

Walking and Cycling in the United States, 2001-2009: Evidence from the National Household Travel Surveys



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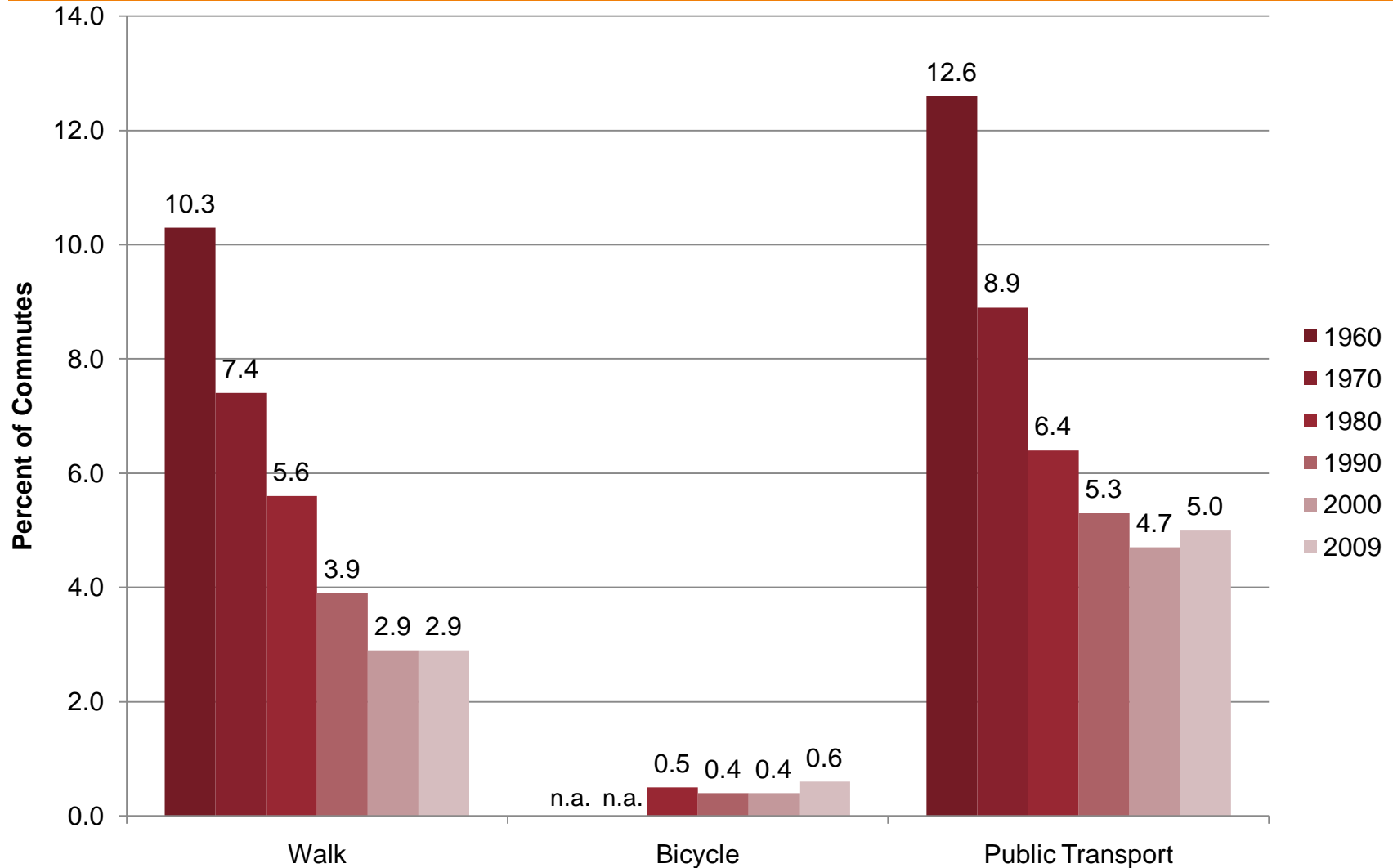
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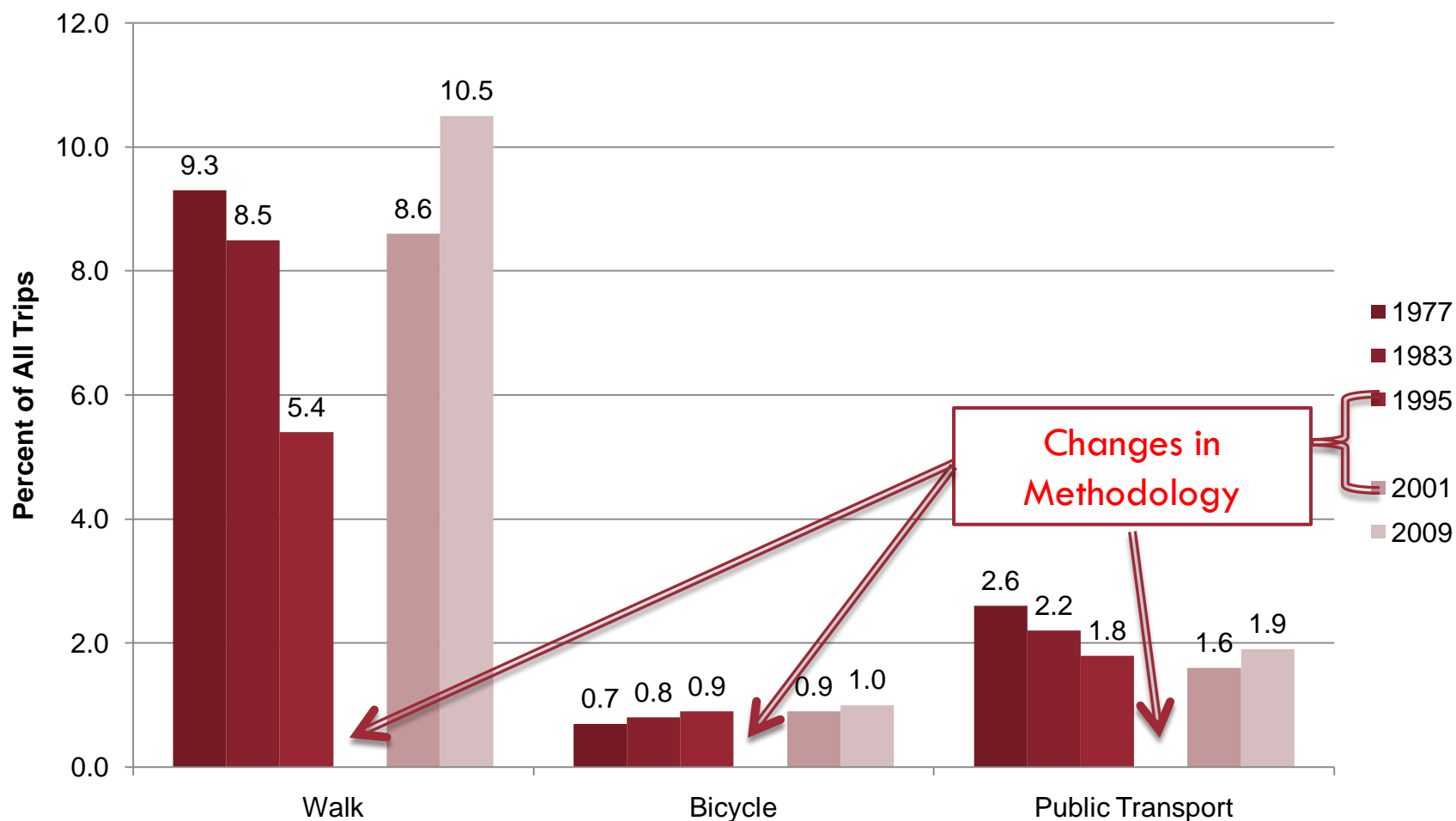
Walking and cycling are healthy and sustainable means of transport

- Contribute to daily physical activity, aerobic fitness, and cardiovascular health
- Help to protect against obesity, diabetes, and various other diseases
- Can improve individual health and help to reduce air pollution, carbon emissions, congestion, noise, and traffic dangers
- Important to monitor rates of walking and cycling over time and to assess differences among population subgroups

Rates of active travel to work have declined sharply in the USA since 1960



Trends for walking and cycling for all trip purposes



Has there been a turnaround?

Are rates of walking and cycling rising?

- **We used the two most recent NHTS surveys to measure changes in active travel in the United States from 2001 to 2009**
- **We analyzed the NHTS data on walking and cycling from:**
 - trip-based perspective of travel behavior
 - public health perspective of population physical activity rates
 - methodology developed by Merom et al. (2010)
for public health analysis of travel surveys

Many similarities and only few differences between NHTS 2001 / 2009

□ Similarities:

- Random digit dialing, stratified sampling, travel diaries
- Proxy interviews with adults for people aged ≤ 15 years
- Timing (March 2000 to May 2001 and March 2008 to April 2009)
- Sampling during all days, including weekends and holidays
- Civilian, non-institutionalized population
- Improved reporting of walking and cycling trips through multiple prompts
- Splitting of round trips (e.g. walking the dog)
- Walk and bike trips to and from public transport included
- Trips defined “from one address to another”

□ Differences:

- Response rates: 2001 41% and 2009 20%
- Children younger than 5 excluded in 2009
- More add-ons for 2009 NHTS

Methods

- Trip based analysis:
 - ▣ Daily frequency, duration, and distance of walking & cycling per capita
- Person based analysis:
 - ▣ Aggregate trip characteristics (number, duration, and distance), match to the trip maker, and add to the person dataset
- Daily physical activity analysis:
 - ▣ [1] any walking or cycling, [2] 30 minutes or more of walking and cycling, and [3] 30 minutes or more of walking and cycling accumulated in bouts of at least 10 minutes each
- Weekly active travel analysis:
 - ▣ Proportions of population subgroups making 0, 1-4, and 5 or more walk and bike trips per week

Annual Walking and Cycling Trips, Duration, and Distance per Capita, 2001-2009

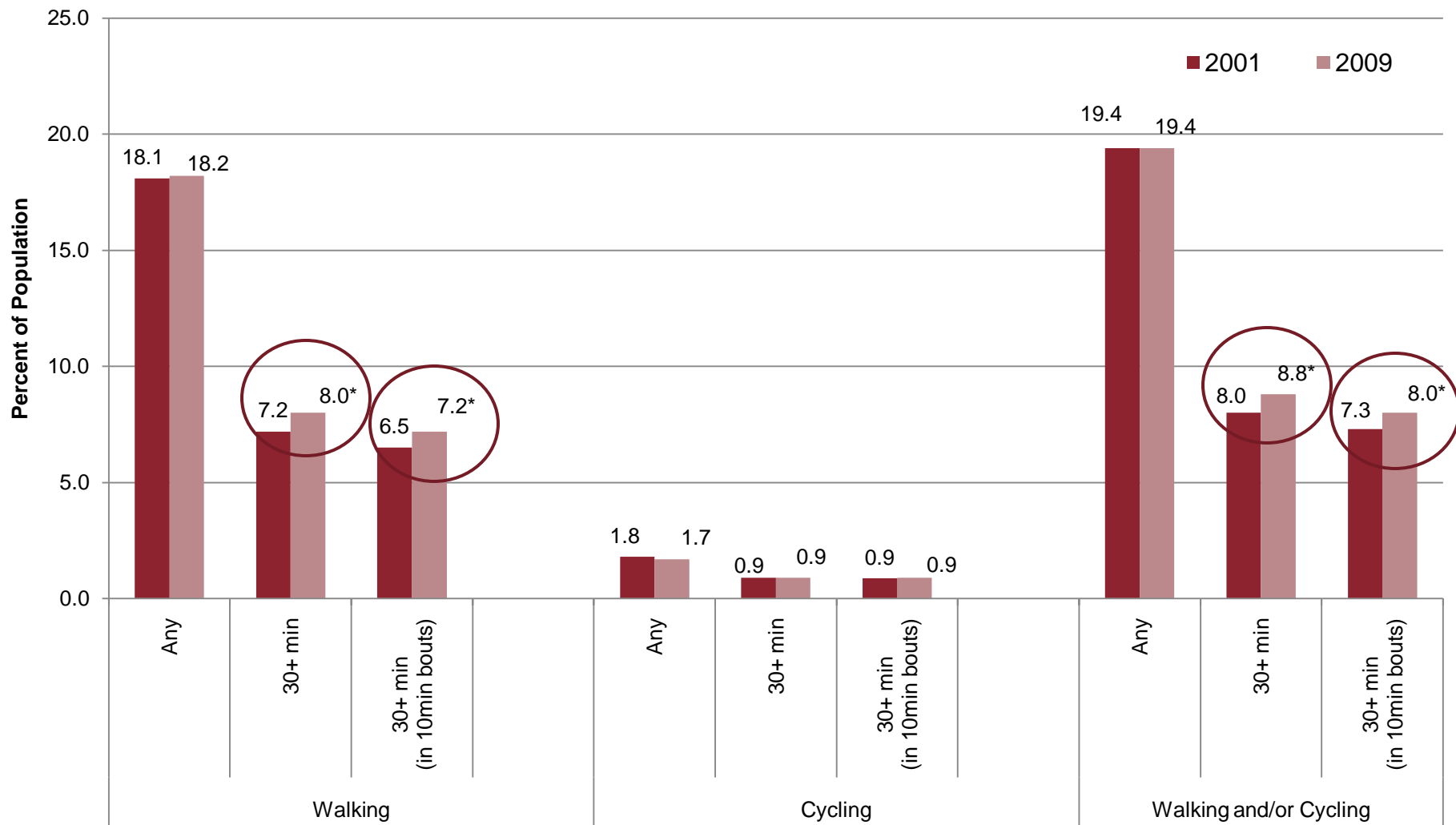
| | 2001 | | 2009 | | Difference |
|---|--------------|---------------|--------------|---------------|---------------|
| | Mean | 95% CI | Mean | 95% CI | 2001-2009 |
| NUMBER OF TRIPS | | | | | |
| <i>Trips per capita per year</i> | | | | | |
| Walking | 168.6 | 164.3-173.0 | 185.8 | 179.9-191.6 | +17.2* |
| Cycling | 12.4 | 11.3-13.1 | 14.2 | 12.8-16.1 | +1.8* |
| Active travel | 181.0 | 176.7-185.4 | 200.4 | 194.2-206.2 | +19.3* |
| DURATION | | | | | |
| <i>Hours per capita per year</i> | | | | | |
| Walking | 33.0 | 31.9-36.1 | 37.7 | 36.1-39.4 | +4.8* |
| Cycling | 4.5 | 4.1-5.0 | 4.6 | 4.1-5.1 | +0.0 |
| Active travel | 37.5 | 36.3-38.8 | 42.3 | 40.6-44.0 | +4.8* |
| DISTANCE | | | | | |
| <i>Miles per capita per year</i> | | | | | |
| Walking | 103.3 | (126.7-136.5) | 112.4 | (133.2-146.0) | +9.1* |
| Cycling | 19.4 | (17.2-21.9) | 24.1 | (21.2-27.4) | +4.8* |
| Active travel | 122.6 | (143.8-158.8) | 136.5 | (154.4-173.4) | +13.9* |

* P<0.05

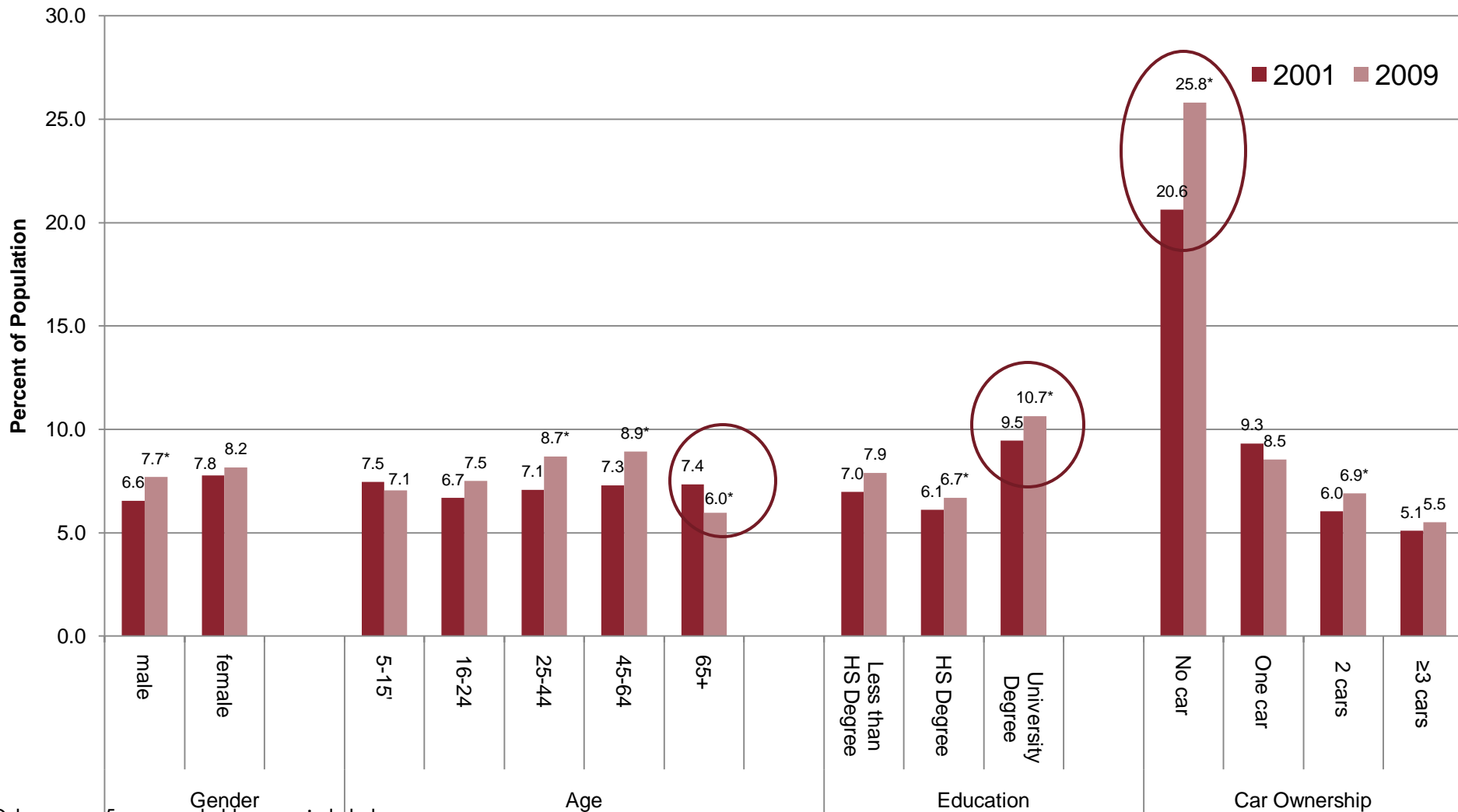
Note. Excludes respondents younger than 5 years.

Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

Proportion of Americans Reaching Recommended Daily Physical Activity Levels Through Active Transport



Prevalence of 30 min Walking per Day by Population Subgroup in the USA, 2001-2009

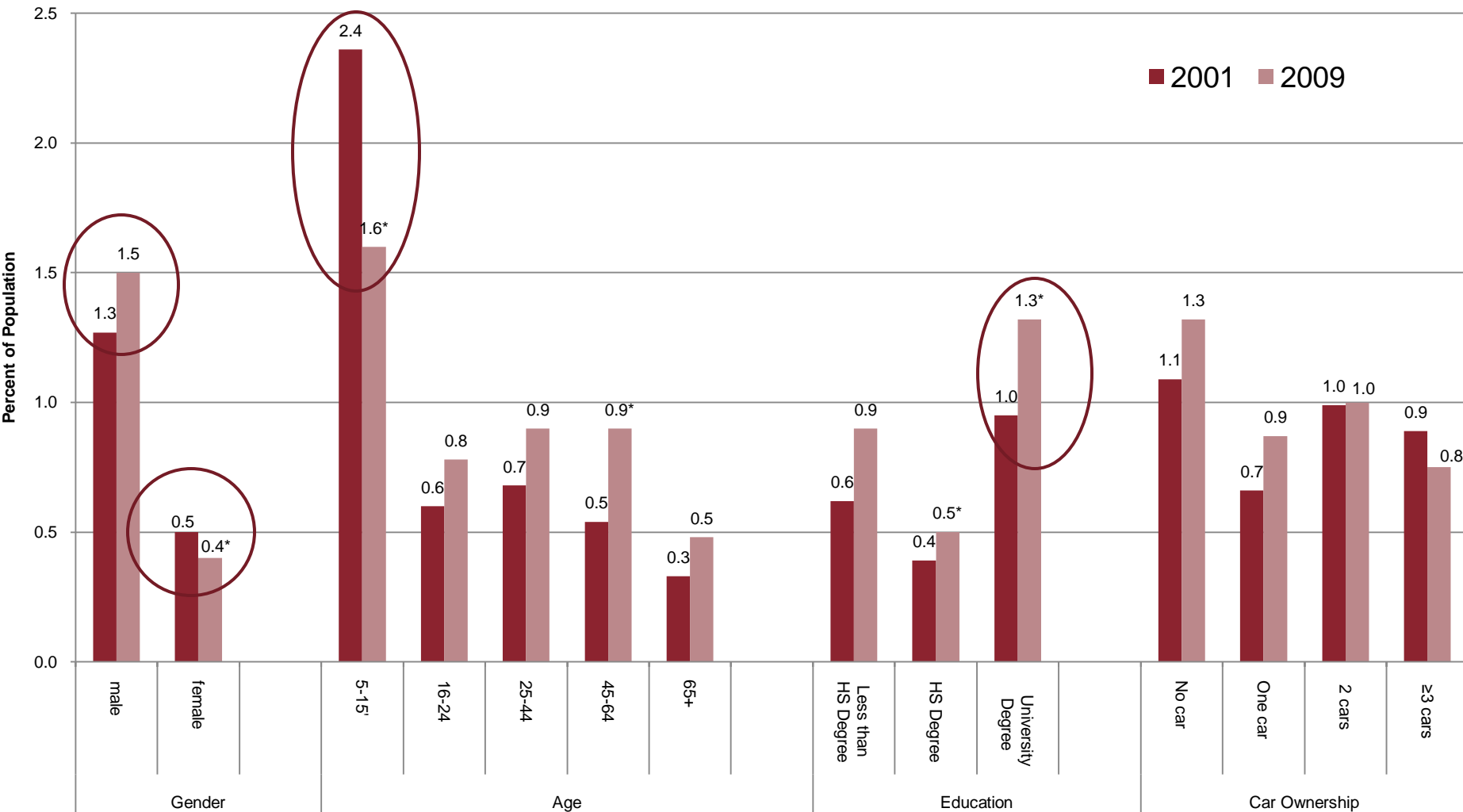


Only persons 5 years and older were included.

Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

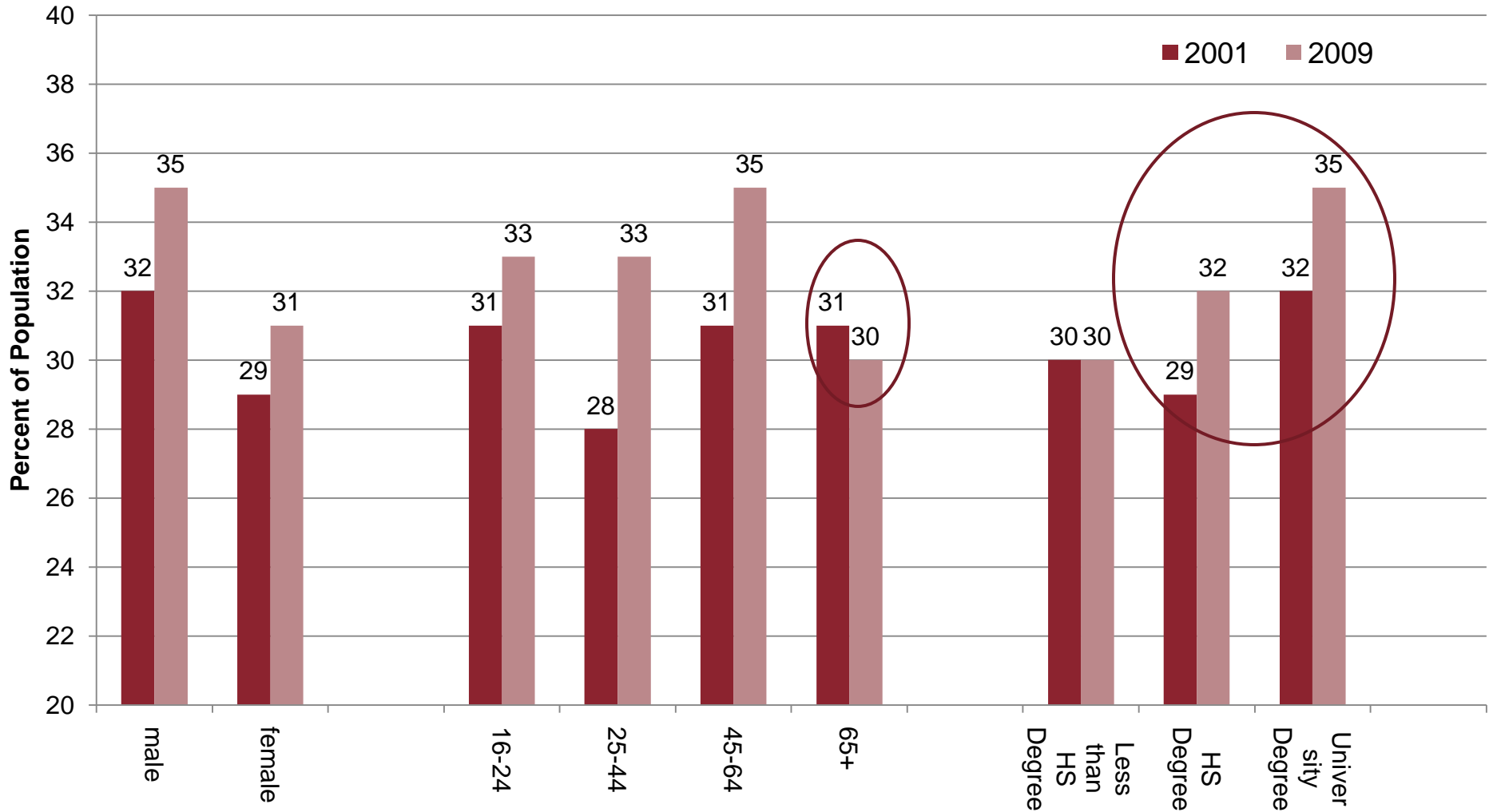
Pucher, Buehler, Merom, Bauman, AJPH, 2011, in press

Prevalence of 30 min Cycling per Day by Population Subgroup in the USA, 2001-2009



Only persons 5 years and older were included.
 Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

Prevalence of 5 or More Walk Trips per Week by Population Subgroup, 2001-2009

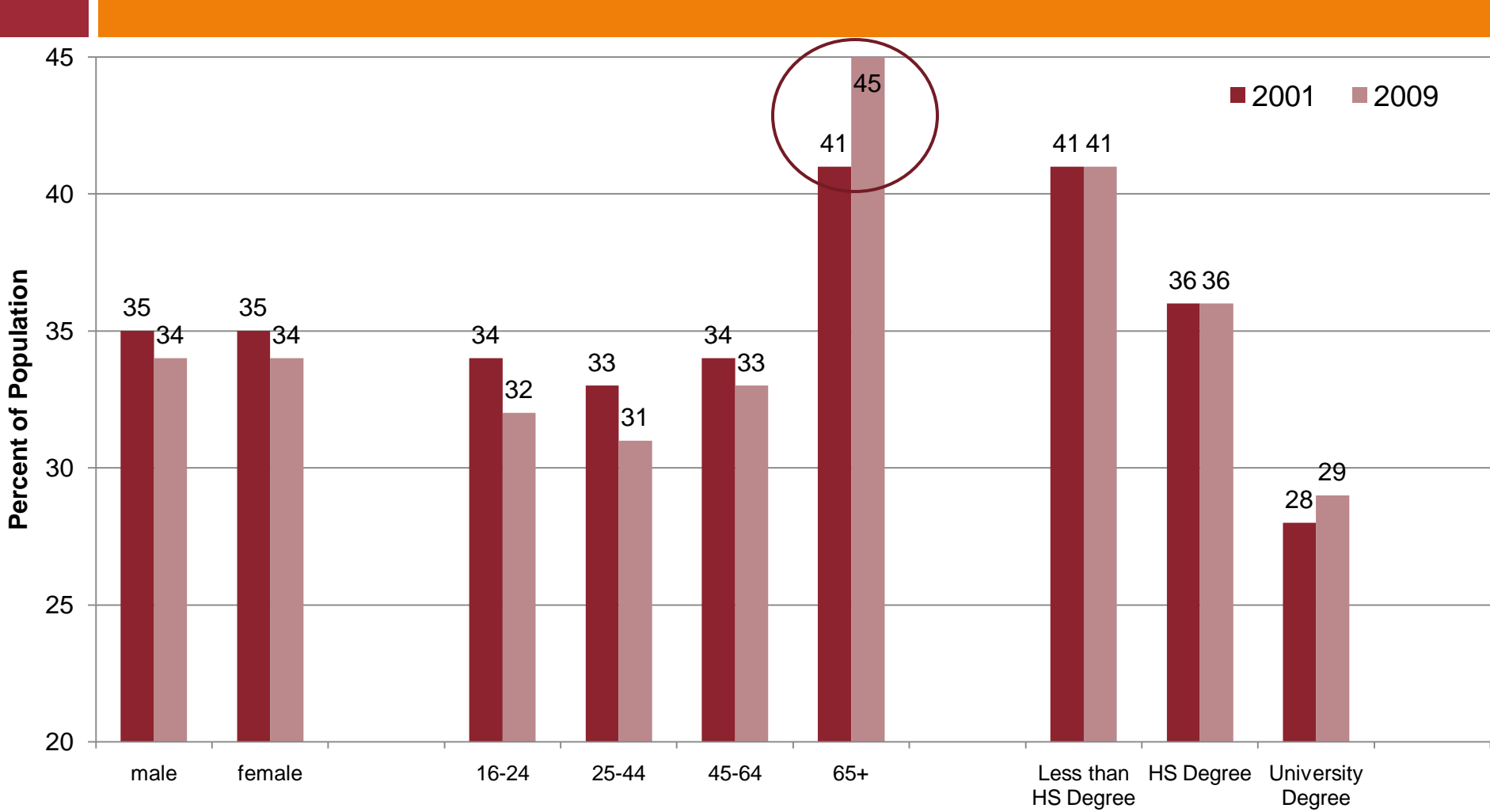


Only persons 16 years and older were included.

Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

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Prevalence of No Walk Trips per Week by Population Subgroup, 2001-2009



Only persons 16 years and older were included.
 Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

Key Trends

- walk share of all trips has risen, and the frequency, duration, and distance of walk trips per capita also increased
- more walkers accumulating 30 minutes a day, without changes in the prevalence of ‘any walking’
- the prevalence of walking at least 30 minutes per day—both with and without the 10-minute bout criterion—has increased
- only slight decreases in ‘no walking’ but considerable increases ‘5 or more walk trips’ per week
- no significant increase in cycling trip rates or prevalence on a national basis

Socioeconomics of Active Travel

- Active travel declined significantly among children, seniors and women
- Increases in the prevalence of walking 30 minutes a day for men, the age group 25-64, the employed, the well educated, and people without a car
- In both 2001 and 2009, the prevalence of walking 30 minutes a day was higher among Hispanics, African Americans, and Asians than among whites

NHTS Limitations

- restricted to land-line telephones, excluding cell-phone-only households
- lower survey response rate in 2009 (20%) compared to 2001 (41%)
- self-reported estimates of time and distance of walk and bike trips might not be accurate

Conclusions

- Implement a comprehensive, integrated package of policies and programs to increase walking and cycling
- Special consideration for women, children, and seniors, who are the most vulnerable pedestrians and cyclists
- Educational and promotional programs to encourage a more active lifestyle
- Individualized marketing schemes may help target particular groups

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