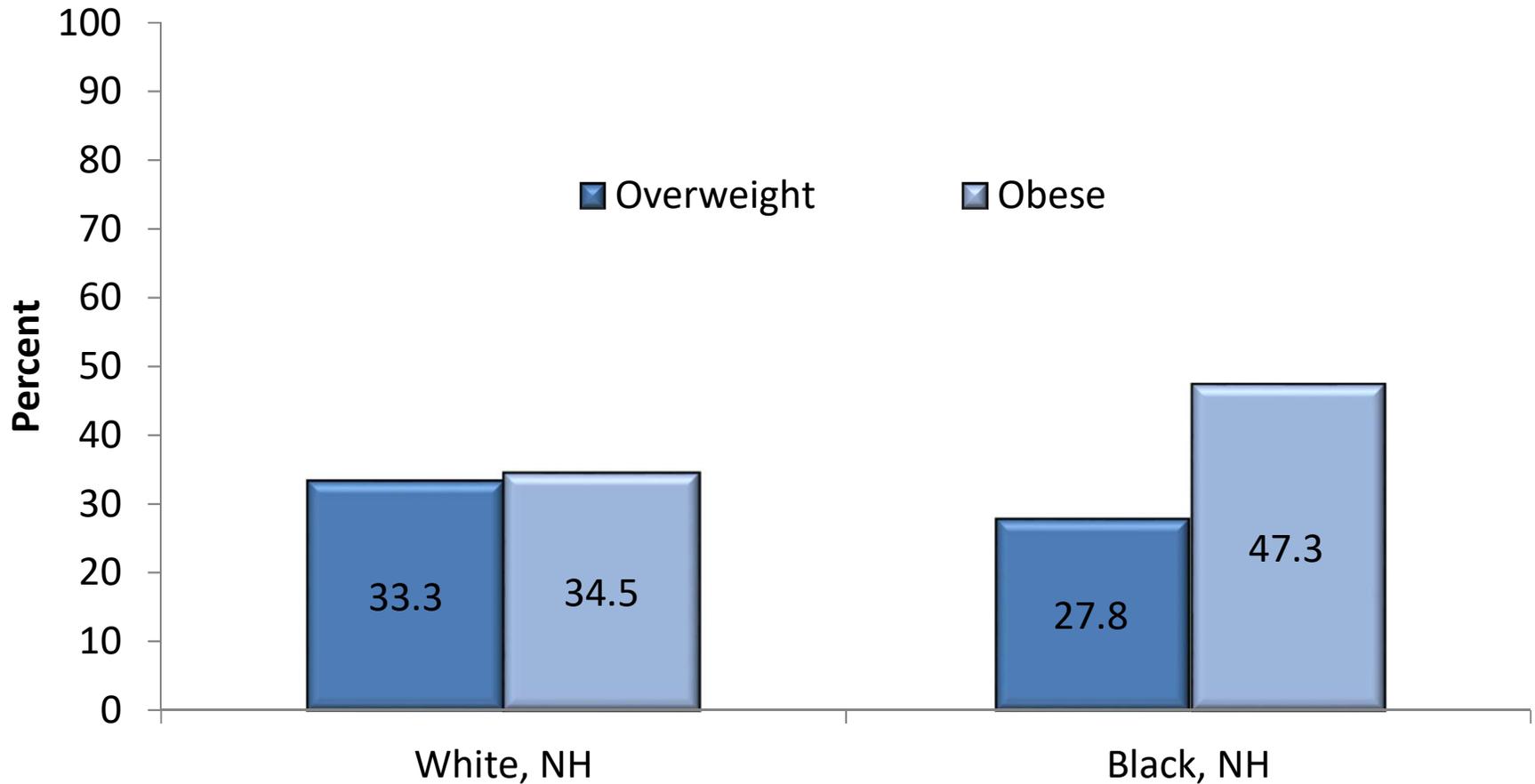
Adult Overweight and Obesity Prevalence, by Gender Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

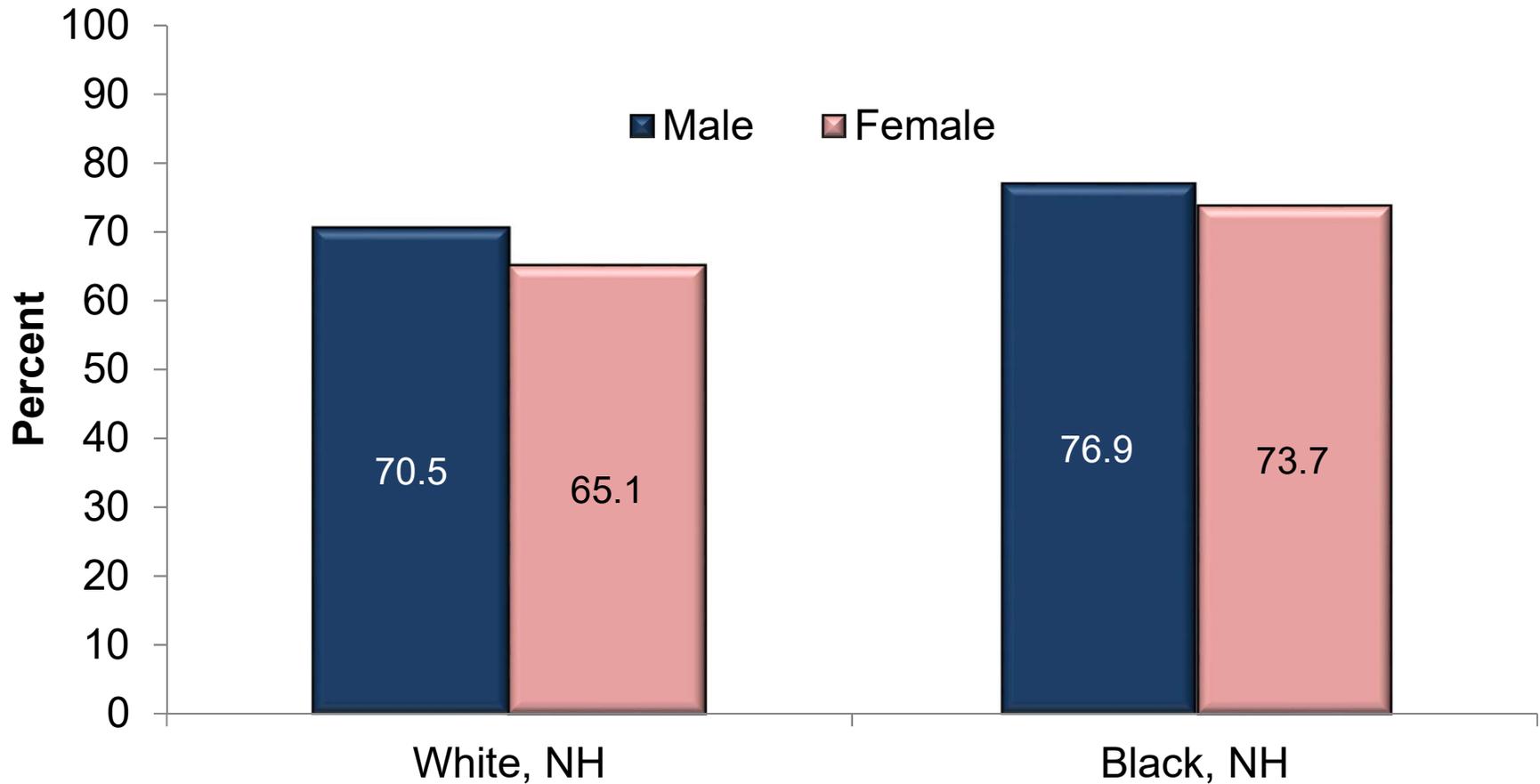
Adult Overweight and Obesity Prevalence, by Race/Ethnicity Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30

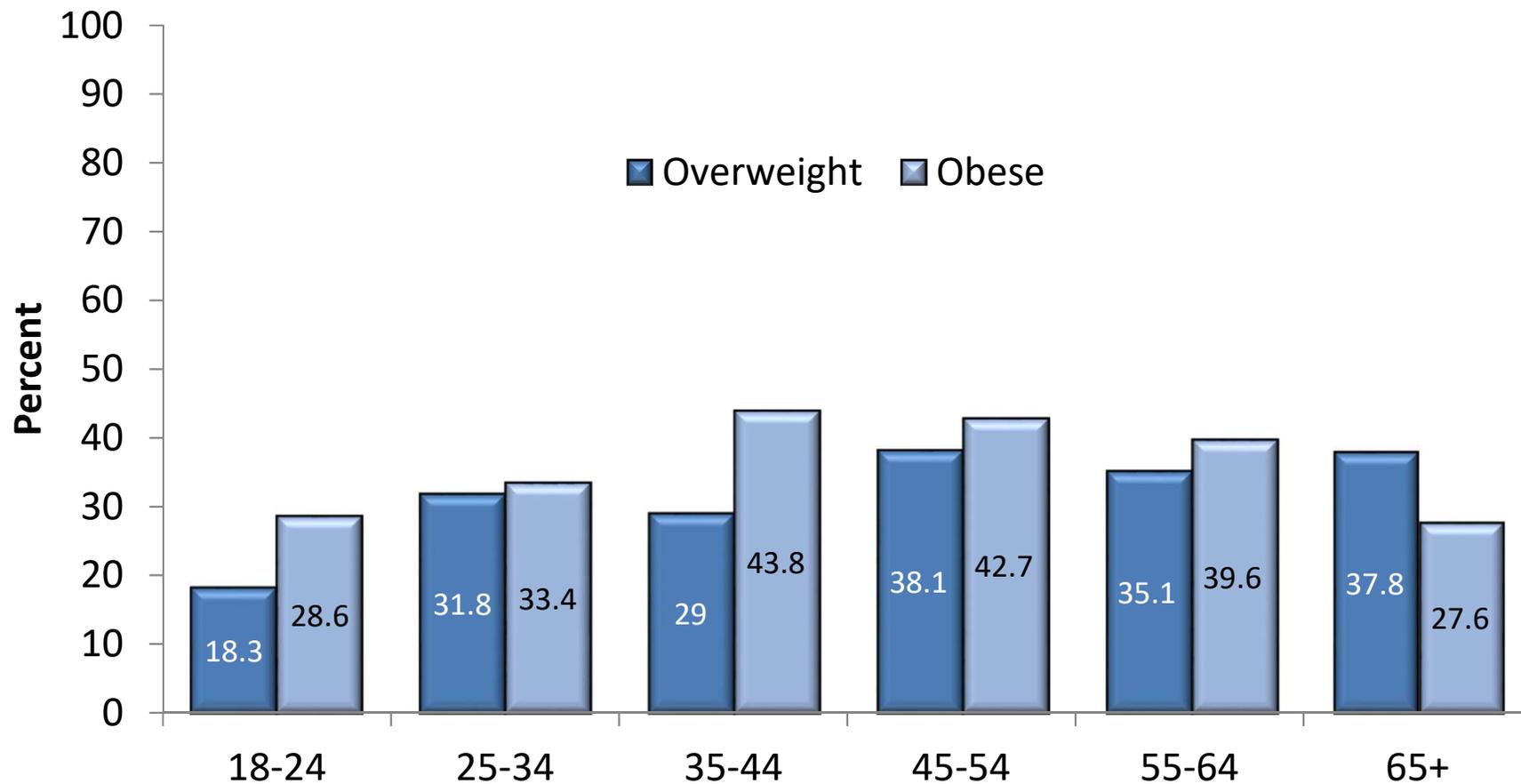
Adult Overweight and Obesity Prevalence, by Race and Gender, Arkansas 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; NH = Non-Hispanic

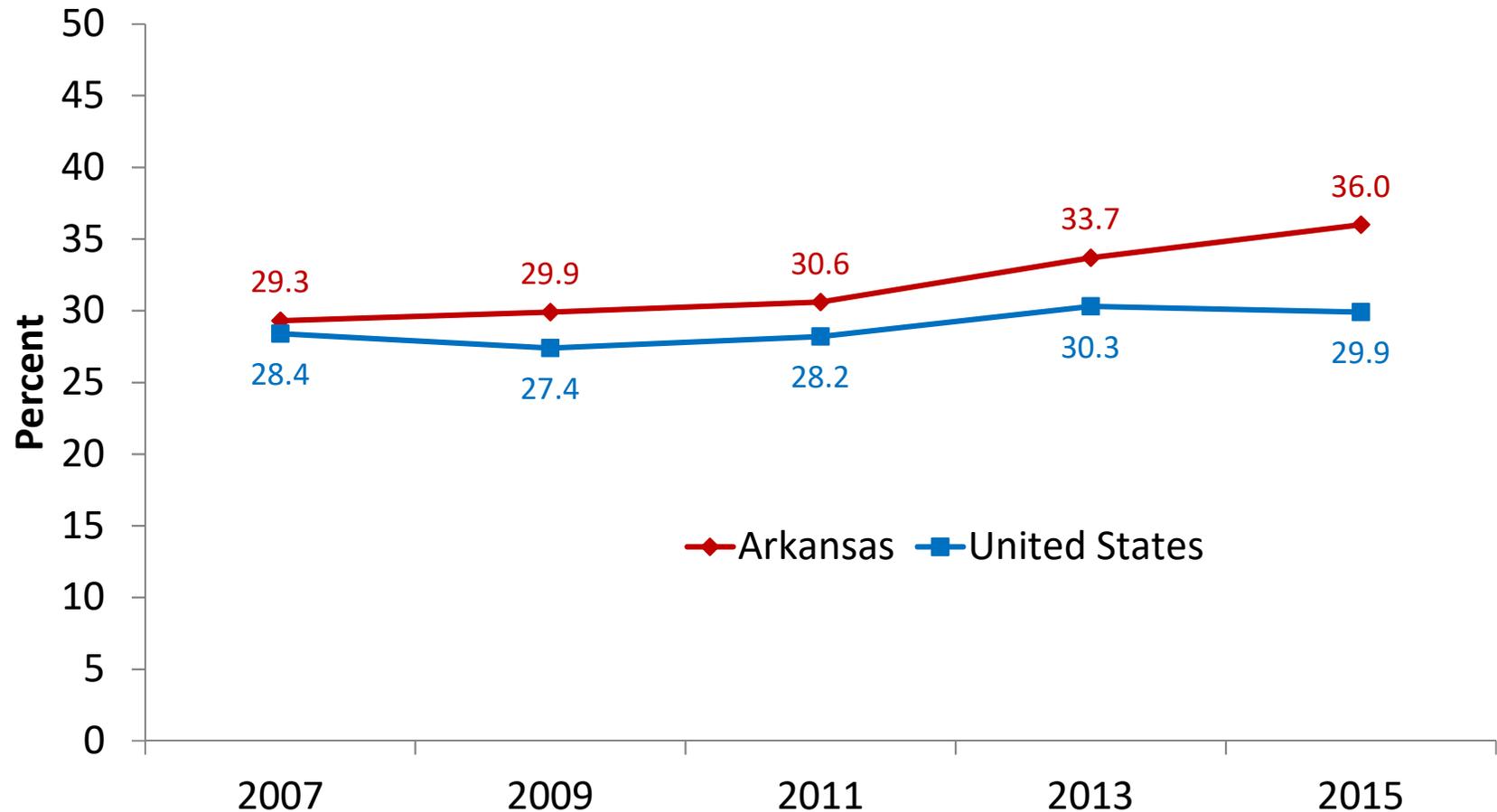
Adult Overweight and Obesity Prevalence, by Age Arkansas, 2016



SECTION III. CHILDREN AND YOUTH

**A. YRBS DATA
(HIGH SCHOOL STUDENTS)**

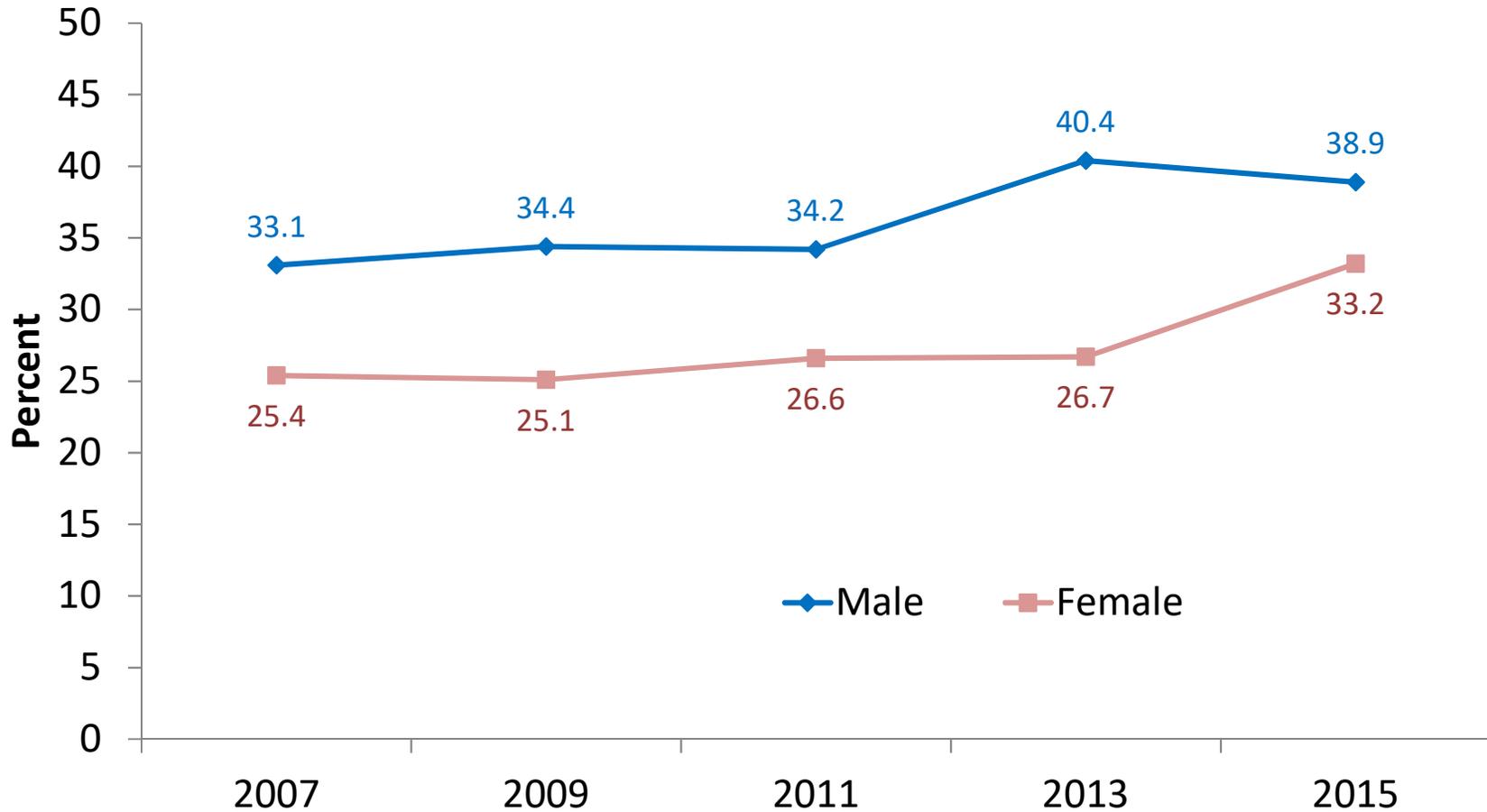
High School Students Overweight and Obesity Prevalence Arkansas and U.S., 2007-2015



Source: YRBS

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

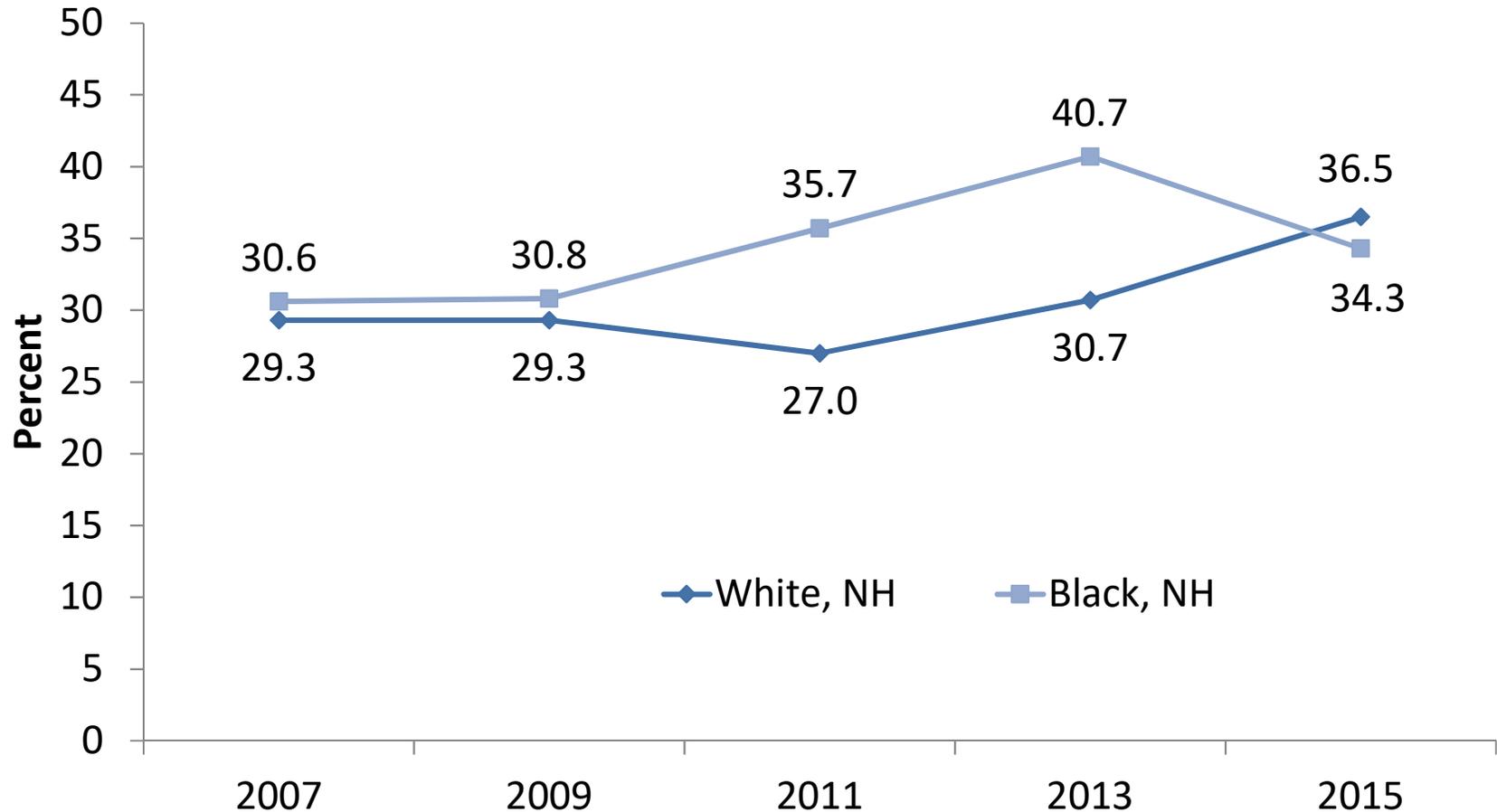
High School Students Overweight and Obesity Prevalence Arkansas, 2007-2015



Source: YRBS

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

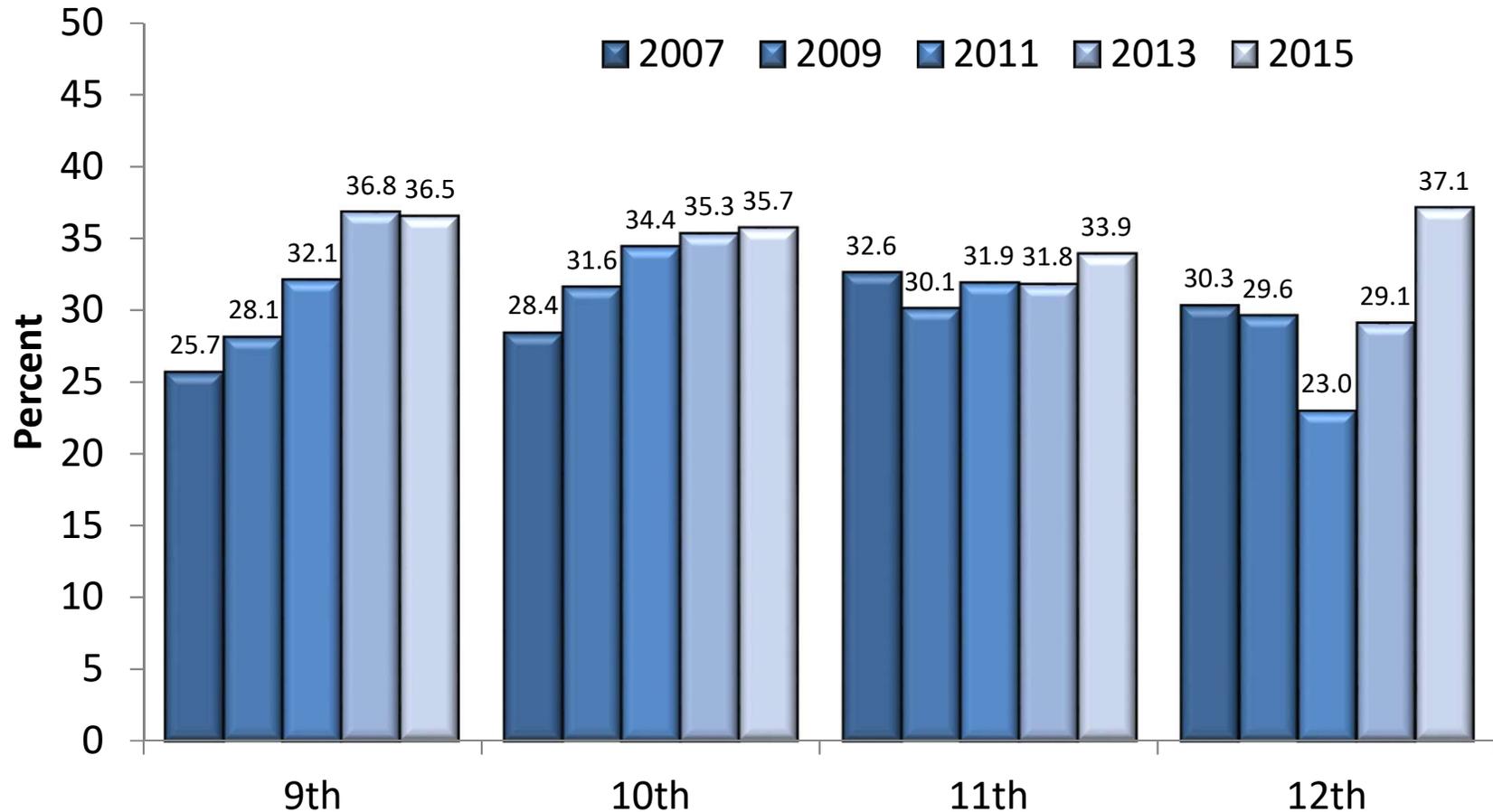
High School Students Overweight and Obesity Prevalence Arkansas, 2007-2015



Source: YRBS

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex; NH = Non-Hispanic

High School Students Overweight and Obesity Prevalence Arkansas, 2007-2015



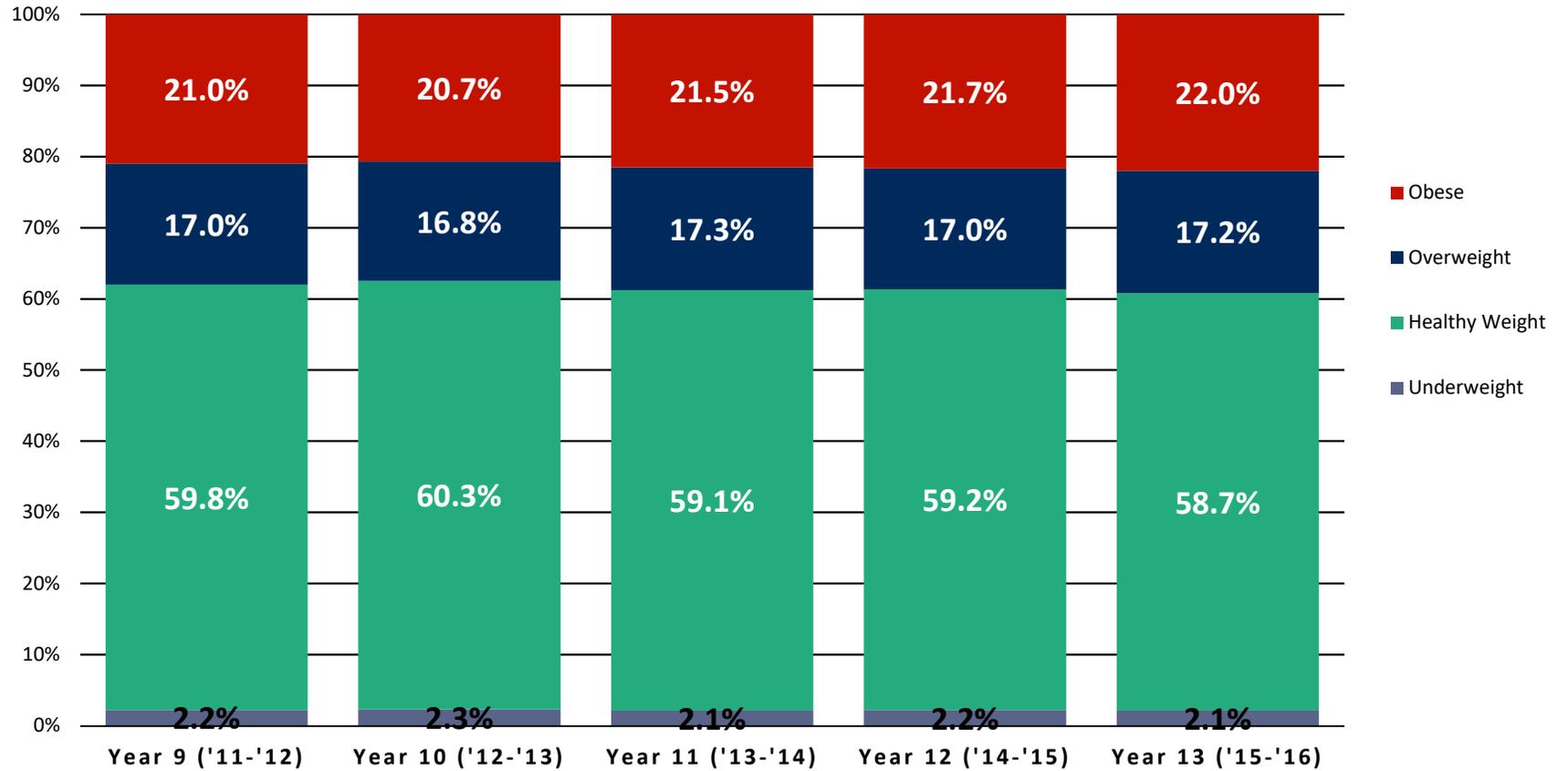
Source: YRBS

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

B. ACHI DATA

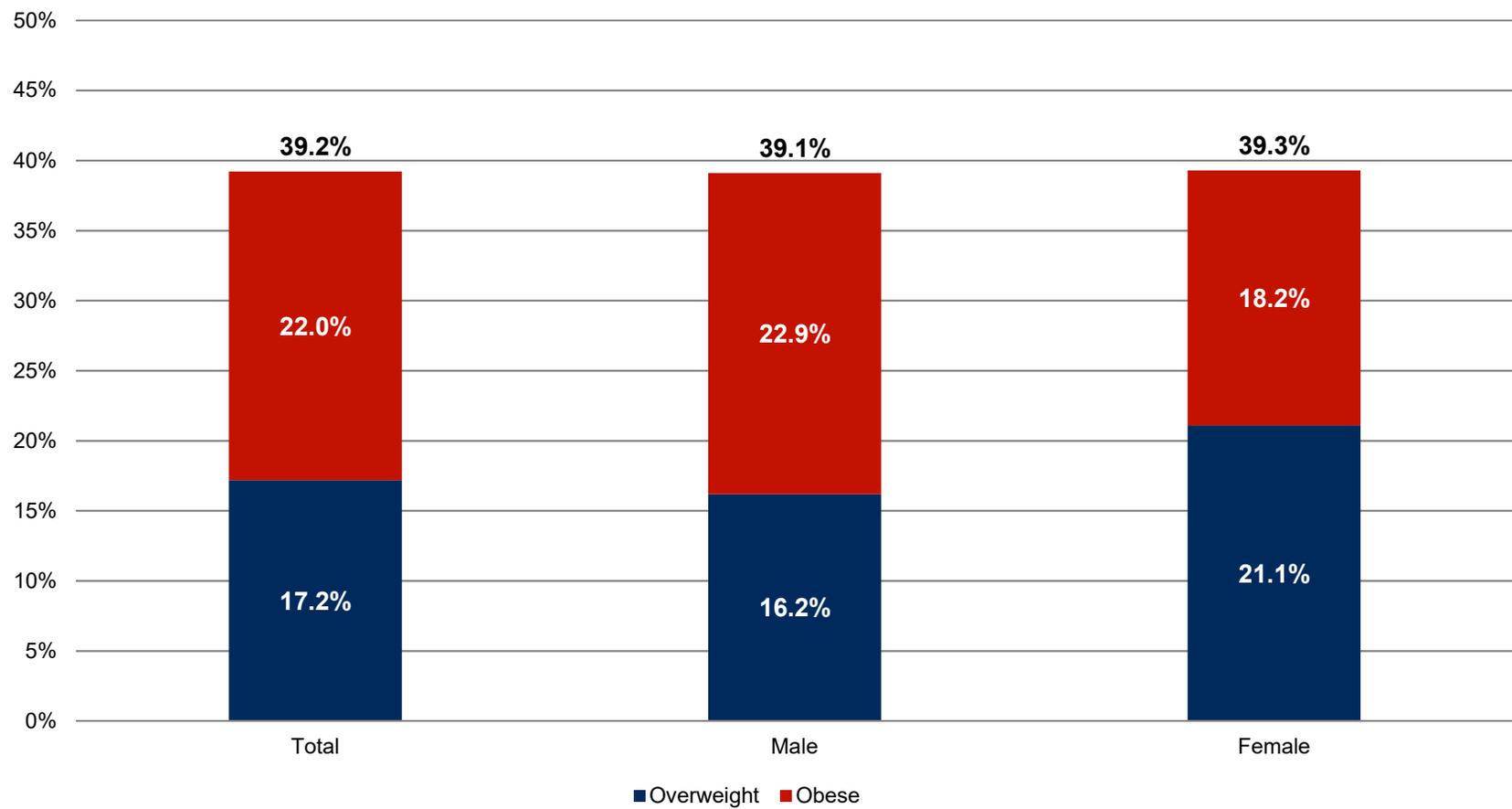
(K, 2ND, 4TH, 6TH, 8TH, & 10TH GRADE STUDENTS)

Trends in BMI Classification for Arkansas Public School Students in Grades K, 2, 4, 6, 8, & 10



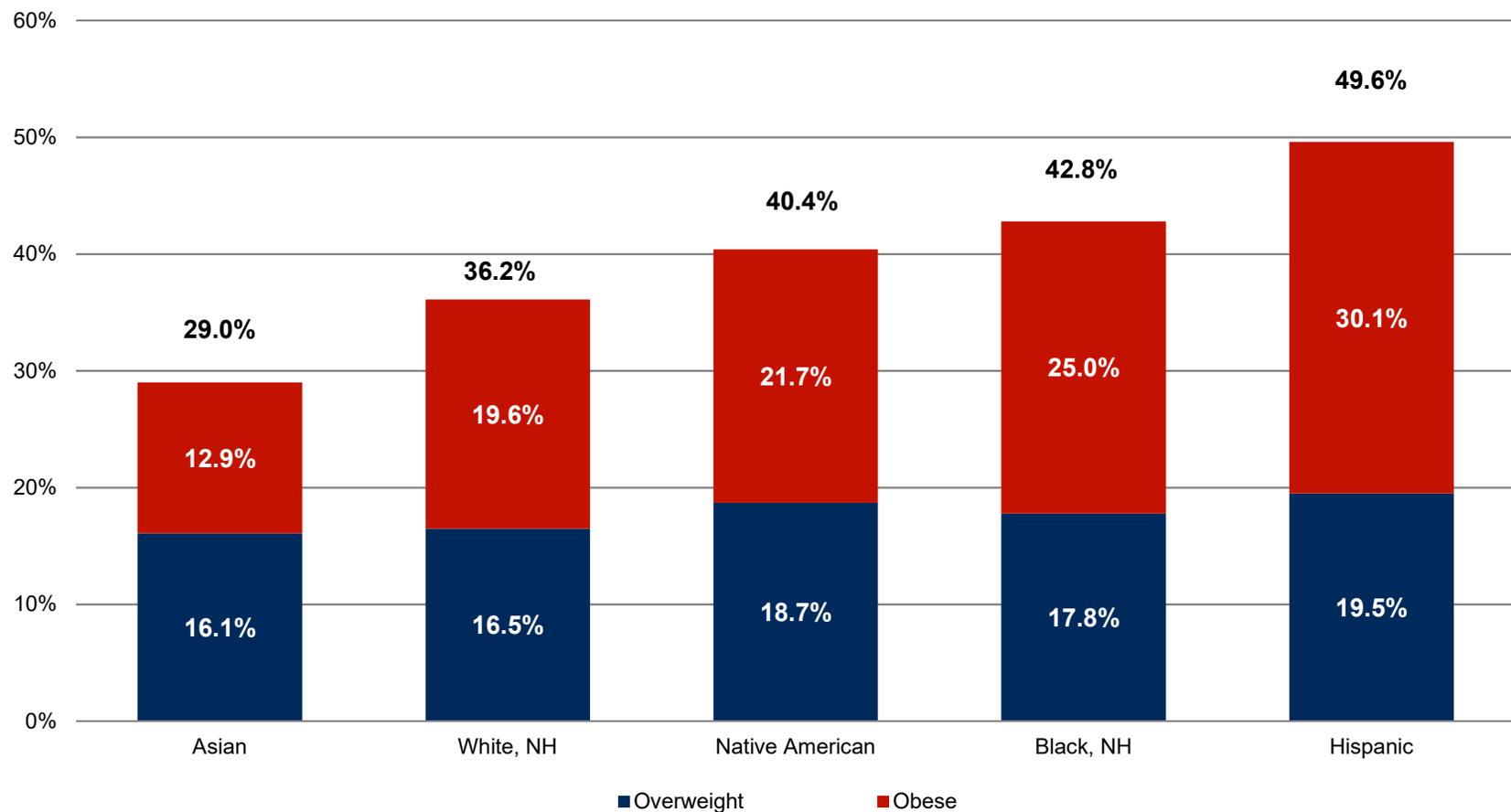
Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)

Percent of Arkansas Students* Overweight and Obese, by Gender, 2015-2016 School Year Grades K, 2, 4, 6, 8, & 10



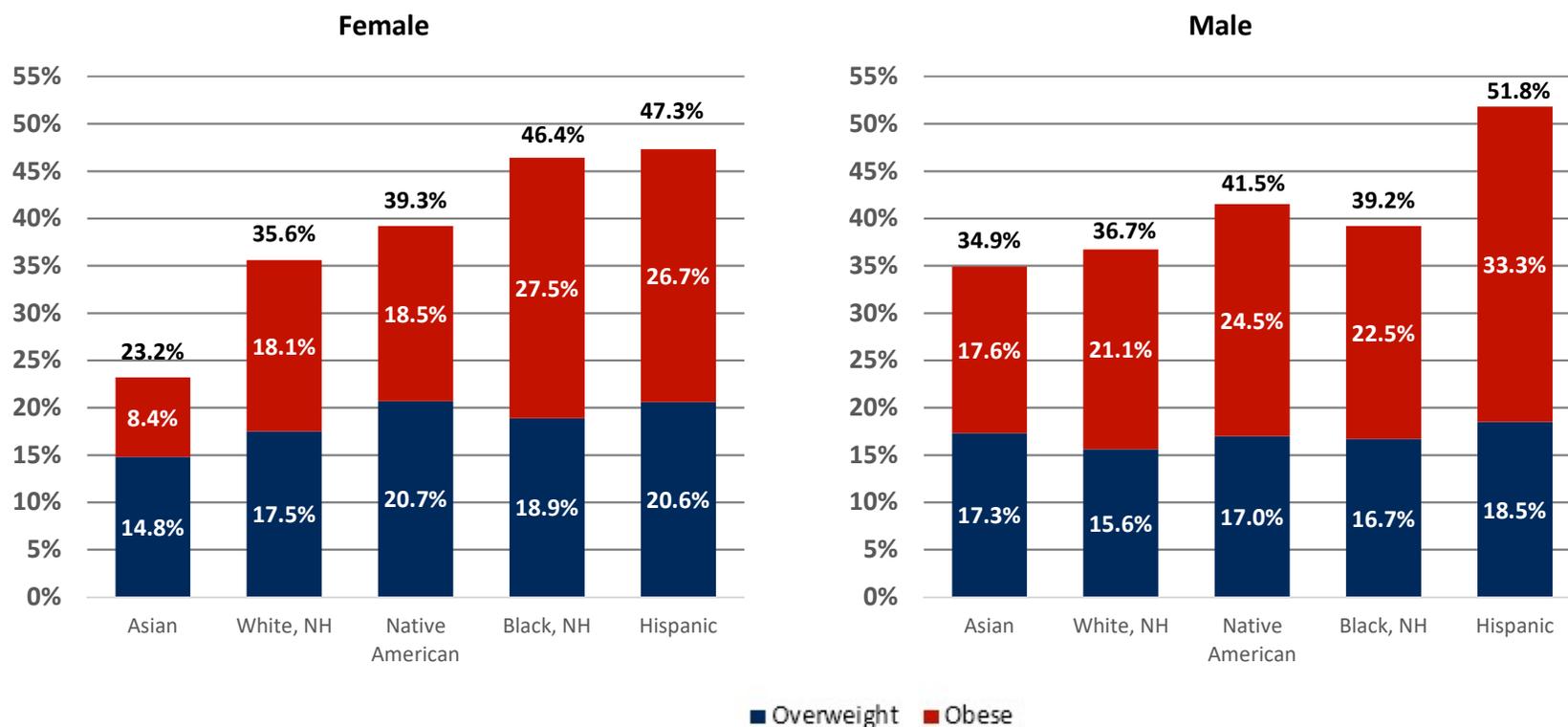
Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
*Public School Students

Percent of Arkansas Students* Overweight and Obese, by Race/Ethnicity, 2015-2016 School Year Grades K, 2, 4, 6, 8, & 10



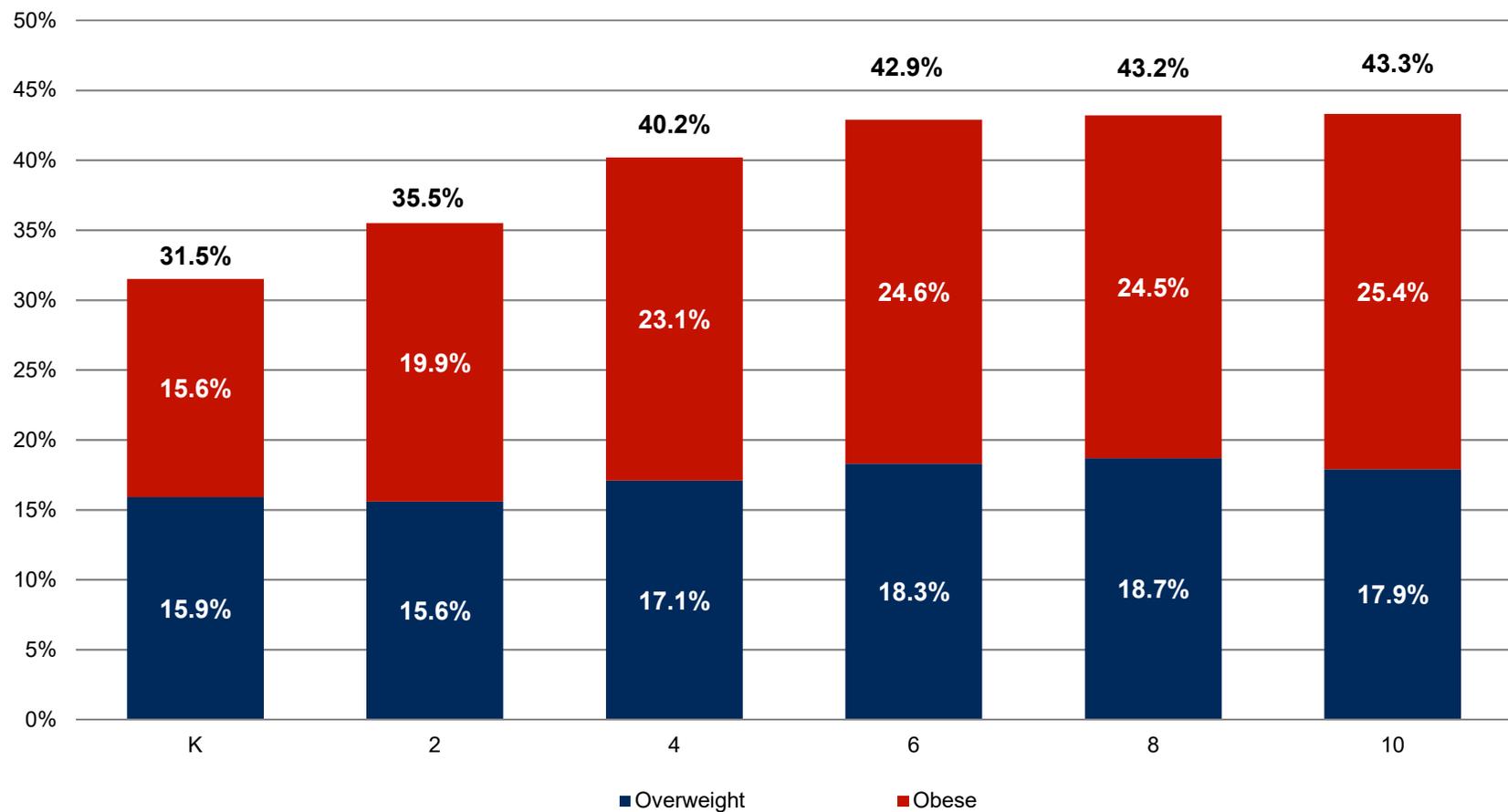
Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
NH = Non-Hispanic; *Public School Students

Percent of Arkansas Students* Overweight and Obese, by Gender & Race/Ethnicity, 2015-2016 School Year Grades K, 2, 4, 6, 8, & 10



Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
NH = Non-Hispanic; *Public School Students

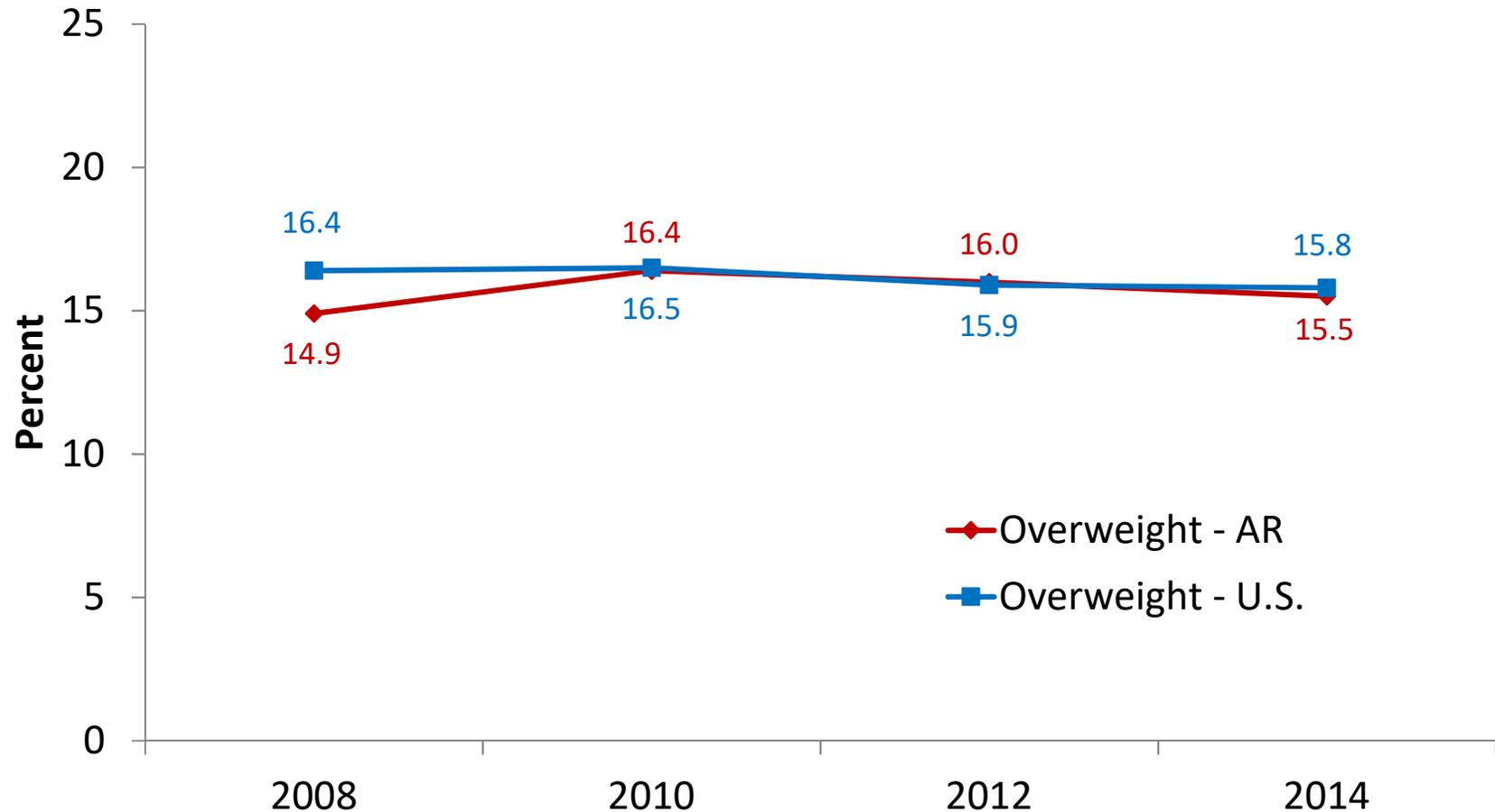
Percent of Arkansas Students* Overweight and Obese, by Grade, 2015-2016 School Year Grades K, 2, 4, 6, 8, & 10



Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
*Public School Students

C. WIC DATA (AGES 2 TO 4 YEARS)

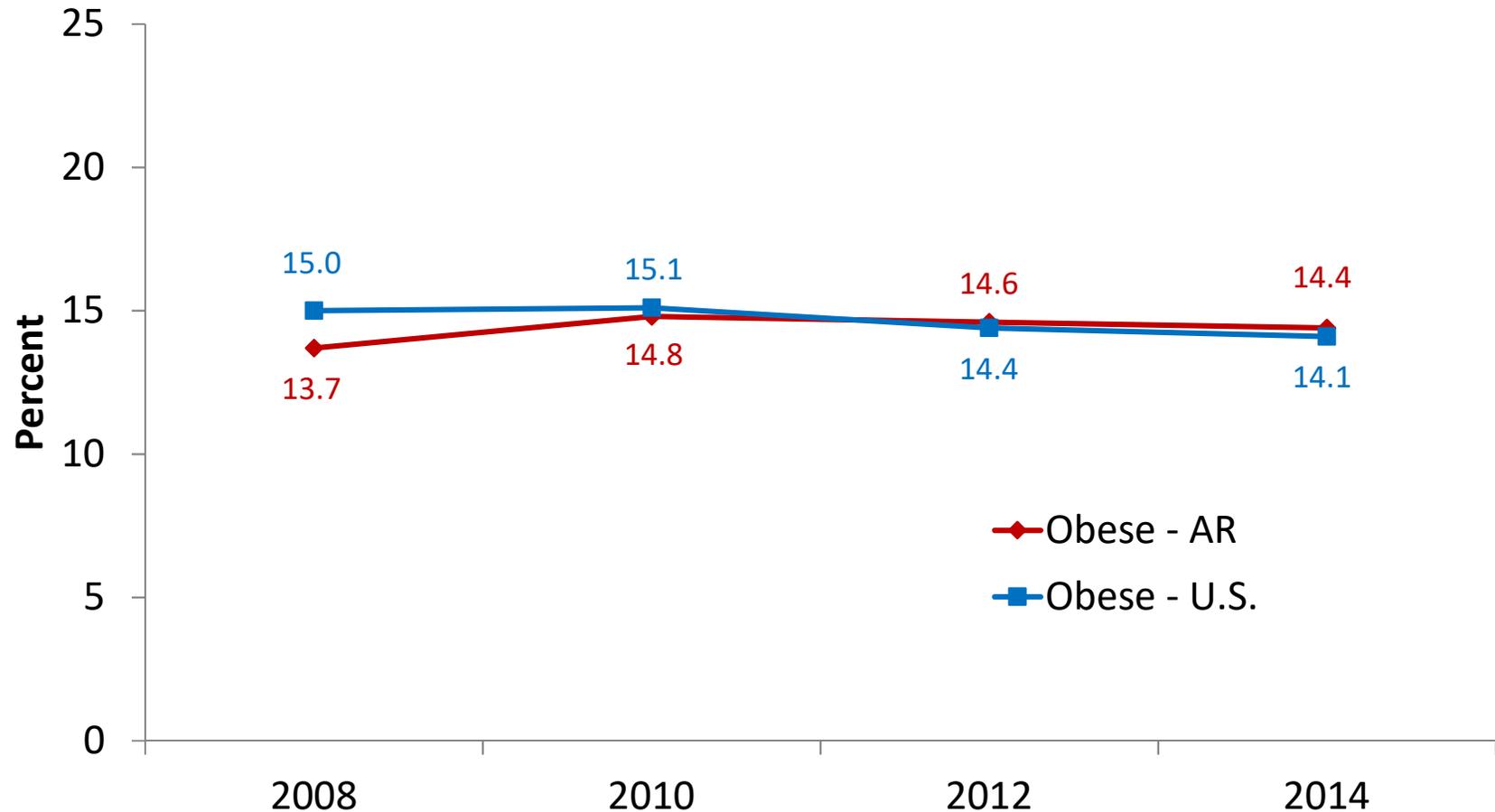
Children Ages 2 to 4 Years Old, Overweight WIC* Population, Arkansas and U.S., 2008-2014



Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

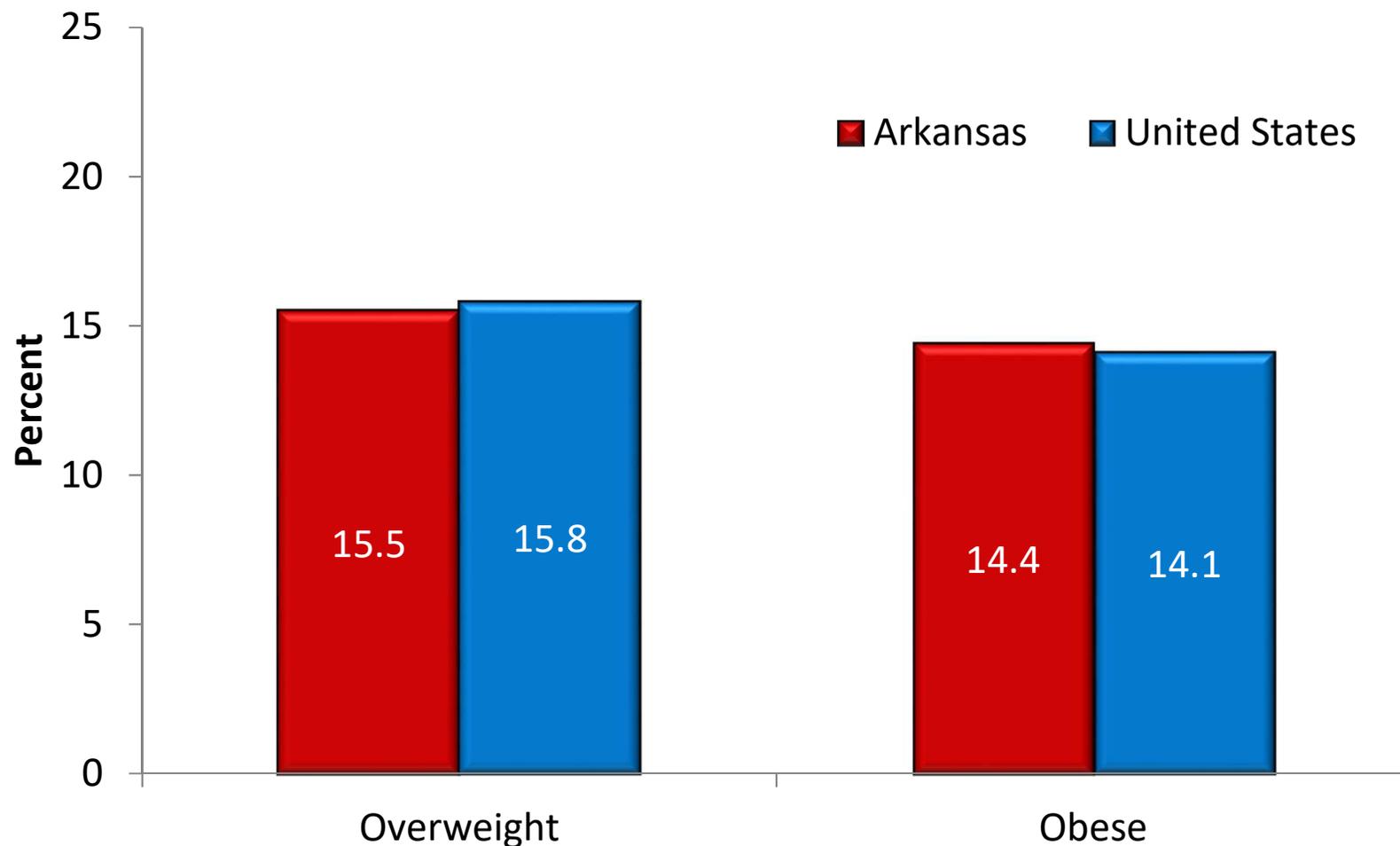
Children Ages 2 to 4 Years Old, Obese WIC* Population, Arkansas and U.S., 2008-2014



Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

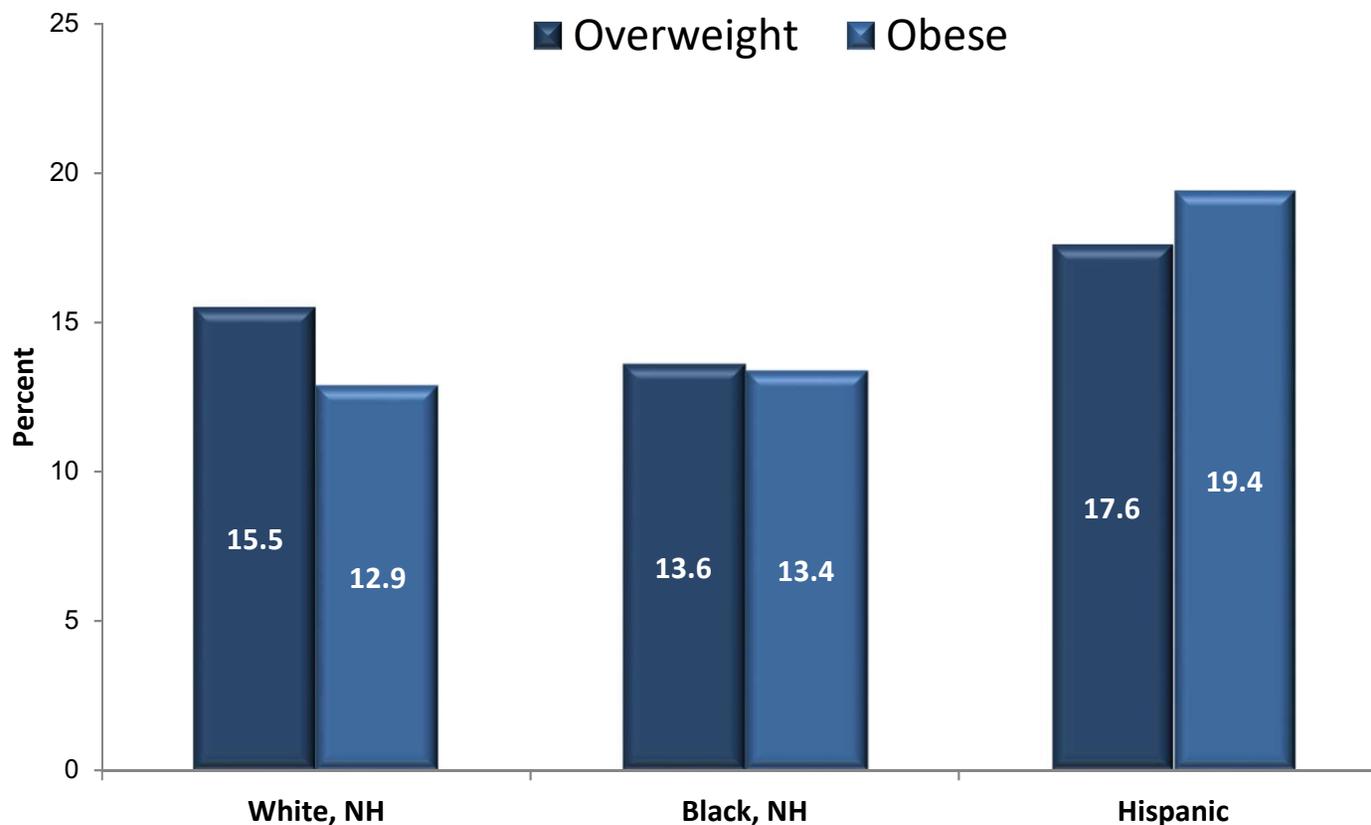
Children Ages 2 to 4 Years Old, Overweight and Obese WIC* Population, Arkansas and U.S., 2014



Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex

Children Ages 2 to 4 Years Old, Overweight and Obese, by Race/Ethnicity, WIC* Population, Arkansas, 2014



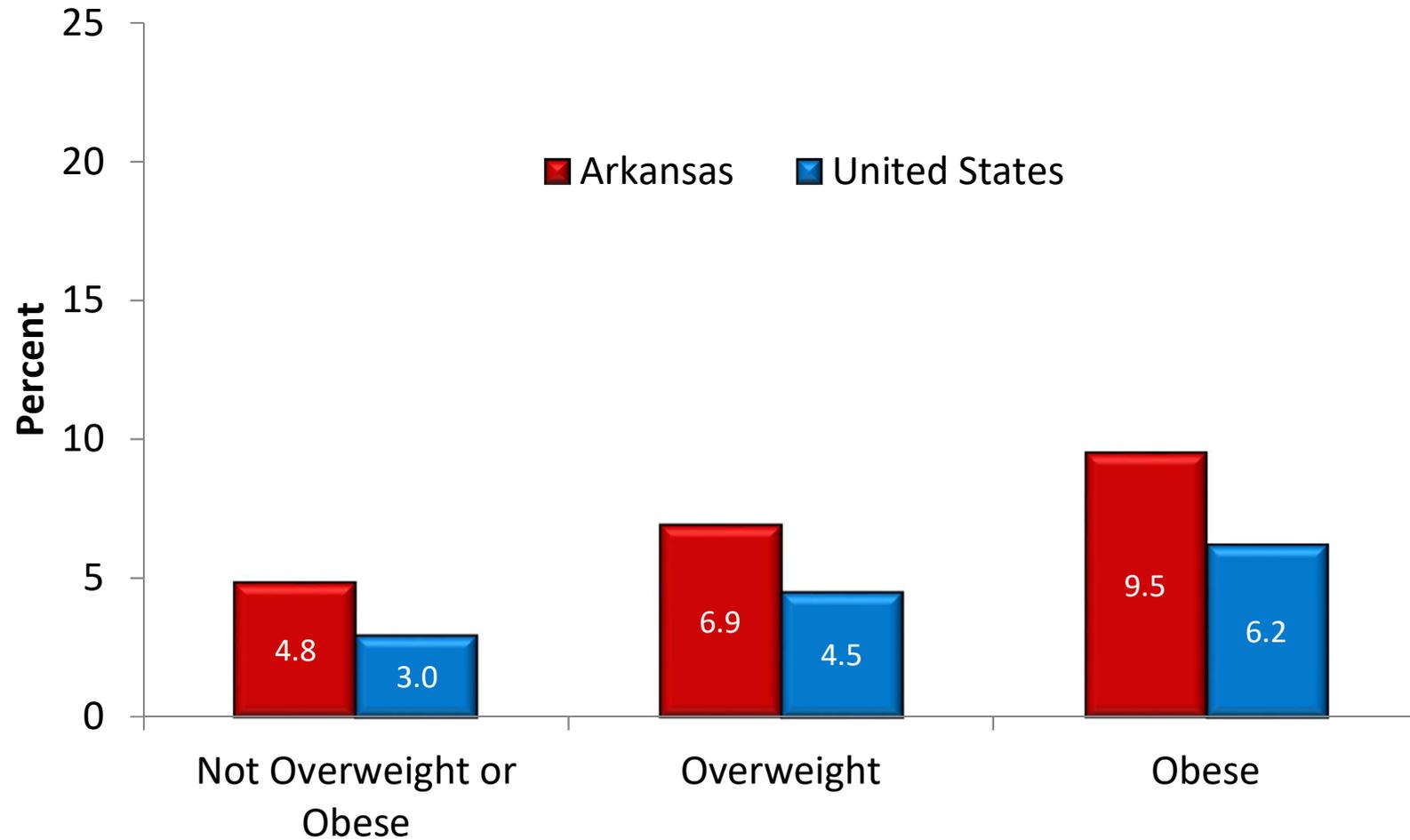
*Source: Women, Infants, and Children Participant and Program Characteristics (WIC)

BMI Categories: Overweight: \geq 85th percentile but $<$ the 95th; Obese: \geq the 95th percentile for BMI, by age and sex; NH = Non-Hispanic

SECTION IV. ASSOCIATED CHRONIC DISEASES

A. CORONARY HEART DISEASE

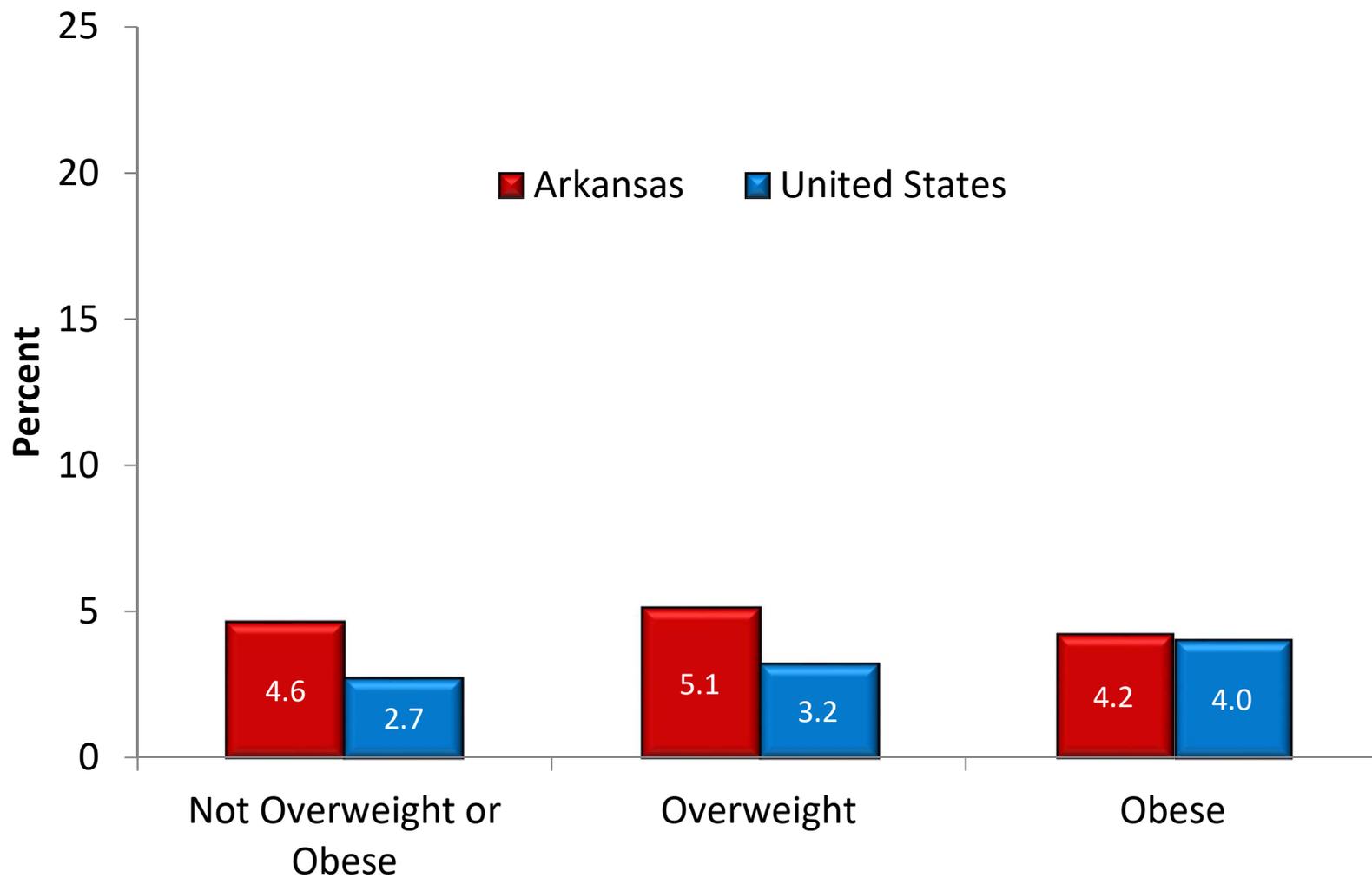
Coronary Heart Disease Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016



Source: BRFSS

B. STROKE

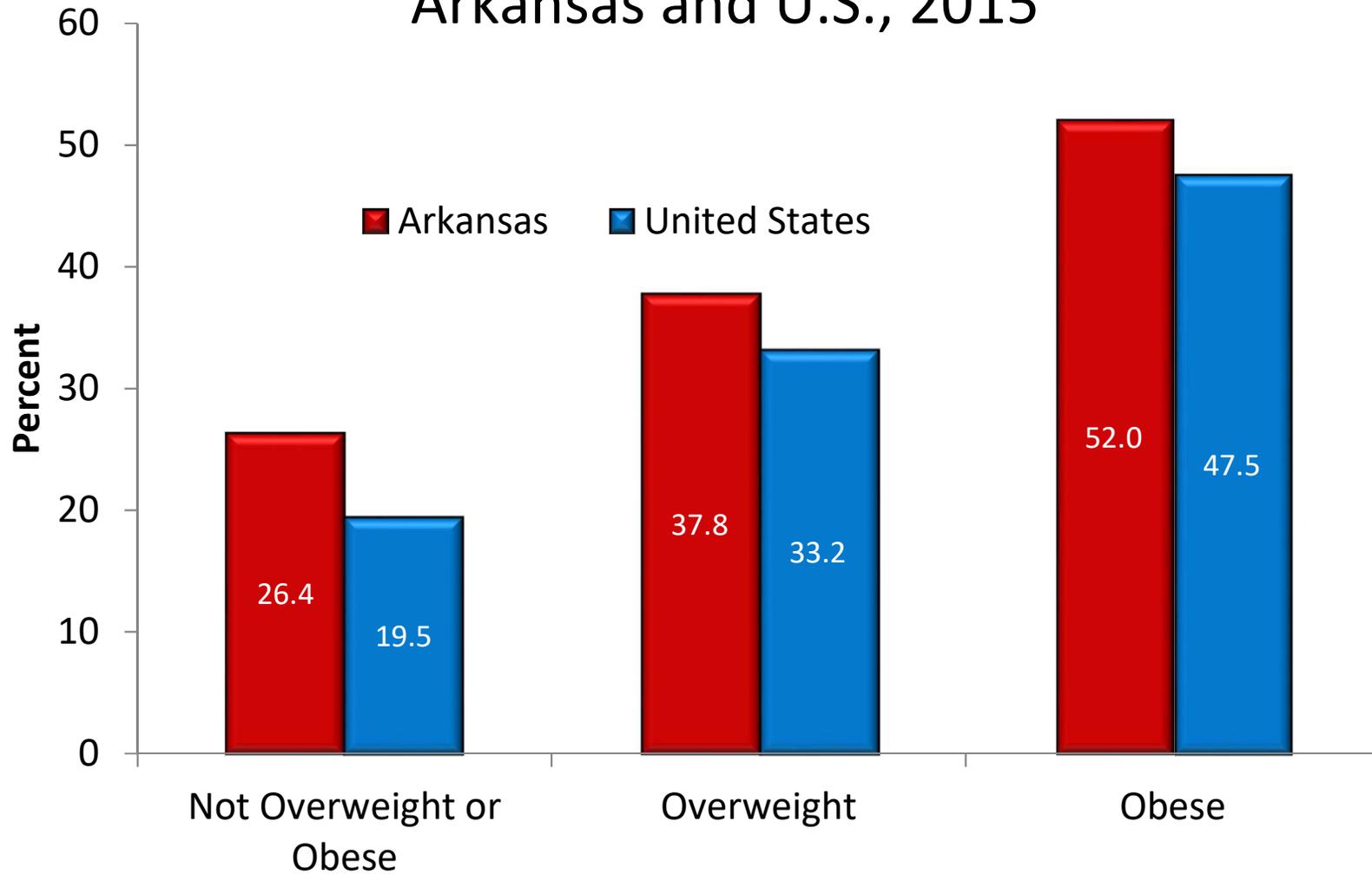
Stroke Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016



Source: BRFSS

C. HYPERTENSION

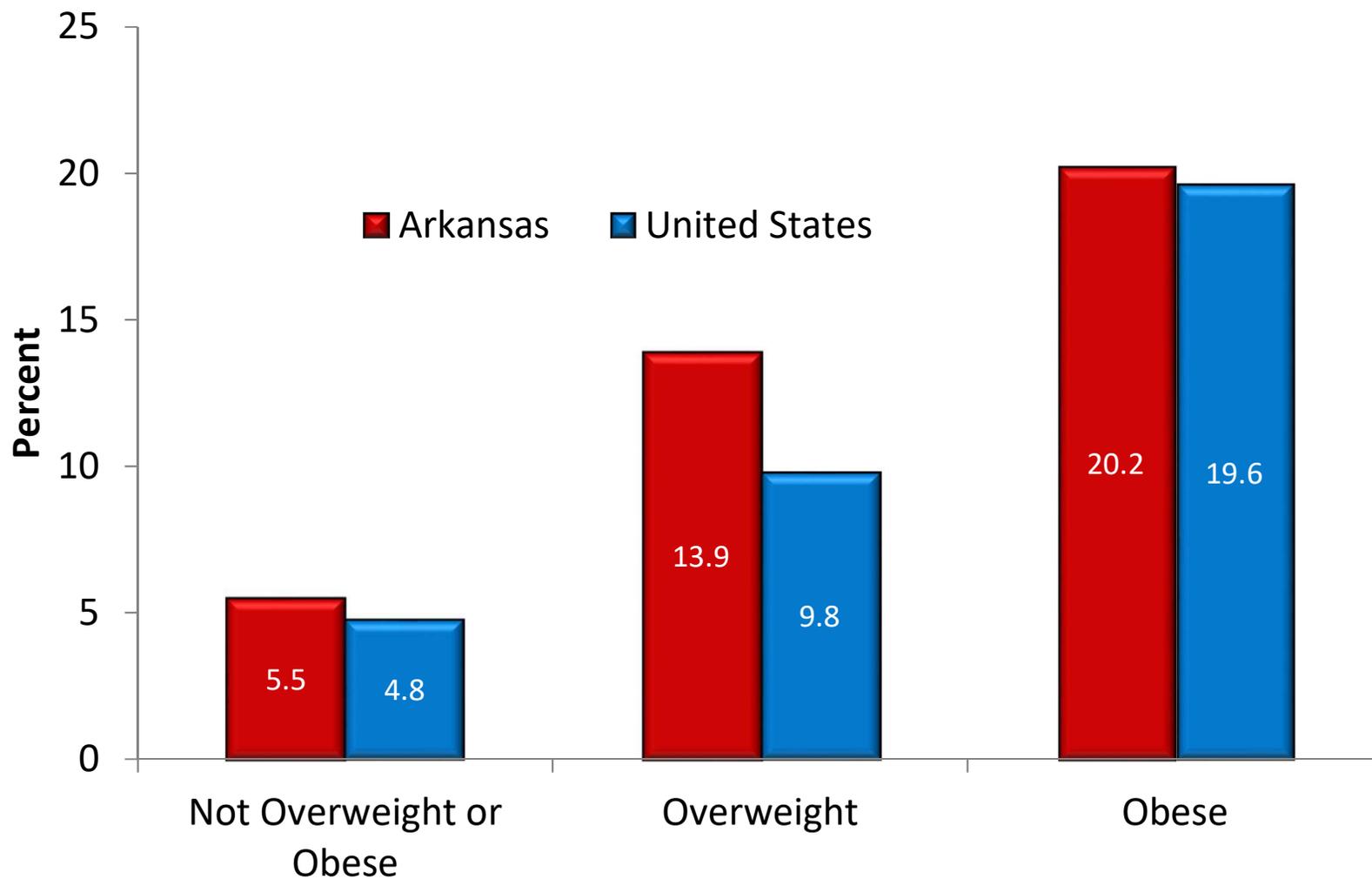
Hypertension Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015



Source: BRFSS

D. DIABETES

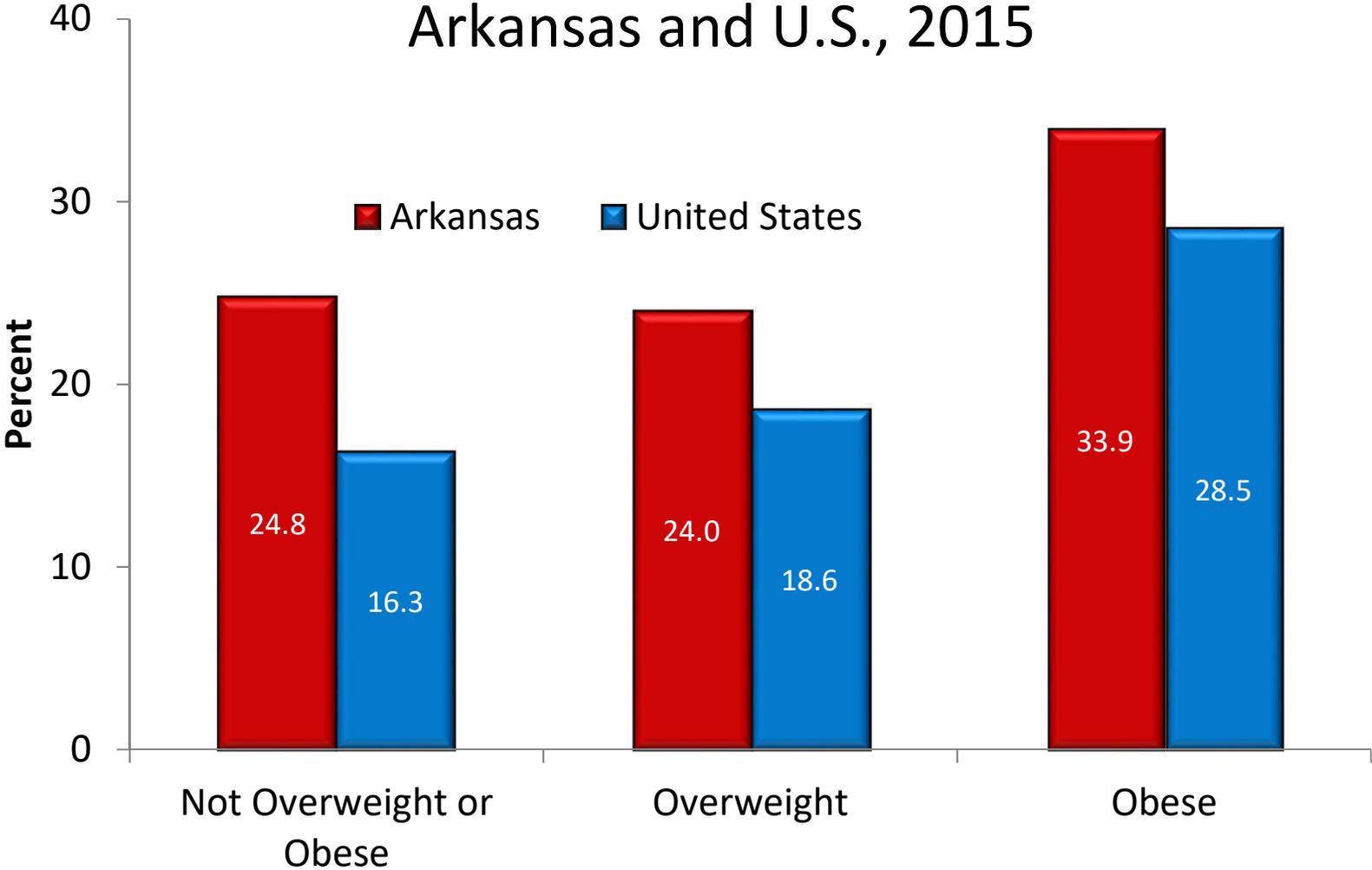
Diabetes Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016



Source: BRFSS

E. DISABILITY

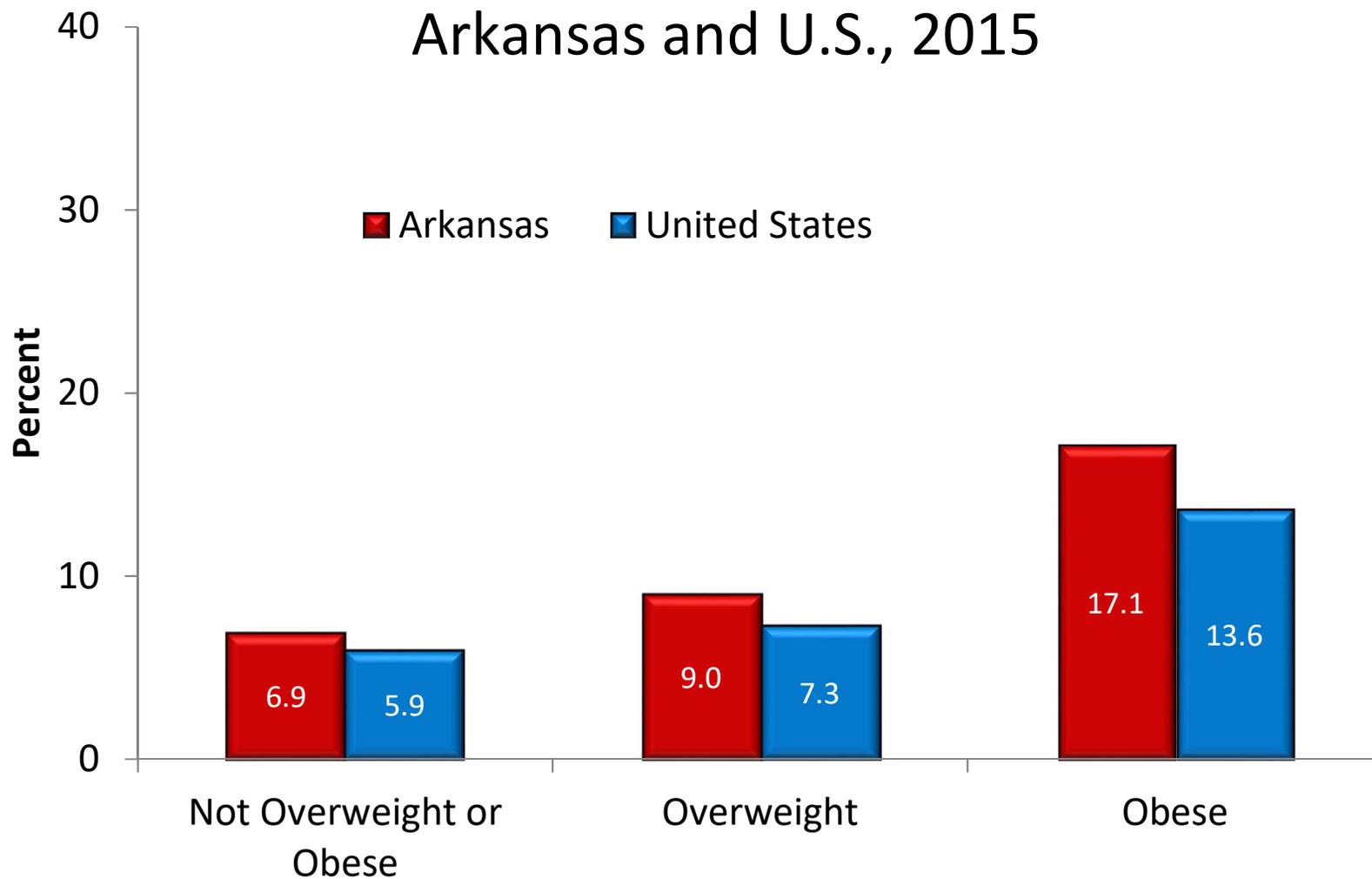
Disability* (Limited In Any Way) Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015



Source: BRFSS

*Question: Are you limited in any way in any activities because of physical, mental, or emotional problems?

Disability* (Use Special Equipment) Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015



Source: BRFSS

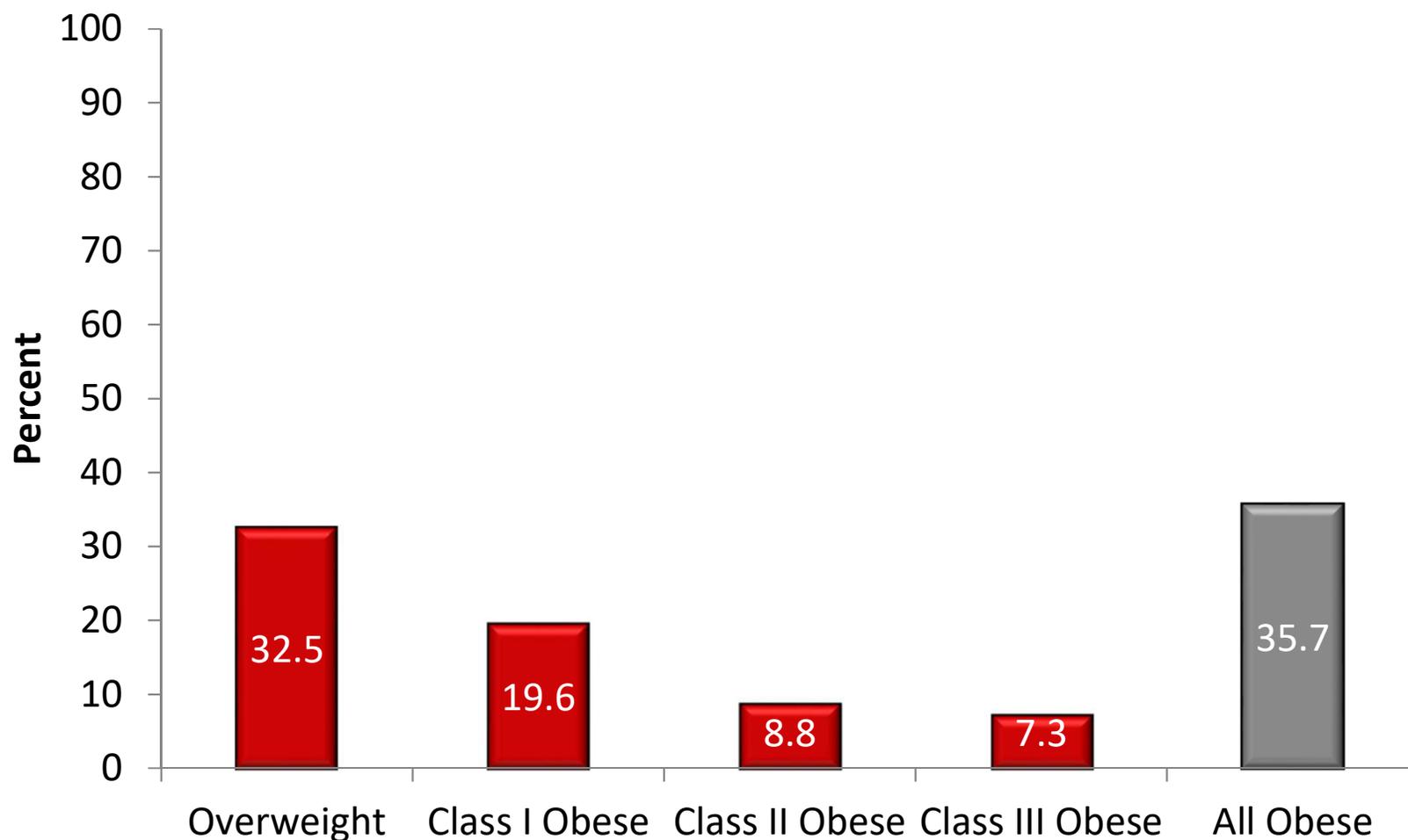
*Question: Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?

SECTION V. OBESITY CATEGORIES

Expanded Weight Classification Categories for Adults

BMI	Weight Classification
Below 18.5	Underweight
18.5-24.9	Healthy weight
25.0-29.9	Overweight
30.0-34.9	Class I Obesity
35.0-39.9	Class II Obesity
40 and Above	Class III Obesity

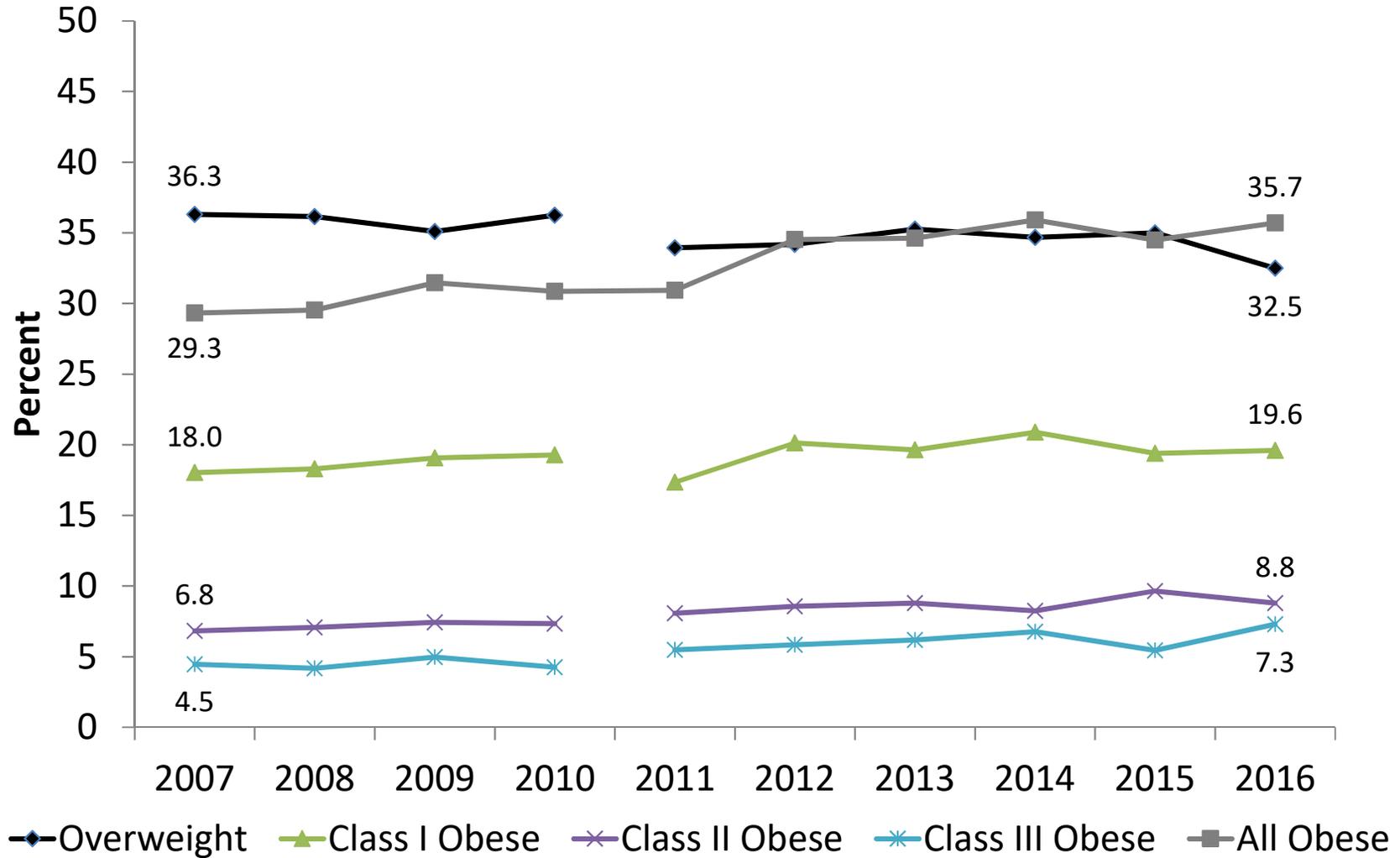
Adult Overweight and Obesity Prevalence Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

Adult Overweight and Obesity Prevalence Arkansas, 2007-2016

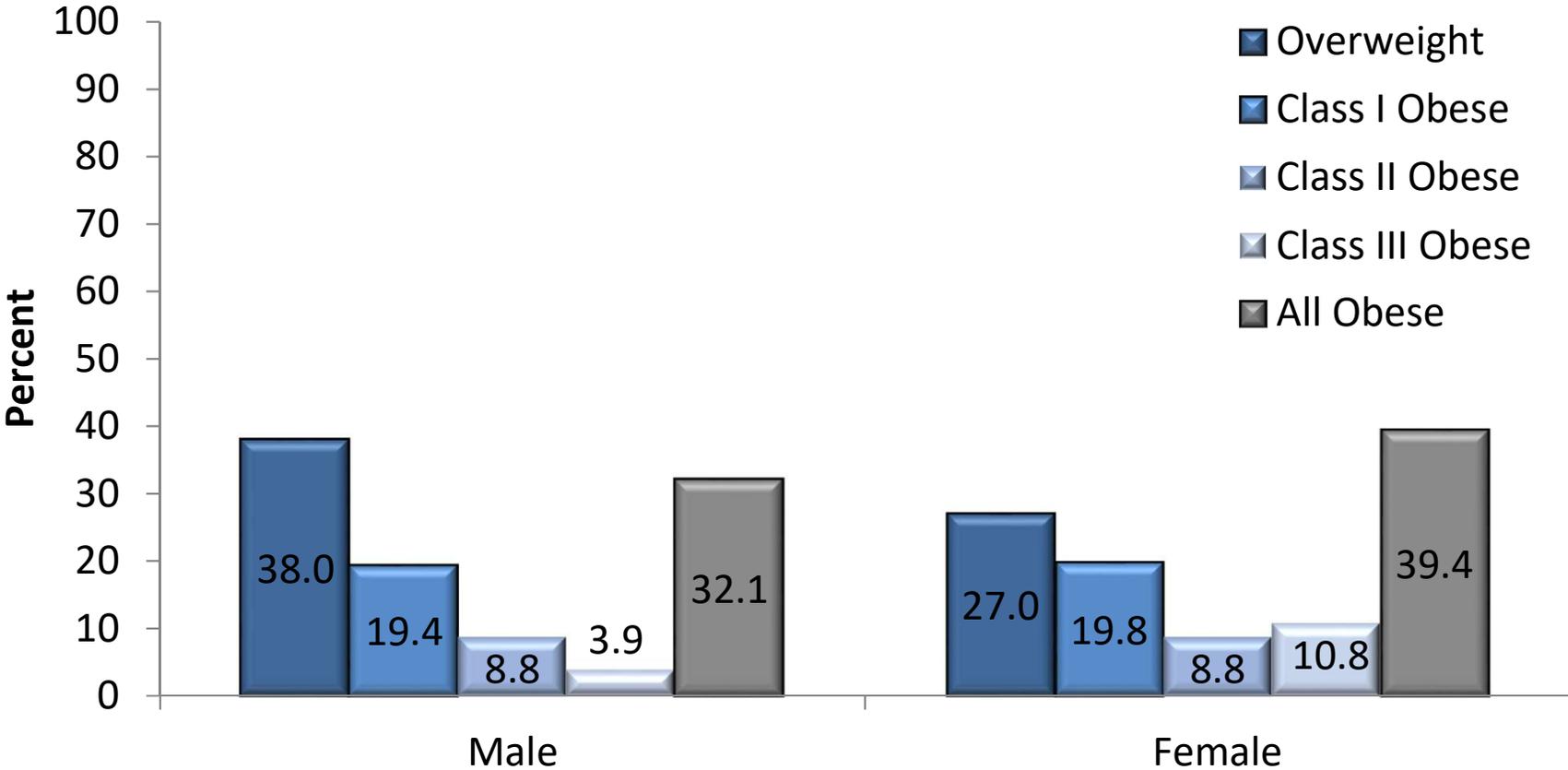


Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years

BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40

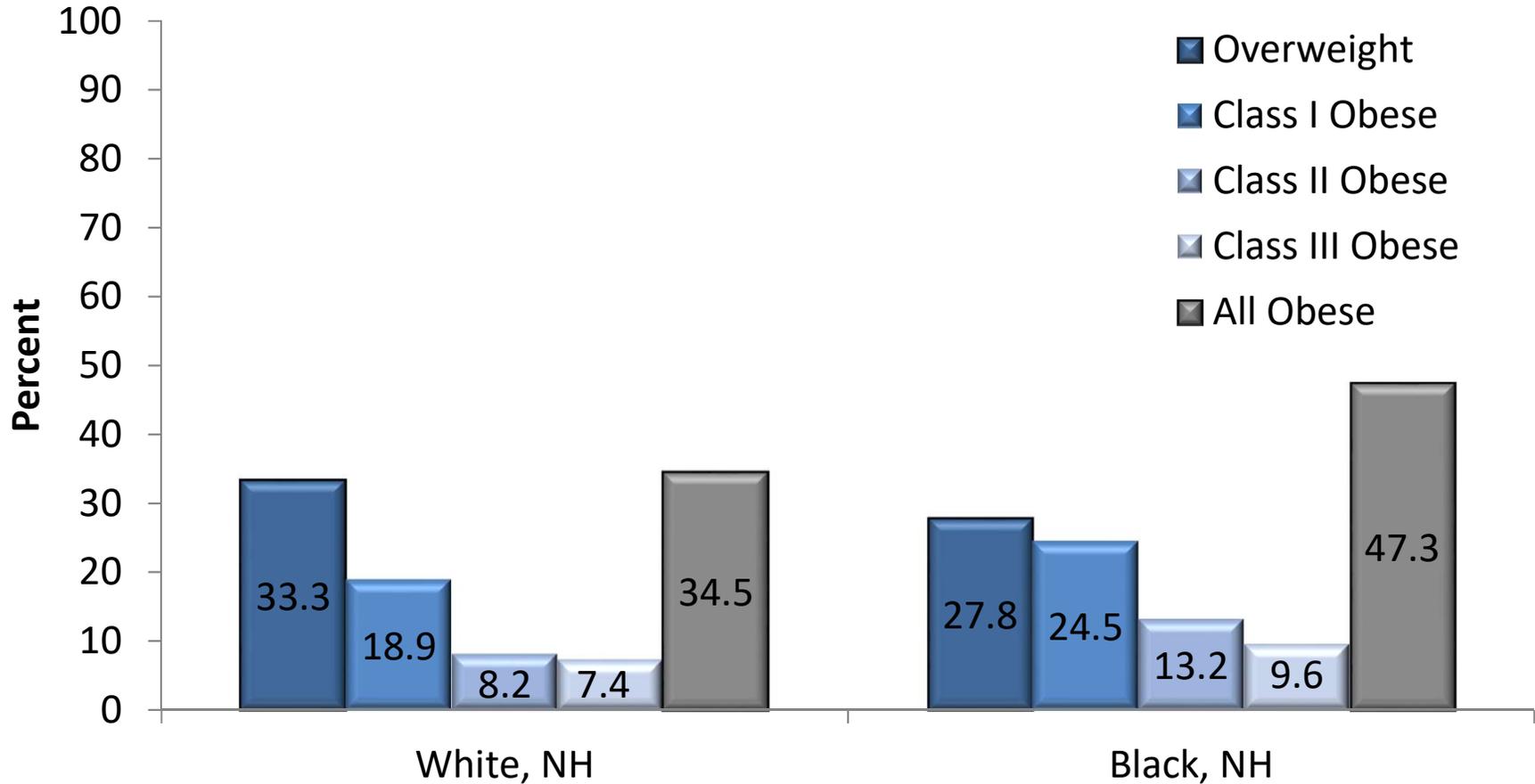
Adult Overweight and Obesity Prevalence, by Gender, Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40

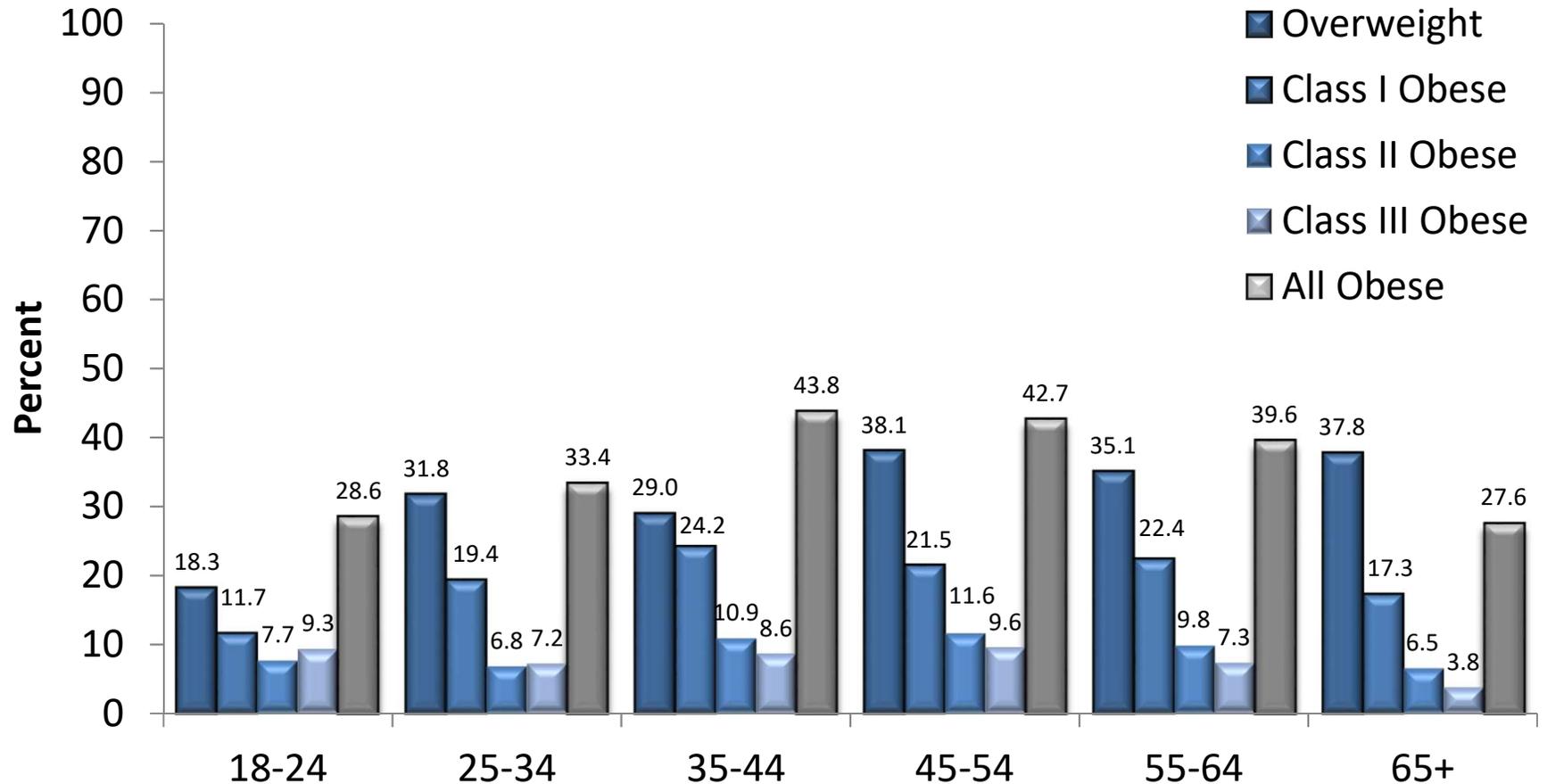
Adult Overweight and Obesity Prevalence, by Race/Ethnicity, Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40

Adult Overweight and Obesity Prevalence, by Age, Arkansas, 2016

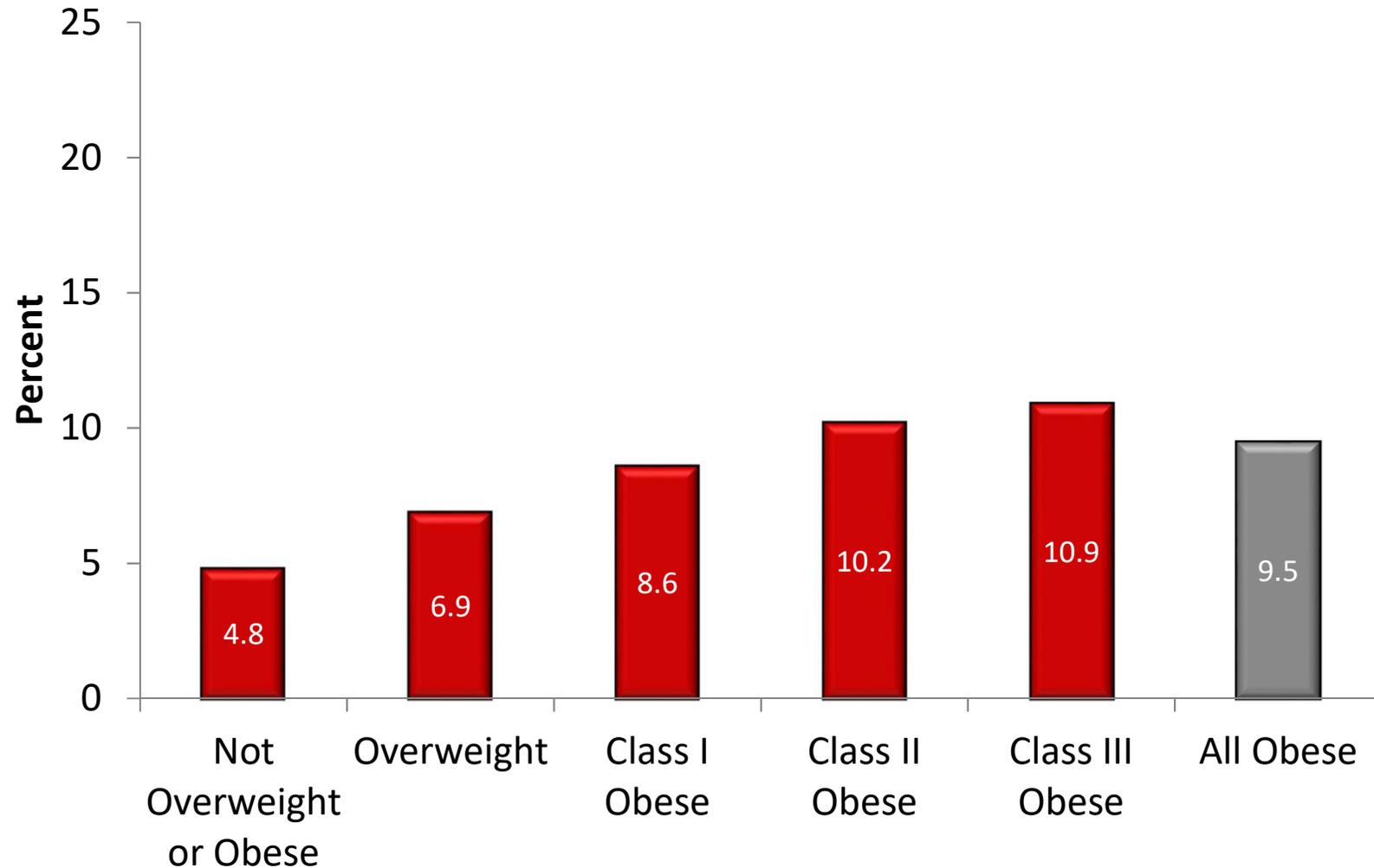


Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

Note: Due to rounding, All Obese may not exactly equal the sum of Class I, Class II, and Class III Obese.

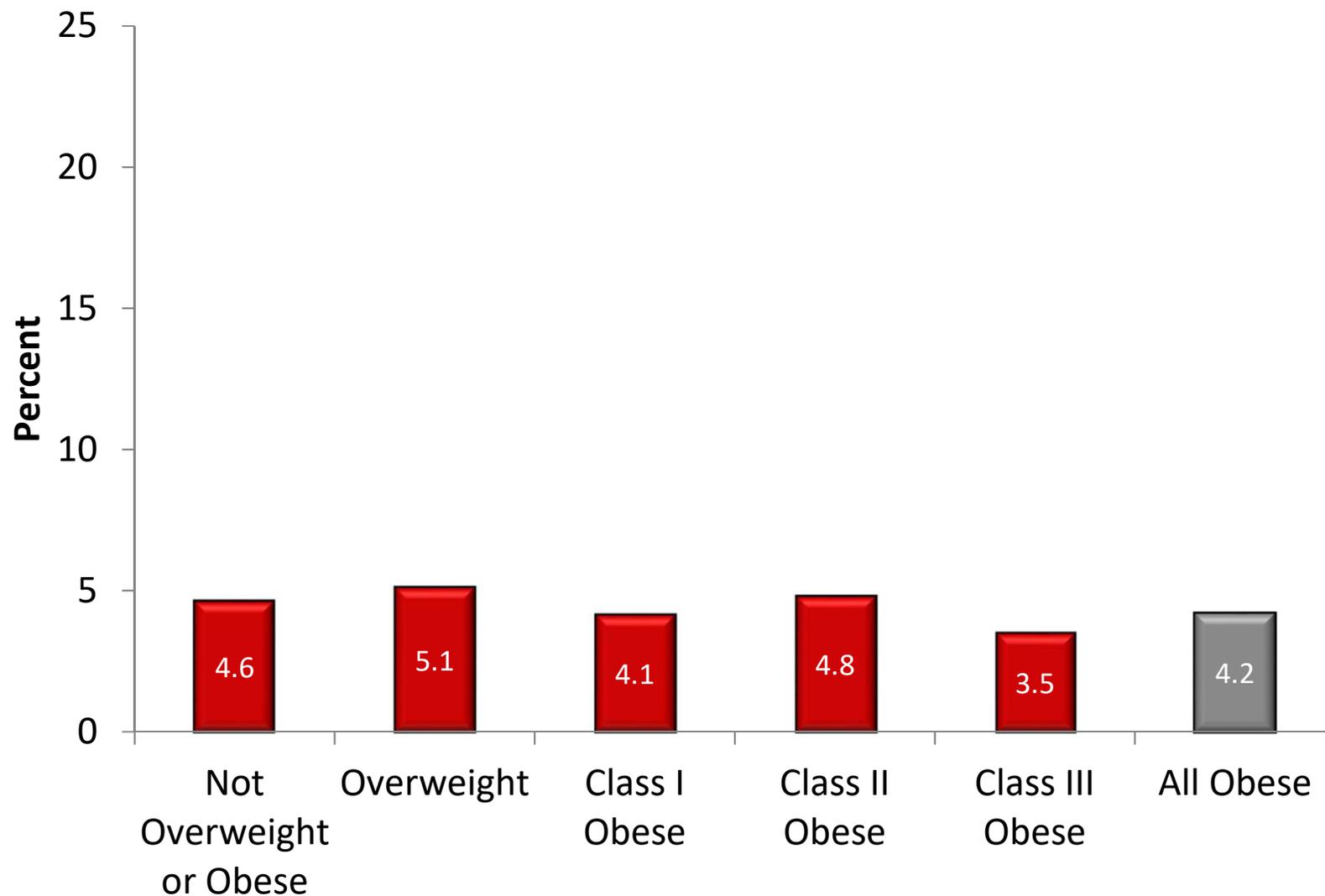
Coronary Heart Disease Prevalence Among Adults, by Weight Classification, Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

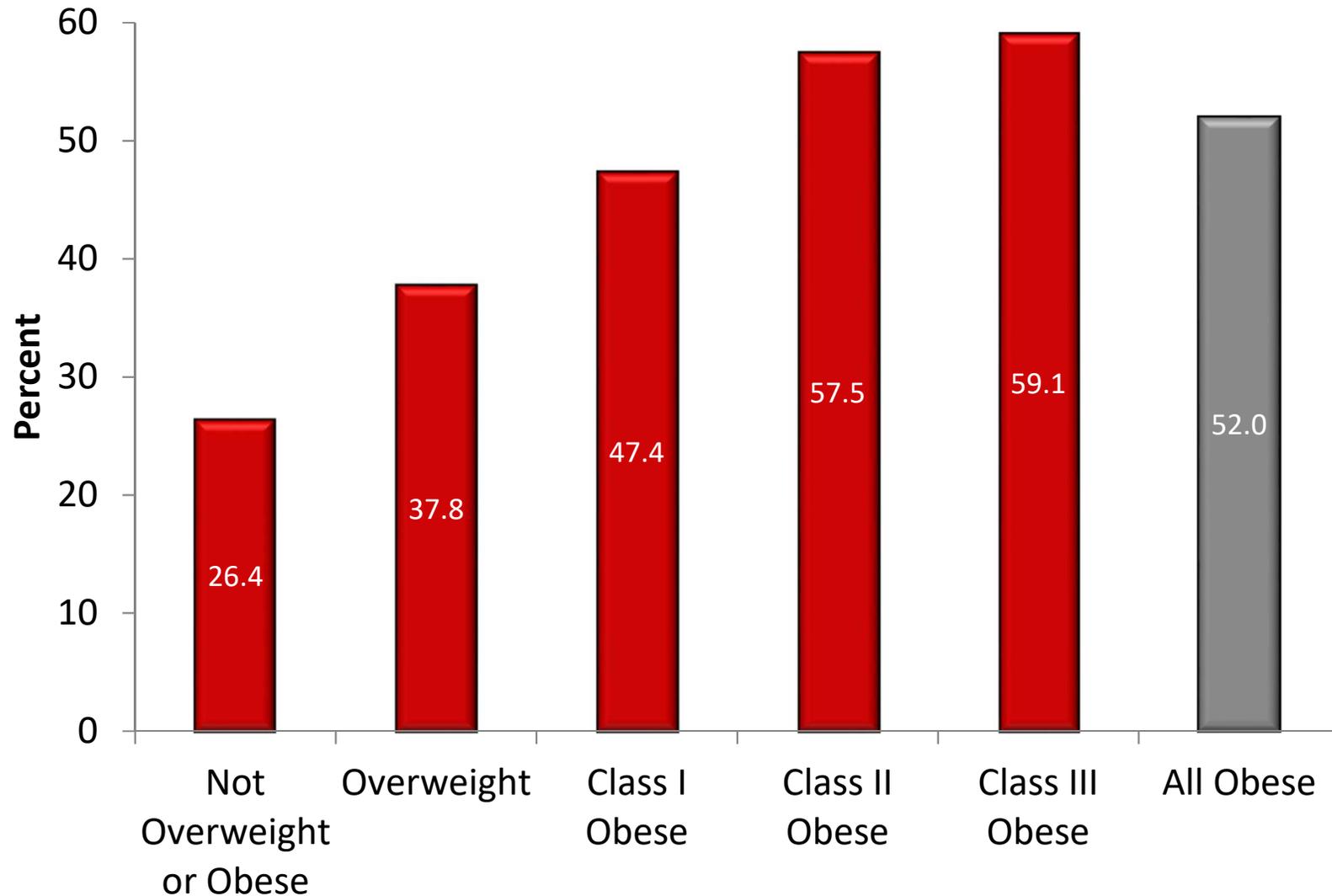
Stroke Prevalence Among Adults, by Weight Classification, Arkansas, 2016



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

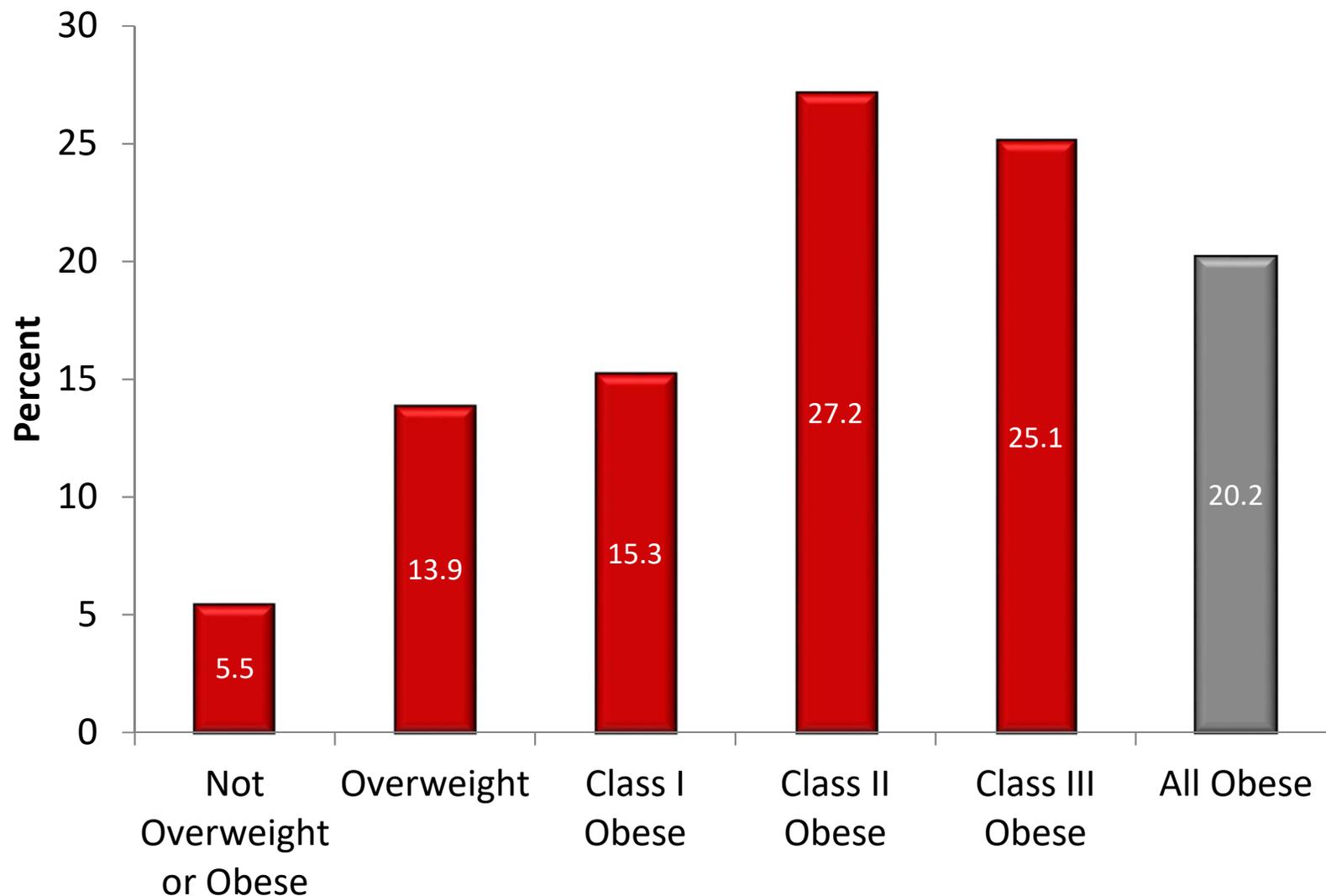
Hypertension Prevalence Among Adults, by Weight Classification, Arkansas, 2015



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

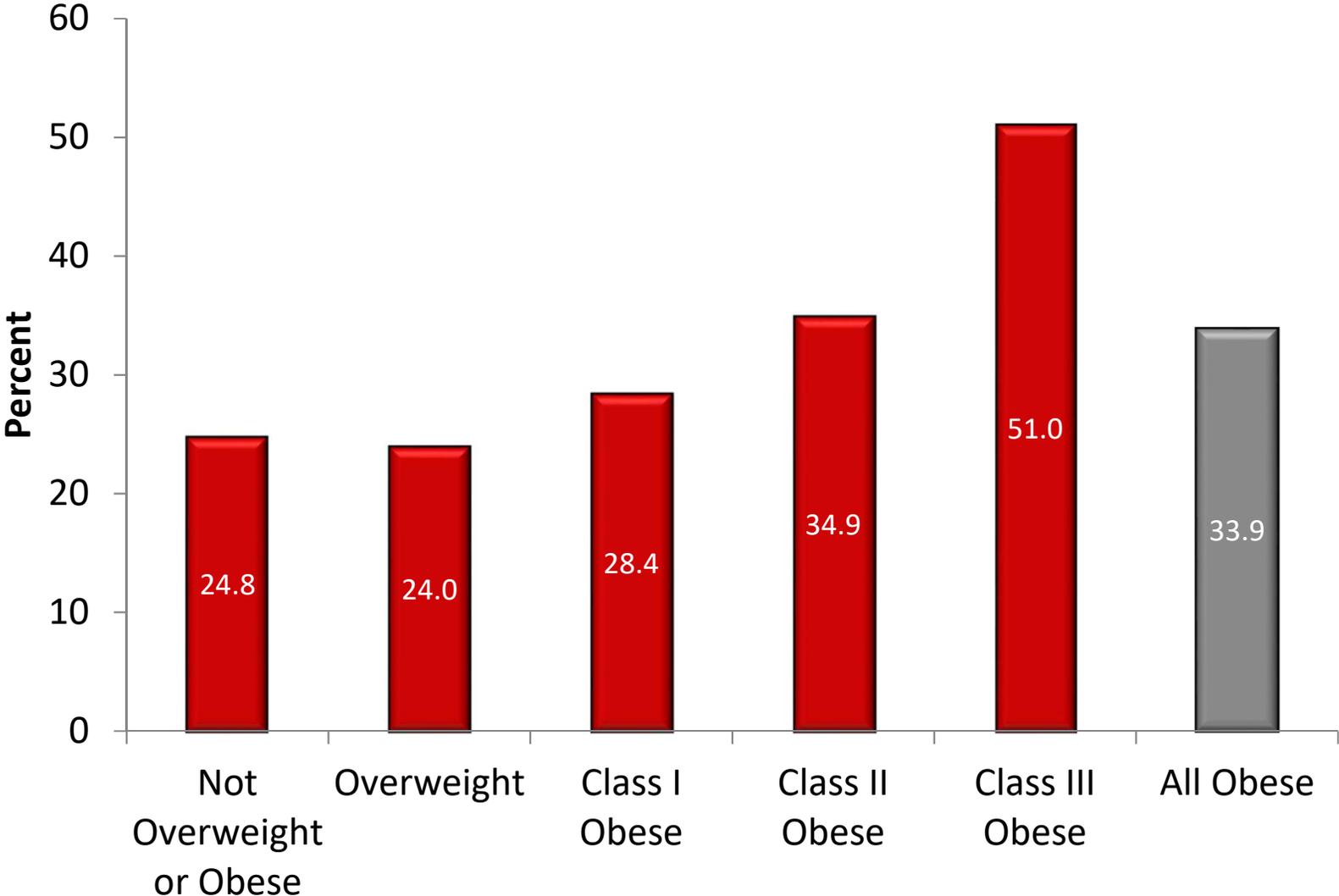
Diabetes Prevalence Among Adults, by Weight Classification, Arkansas, 2016



Source: BRFSS

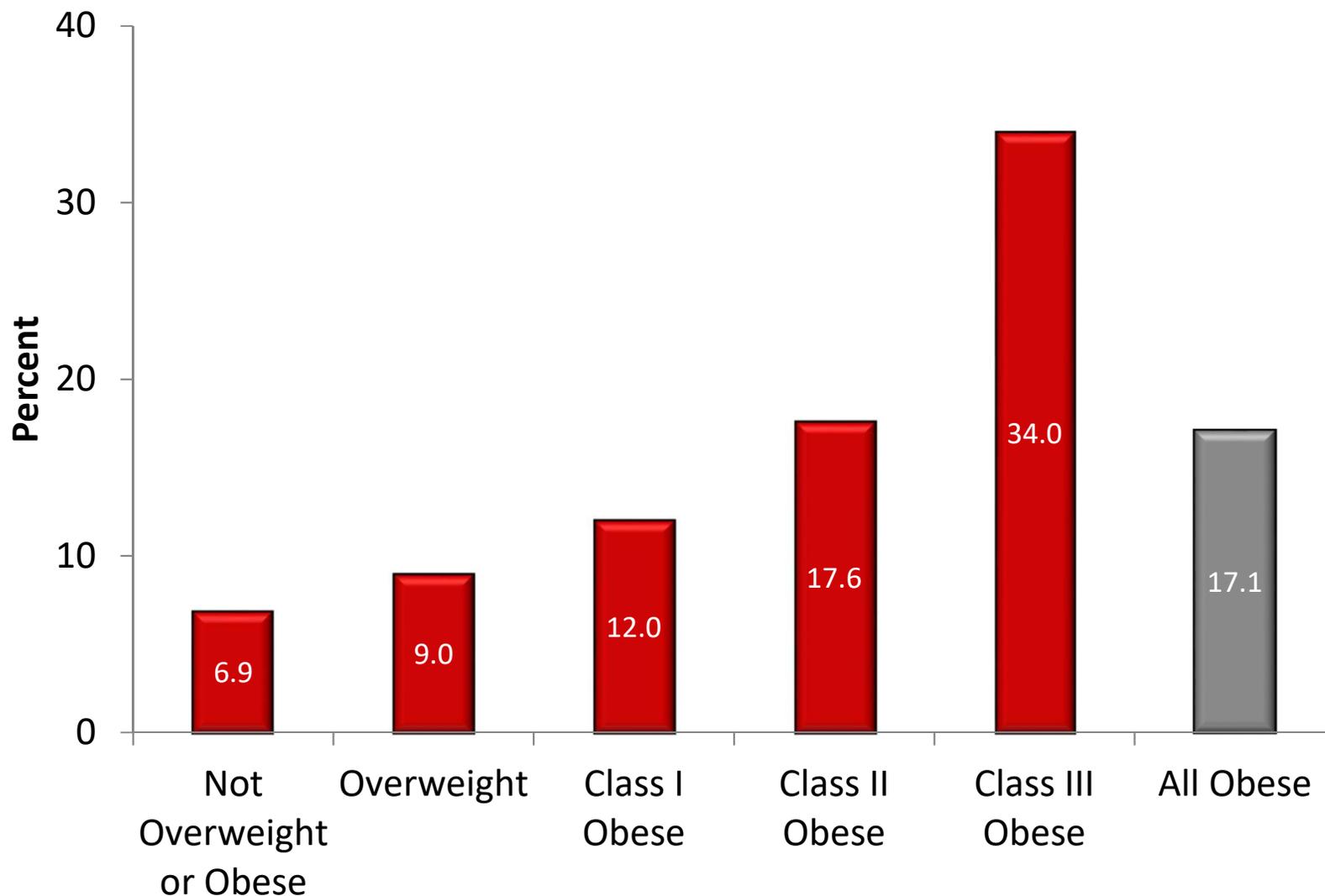
BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

Disability* (Limited In Any Way) Prevalence Among Adults, by Weight Classification, Arkansas, 2015



Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40

Disability* (Use Special Equipment) Prevalence Among Adults, by Weight Classification, Arkansas, 2015



Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI \geq 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI \geq 40

SECTION VI. DATA SOURCES AND DESCRIPTIONS

Data Sources

- Center for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)
- Behavioral Risk Factor Surveillance System (BRFSS)*
- Youth Risk Behavior Survey (YRBS)*
- Arkansas Youth Tobacco Survey (YTS)*
- Arkansas Center for Health Improvement (ACHI)
- Women, Infants, and Children Participant and Program Characteristics (WIC)

*Indicates self-reported data

Data Source Descriptions

- Center for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)
 - CDC WONDER is the online public information health system created by the Centers for Disease Control and Prevention (CDC). It provides a single point of access to a wide variety of CDC reports, guidelines, and numeric public health data. With it, one can search for and retrieve MMWR (Morbidity and Mortality Weekly Report) articles and Prevention Guidelines published by the CDC, as well as query dozens of numeric datasets on CDC's mainframe and other computers via "fill-in-the blank" request screens. Public-use datasets about mortality, cancer incidence, hospital discharges, AIDS, behavioral risk factors, diabetes, and many other topics are available for query, and the requested data can be readily summarized and analyzed.
- Behavioral Risk Factor Surveillance System (BRFSS)*
 - The Behavioral Risk Factor Surveillance System is a standardized, random telephone health survey conducted by each of the 50 states, Washington, D.C., and three U.S. territories under the guidance of the Centers for Disease Control and Prevention (CDC). Arkansas BRFSS contracts with an outside agency to conduct the survey, using a Computer-Aided Telephone Interviewing System. Respondents are selected using a “Disproportionate Stratified Random Sampling” design using a two-stage process. First, a telephone number is randomly selected from listed and unlisted telephone numbers. Second, according to BRFSS protocol, when a residence is selected, a random household member (age 18 or older) is chosen to interview.

*Indicates self-reported data

- Youth Risk Behavior Survey (YRBS)*

- The CDC’s Youth Risk Behavior Survey is the only surveillance system designed to monitor a wide range of priority health risk behaviors – unintentional injuries and violence; tobacco, alcohol, and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection; unhealthy dietary behaviors; physical inactivity; obesity; and asthma – among high school students. It uses a stratified random sample of schools and students at both the national and state levels. It is a paper-based classroom survey.

- Arkansas Youth Tobacco Survey (YTS)*

- The Youth Tobacco Survey is similar to the YRBS. However, the YTS includes middle school students and focuses more on tobacco-related issues. The YTS was last conducted in Arkansas in 2010.

*Indicates self-reported data

- Arkansas Center for Health Improvement (ACHI)

- The Arkansas Center for Health Improvement is a nonpartisan, independent health policy center dedicated to improving the health of Arkansans. At the request of the Arkansas Departments of Education and Health, in the 2003–2004 school year, ACHI created and implemented the BMI screening process for all public school children in the state. To accomplish this, ACHI put together a BMI Task Force in partnership with local school districts, the Arkansas Departments of Education and Health and Human Services, staff from Arkansas Children’s Hospital, and the UAMS College of Public Health. In 2007, during the 86th Arkansas General Assembly, Act 201 was passed to strengthen the protocol followed by school and nursing staff in performing the assessment, required parents to advise schools in writing if they do not wish to have their child's BMI assessed, and changed the periodicity of assessments to even grades (kindergarten through grade 10). ACHI continues to work closely with the Arkansas Departments of Education and Health to facilitate BMI data collection, conduct analyses, and deliver reports.

- **Women, Infants, and Children Participant and Program Characteristics (WIC)**
 - The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA). Since 1988, FNS has produced biennial reports on participant and program characteristics in WIC. The report contains information on a census of WIC participants in April of the reporting year which includes demographic, income, and nutritional risk characteristics of WIC participants; breastfeeding initiation and duration by state; WIC participation for migrant farm worker families; and other topics that are deemed appropriate by the Secretary of Agriculture.

*Indicates self-reported data

The End