

# Examining correlates and consequences of sleep duration in a Latino community

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# Sleep

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- Prevalence of short sleep duration (< 7 hrs) is estimated at 15%.<sup>1</sup>
  - Short sleep duration is more common among low income and less educated.<sup>1</sup>
  - Short sleep duration is more common in the inner city versus non-urban areas.<sup>2</sup>
- Prevalence of long sleep duration (> 8 hrs) is estimated at 9%.
  - Long sleep duration is more common among the unemployed.<sup>3</sup>

<sup>1</sup>Stamatakis et al., 2007

<sup>2</sup>Hale et al., 2007

<sup>3</sup>Kronholm et al., 2006



# Sleep and Health

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- Short sleep duration is associated with obesity and chronic illness,<sup>1,2</sup> and poor health in young adults.<sup>3</sup>
- Both short and long sleep duration are associated with hypertension,<sup>4</sup> coronary heart disease,<sup>5</sup> and mortality,<sup>6</sup> although not consistently.<sup>7</sup>
- However, sleep duration does not appear to be related to quality of well-being.<sup>8</sup>

<sup>1</sup>Singh et al., 2005

<sup>2</sup>Vioque et al., 2000

<sup>3</sup>Steptoe et al., 2006

<sup>4</sup>Gottlieb et al., 2006

<sup>5</sup>Ayas et al., 2003

<sup>6</sup>Patel et al., 2004

<sup>7</sup>van den Berg et al., 2007

<sup>8</sup>Jean-Louis et al., 2000



# Current Study

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- Primary objective:
  - Examine association between diagnosed sleep problems and various health conditions
  - Examine association between sleep duration and various health conditions
- Secondary objective:
  - Examine socio-cultural correlates of sleep duration to inform future intervention research

# Methods

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# Study Design

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- Random digit dial
  - Telephone list covering 5 zip code areas
  - Hispanic surnames
- Eligibility
  - Self-identified Latino/Hispanic
  - Residence in one of 5 zip code areas
  - $\geq 18$  and  $< 70$  years of age
- Response rate
  - Head of household
  - Snowball sample – second adult

# Measures

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- Demographics
  - Acculturation
    - Marin 8-item scale; higher score = more acculturated
    - Years in the U.S. (< 15 yrs versus  $\geq$  15 yrs)
    - Language of interview (Spanish vs. English)
    - Birthplace (MX versus U.S.)
  - Social mobility
    - 4 items assessing perceptions of own financial situation compared with 12 months ago, 3 years from now, with parents, and future of children; higher score = upwardly mobile
  - Sleep
    - Physician diagnosed sleep problems (yes or no)
    - 2 items from Pittsburgh Sleep Quality Index; average number of hours sleeps on weekdays and weekends
- } Composite created representing 4 groups



# Procedures

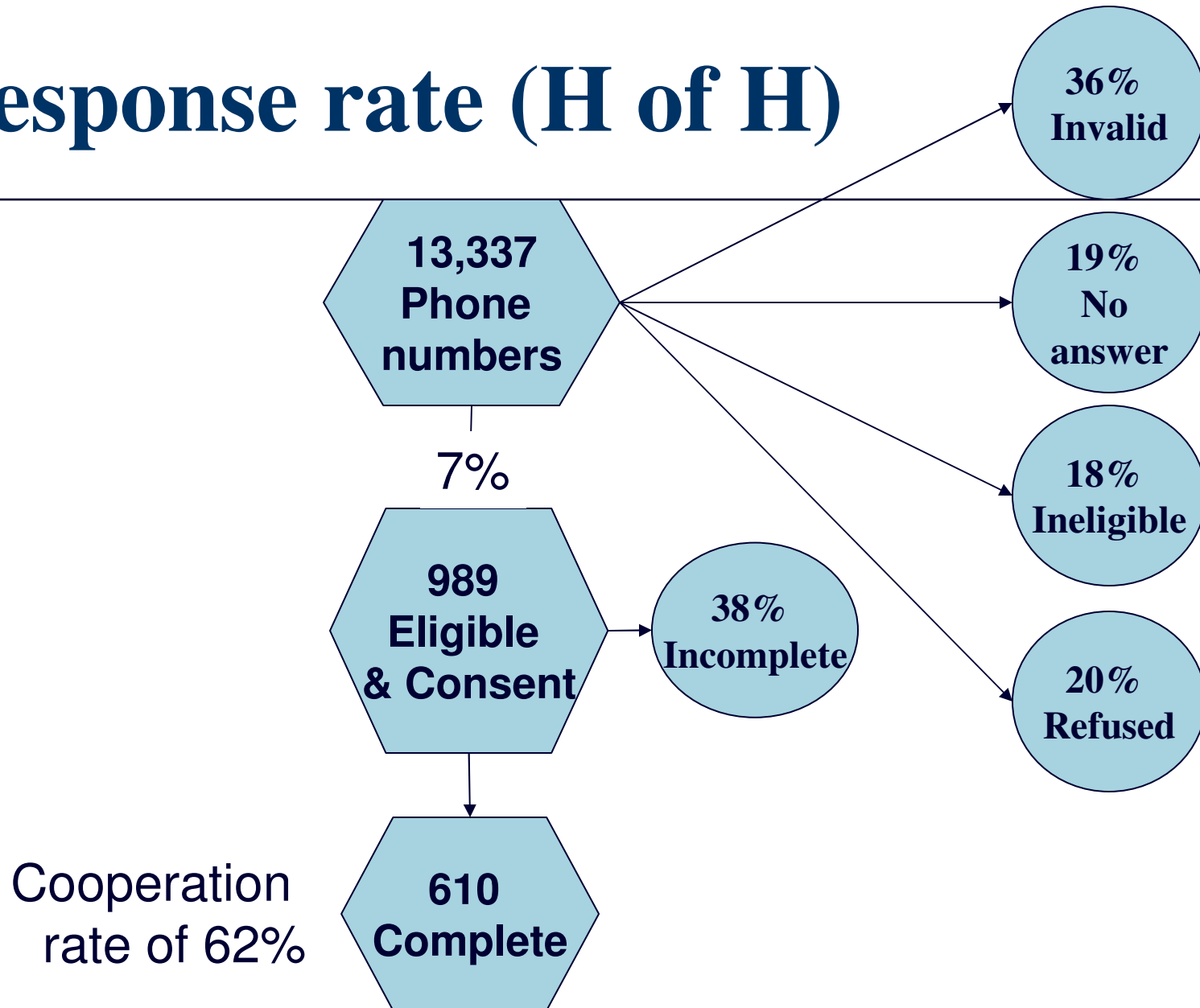
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- Interview conducted in respondents' language of choice (59% in Spanish)
- Interviews lasted between 22 minutes to 2 hours (Mean = 42 minutes; SD = 12 minutes)

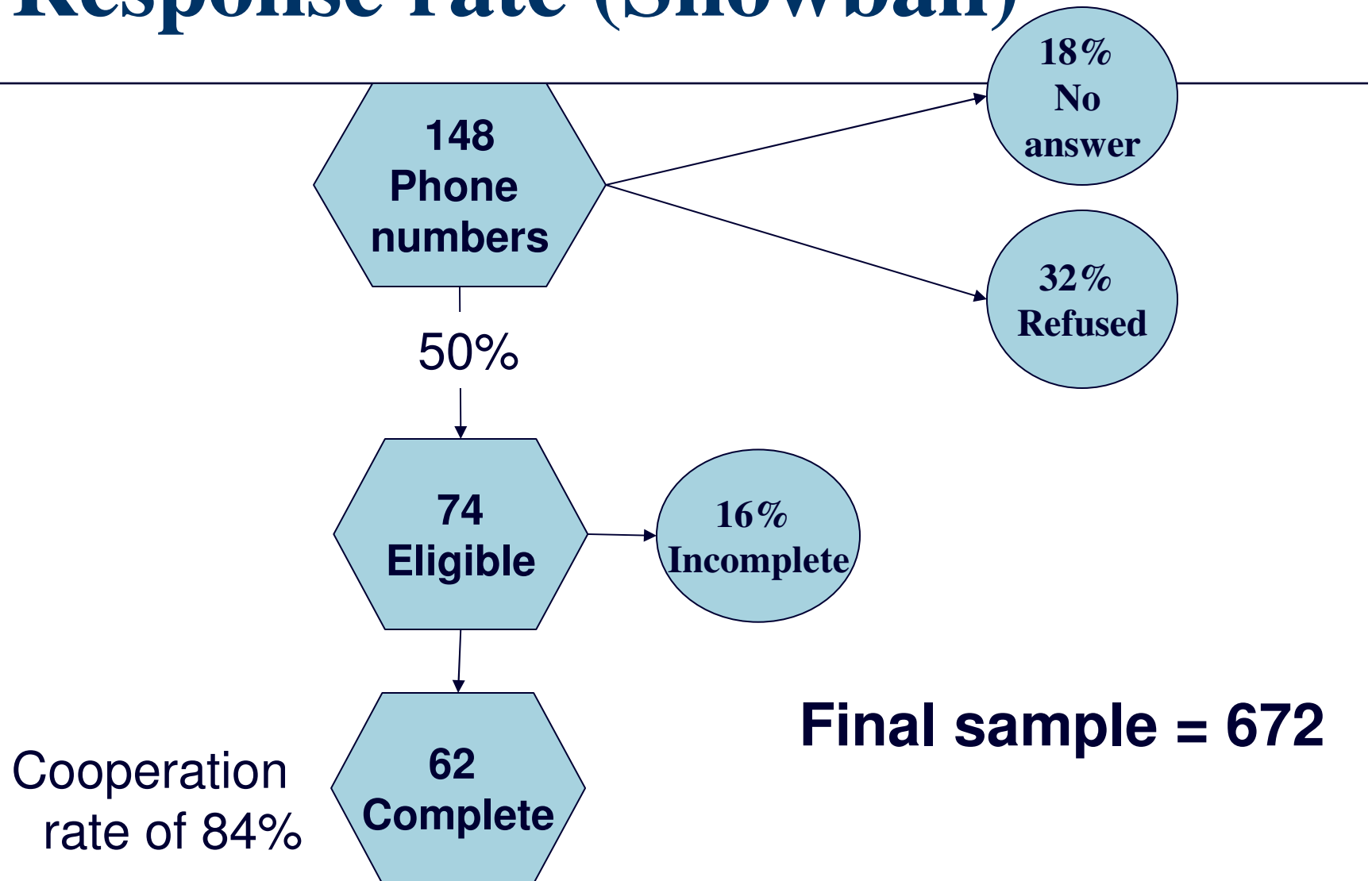
# Results

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# Response rate (H of H)



# Response rate (Snowball)



# Participant Characteristics

	N=672
Mean age (SD)	39.2 (13.4)
% Female	71%
% Married	58%
% High school educated	61%
% Employed	54%
Mean social mobility (SD) ( <i>Range 1 to 3=high</i> )	2.58 (0.4)
Acculturation group ( <i>from more to less</i> )	
US-born, English	27%
Mx-born, English, > 15yrs	13%
MX-born, Spanish, > 15 yrs	30%
MX-born, Spanish, < 15 yrs	24%



# Sleep Patterns

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- Sleep duration ranged from 4 to 14 hours/night.
  - Median = 7 hours on average workday
  - Median = 8 hours on average day off
  
- Sleep duration categorized as
  - 30% Short (<7 hrs)
  - 52% Mid-range (7-8 hrs)
  - 18% Long (>8 hrs).
  
- Those with a short sleep duration were more likely to report a physician-diagnosed sleep problem ( $p \leq .001$ ). *Short sleep seems to be a problem.*



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# Clinical importance of sleep

# Sleep problems and Chronic Illnesses

*Co-morbidity with sleep problems is consistent.*

Diabetes	9%	<b>19%</b>	<.001
CVD	4%	<b>11%</b>	<.001
Hypertension	19%	<b>34%</b>	<.001
High cholesterol	16%	<b>34%</b>	<.001
Asthma	7%	<b>12%</b>	<.05
Cancer	3%	<b>6%</b>	<.05
Arthritis	14%	<b>41%</b>	<.001
Depression	7%	<b>45%</b>	<.001

# Sleep duration and Chronic Illnesses

Physician-diagnosed health condition	Short < 7 hrs	Mid-range 7-8 hrs	Long > 8 hrs
Hypertension*	<b>25%</b>	<b>24%</b>	13%
High cholesterol**	<b>28%</b>	18%	14%
Asthma*	<b>12%</b>	7%	4%
Arthritis***	<b>27%</b>	19%	7%
Depression*	<b>22%</b>	14%	13%
<p>*p&lt;.05, **p&lt;.01, ***p&lt;.001            No association with diabetes, CVD, and cancer.</p>			



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# Socio-cultural associations with sleep duration

# Sleep duration & Acculturation

	Short < 7 hrs	Mid-range 7-8 hrs	Long > 8 hrs	Sig.
Mean acculturation score (SD)	<b>2.3 (0.9)</b>	2.1 (0.9)	2.2 (0.9)	<.05
In U.S. $\geq$ 15 years	<b>82%</b>	73%	63%	<.001
English interview	<b>50%</b>	36%	41%	<.01
Foreign-born	67%	70%	69%	n.s.

Higher levels of acculturation, living more than 15 years in the U.S., and speaking English were associated with short sleep.

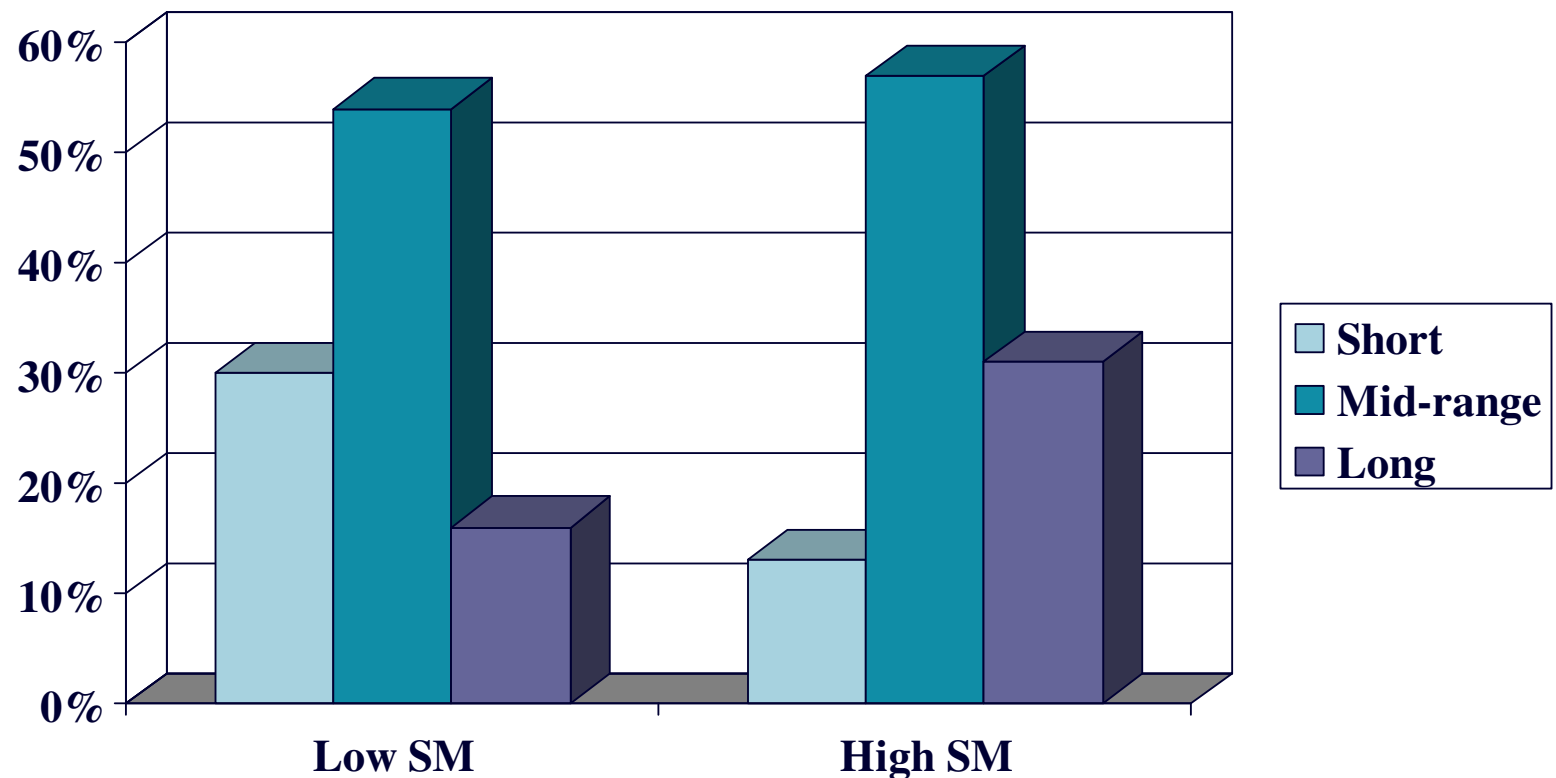
# Compared with mid-range sleepers, ...

	Short sleep	Long sleep
Married (% married vs not)	n.s.	21% vs 32% (p<.01)
Education	n.s.	n.s.
Employment	n.s.	21% vs 31% (p<.05)
Social Mobility (% low vs. high)	40% vs 33% (p<.05)	20% vs 30% (p<.01)
US-born, English	43%	n.s.
Mx-born, English, > 15yrs	47%	
MX-born, Spanish, > 15 yrs	37%	
MX-born, Spanish, < 15 yrs	26%	
Acculturation group	(p<.01)	

Reference is normal sleep duration; controlled for age in all analyses

# Acculturation, Social Mobility, and Sleep Duration

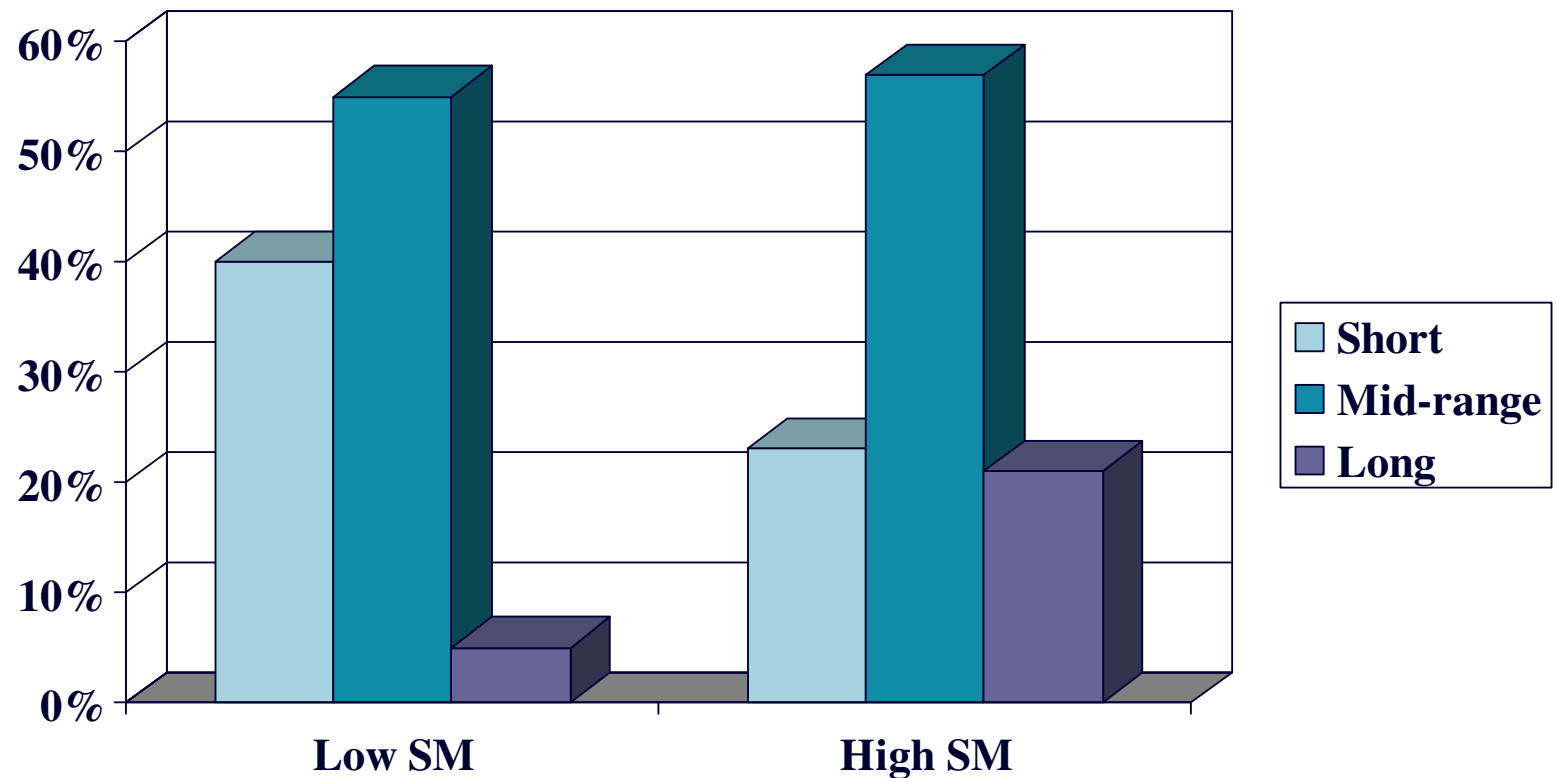
Among Mx-born, Spanish-speakers, < 15 yrs in U.S. = Least Acculturated



Low social mobility associated with short sleep and high social mobility associated with long sleep.

# Acculturation, Social Mobility, and Sleep Duration

Among Mx-born, Spanish-speakers,  $\geq 15$  yrs in U.S. = Next most Acculturated



Low social mobility associated with short sleep.



# Acculturation, Social Mobility, and Sleep Duration

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- No significant interactions between acculturation, social mobility, and sleep duration among
  - Mx-born, English speakers, > 15 yrs in U.S.
  - US-born, English speakers



# Discussion

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- The prevalence of short sleep was higher than in a recently published study (30% vs 15%).<sup>1</sup>
- Similar to a previous study, short sleep duration was associated with lower SES.<sup>1</sup>
- Consistently with a number of studies, short sleep was associated with a greater prevalence of several health conditions.<sup>2-4</sup>

<sup>1</sup>Stamatakis et al., 2007

<sup>2</sup>Singh et al., 2005

<sup>3</sup>Vioque et al., 2000

<sup>4</sup>Steptoe et al., 2006



# Discussion

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- Among the two least acculturated groups, low social mobility compounded risk for short sleep duration.
- Among the least acculturated group, high social mobility was associated with long sleep duration.
- Long sleep was more common among the unmarried and unemployed.



# Strengths and Limitations

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## Strengths

- ❑ Random sample of community members
- ❑ One of first studies to examine socio-cultural correlates

## Limitations

- ❑ Self-reported data
- ❑ Single ethnic/cultural group



# Conclusions

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- Interventions are needed that target improvement in short sleep duration
- Interaction between short sleep duration and low social mobility among new immigrants needs to be confirmed with a larger sample



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# Thank you

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