Examining correlates and consequences of sleep duration in a Latino community

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Sleep

- Prevalence of short sleep duration (< 7 hrs) is estimated at 15%.[1]

  - Short sleep duration is more common among low income and less educated. [1]

  - Short sleep duration is more common in the inner city versus non-urban areas. [2]

- Prevalence of long sleep duration (> 8 hrs) is estimated at 9%.

  - Long sleep duration is more common among the unemployed.[3]

[1]Stamatakis et al., 2007
[2]Hale et al., 2007
[3]Kronholm et al., 2006

Sleep and Health

- ☐ Short sleep duration is associated with obesity and chronic illness,[1,2] and poor health in young adults.[3]

- ☐ Both short and long sleep duration are associated with hypertension,[4] coronary heart disease,[5] and mortality,[6] although not consistently.[7]

- ☐ However, sleep duration does not appear to be related to quality of well-being.[8]

[1]Singh et al., 2005   [5]Ayas et al., 2003
[2]Vioque et al., 2000   [6]Patel et al., 2004
[3]Steptoe et al., 2006   [7]van den Berg et al., 2007
[4]Gottlieb et al., 2006   [8]Jean-Louis et al., 2000

Current Study

- 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

Study Design

- 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
  - ≥ 18 and < 70 years of age
- Response rate
  - Head of household
  - Snowball sample – second adult

Measures

- Demographics
- Acculturation
  - Marin 8-item scale; higher score = more acculturated
  - Years in the U.S. (< 15 yrs versus ≥ 15 yrs)
  - Language of interview (Spanish vs. English)
  - Birthplace (MX versus U.S.)

  Composite created representing 4 groups

- 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
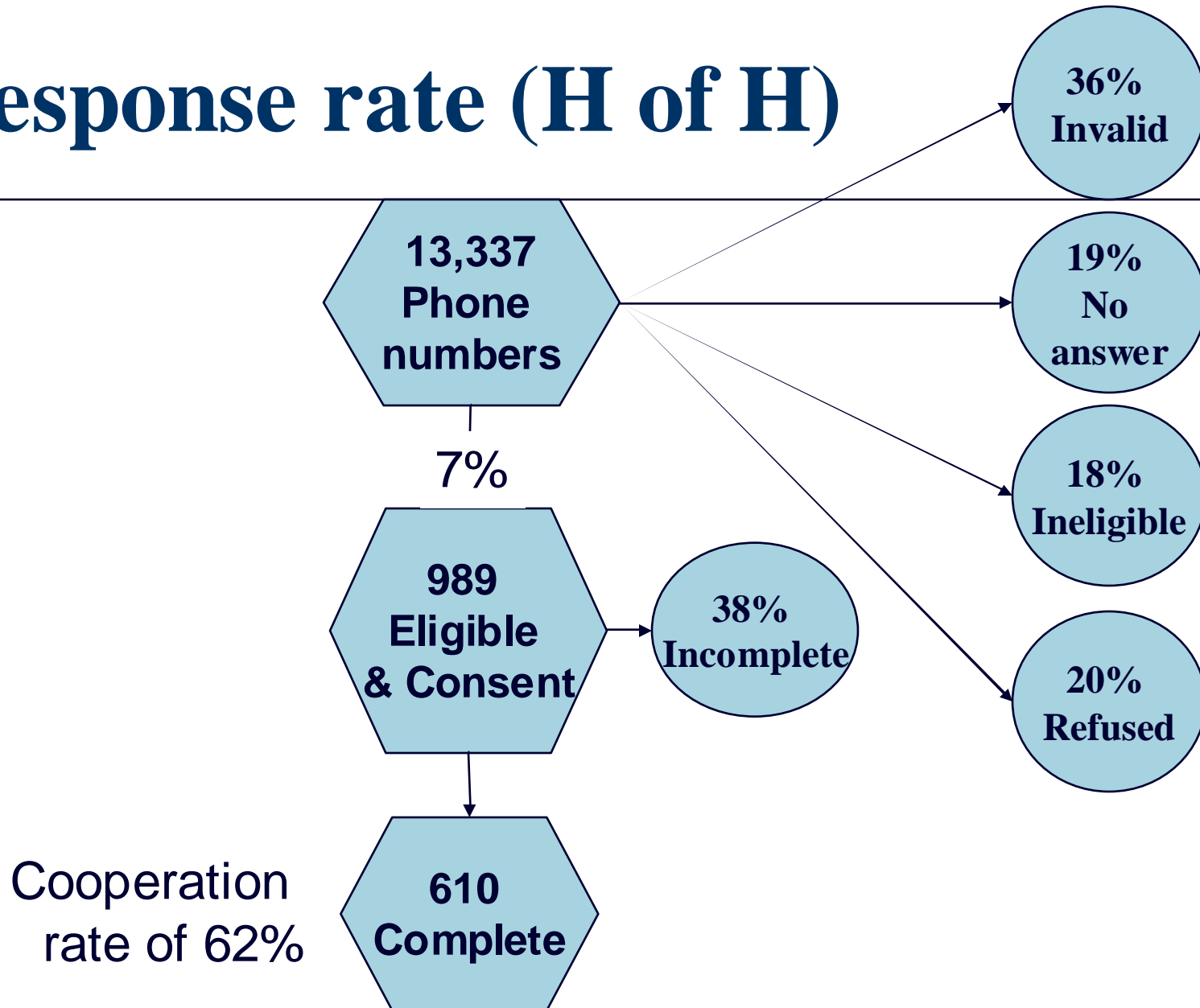
Procedures

- Interview conducted in respondents' language of choice (59% in Spanish)

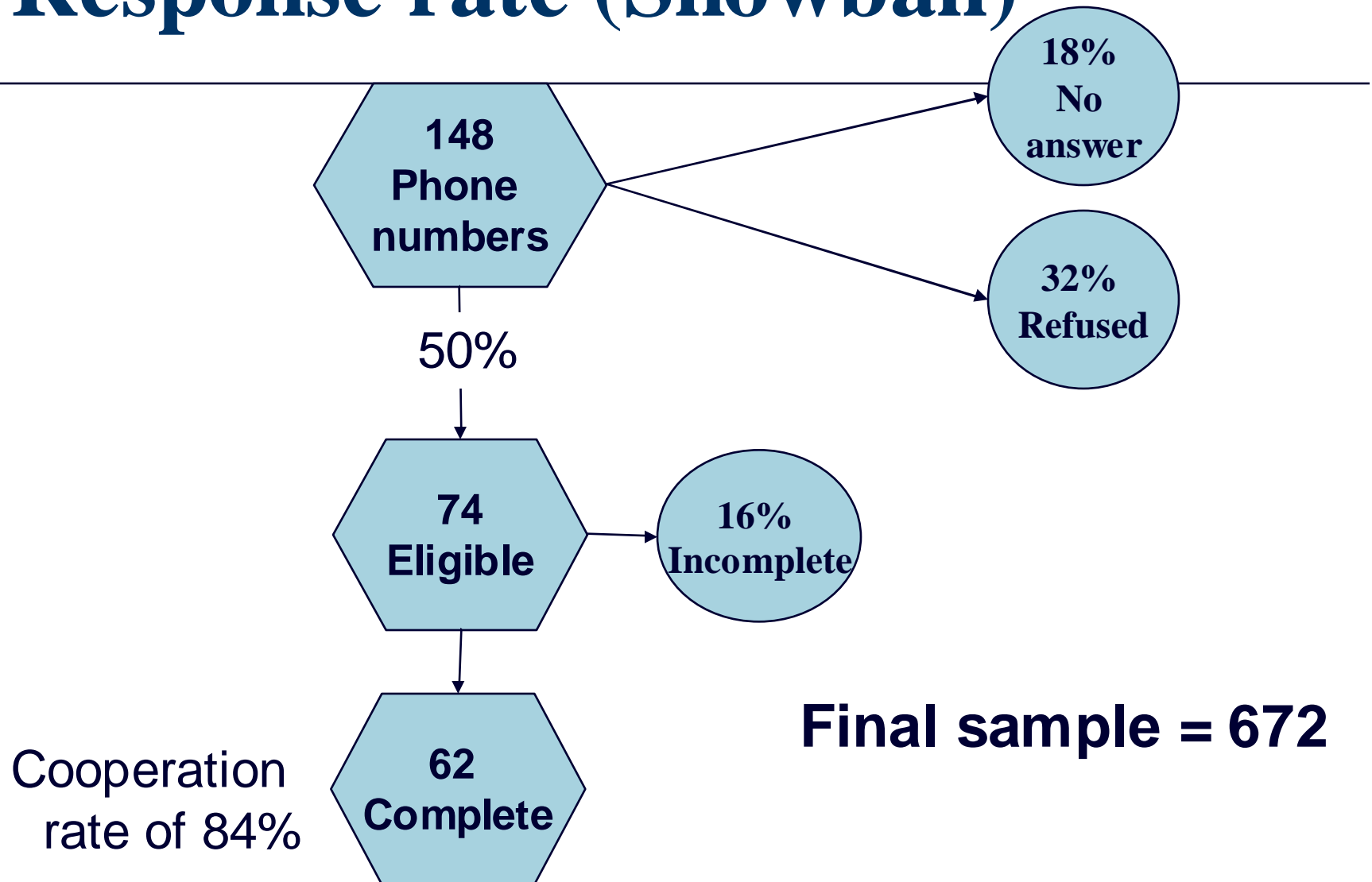- Interviews lasted between 22 minutes to 2 hours (Mean = 42 minutes; SD = 12 minutes)

Results

Response rate (H of H)

36% Invalid

13,337 Phone numbers

19% No answer

7%

18% Ineligible

989 Eligible & Consent

38% Incomplete

20% Refused

Cooperation rate of 62%

610 Complete

Response rate (Snowball)

148 Phone numbers

18% No answer

32% Refused

50%

74 Eligible

16% Incomplete

Cooperation rate of 84%

62 Complete

Final sample = 672

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) (*Range 1 to 3=high*)	2.58 (0.4)
Acculturation group (*from more to less*)	
US-born, English	27%
Mx-born, English, > 15yrs	13%
MX-born, Spanish, > 15 yrs	30%
MX-born, Spanish, < 15 yrs	24%

Sleep Patterns

- 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.*

Clinical importance of sleep

Sleep problems and Chronic Illnesses

Co-morbidity with sleep problems is consistent.

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

Sleep duration and Chronic Illnesses

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

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)	**2.3 (0.9)**	2.1 (0.9)	2.2 (0.9)	<.05
In U.S. ≥ 15 years	**82%**	73%	63%	<.001
English interview	**50%**	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 Mx-born, English, > 15yrs MX-born, Spanish, > 15 yrs MX-born, Spanish, < 15 yrs Acculturation group	43% 47% 37% 26% (p<.01)	n.s.

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

Acculturation, Social Mobility, and Sleep Duration

e7

Among Mx-born, Spanish-speakers, < 15 yrs in U.S. = Least Acculturated
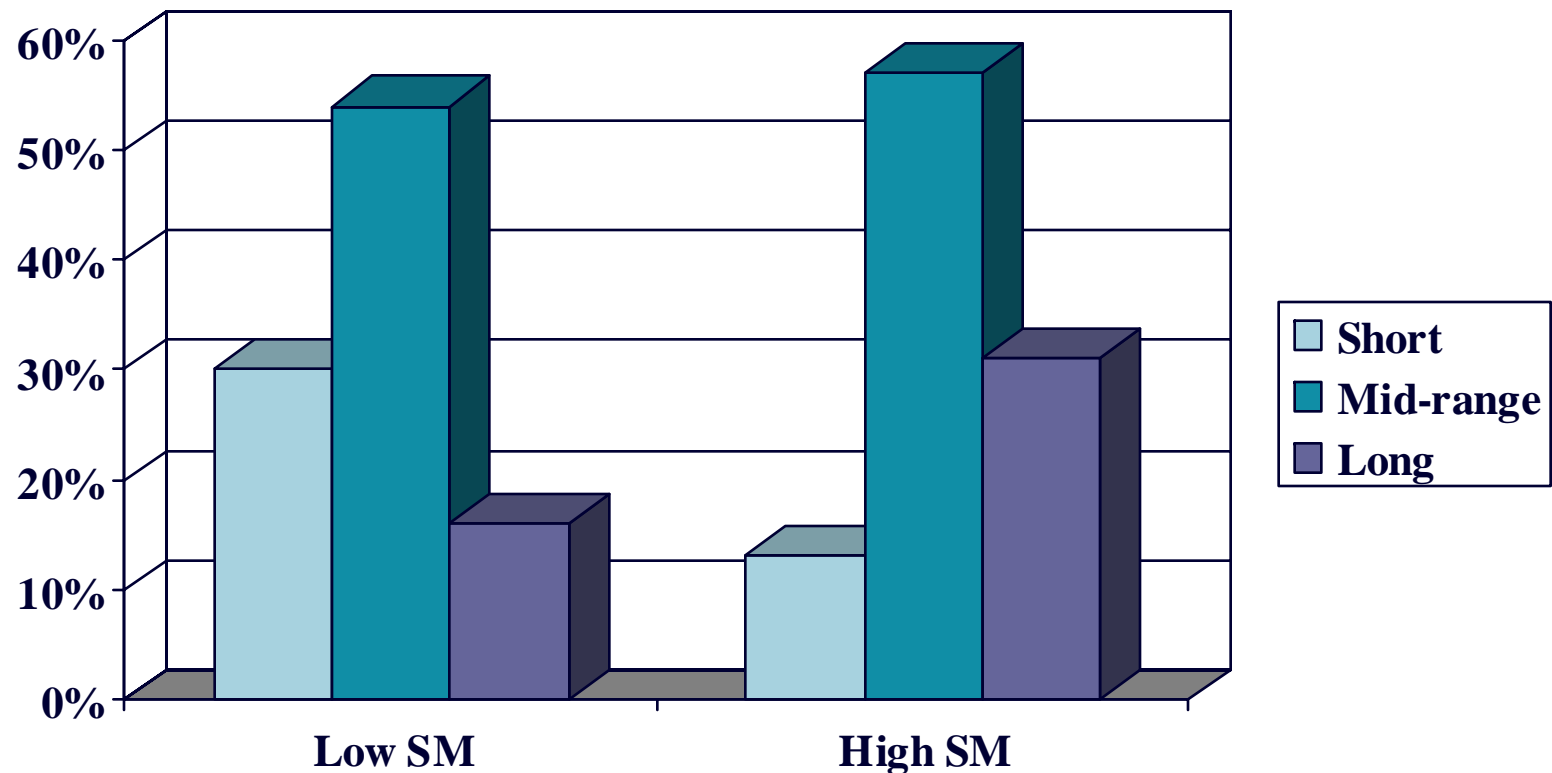
Low social mobility associated with short sleep and high social mobility associated with long sleep.
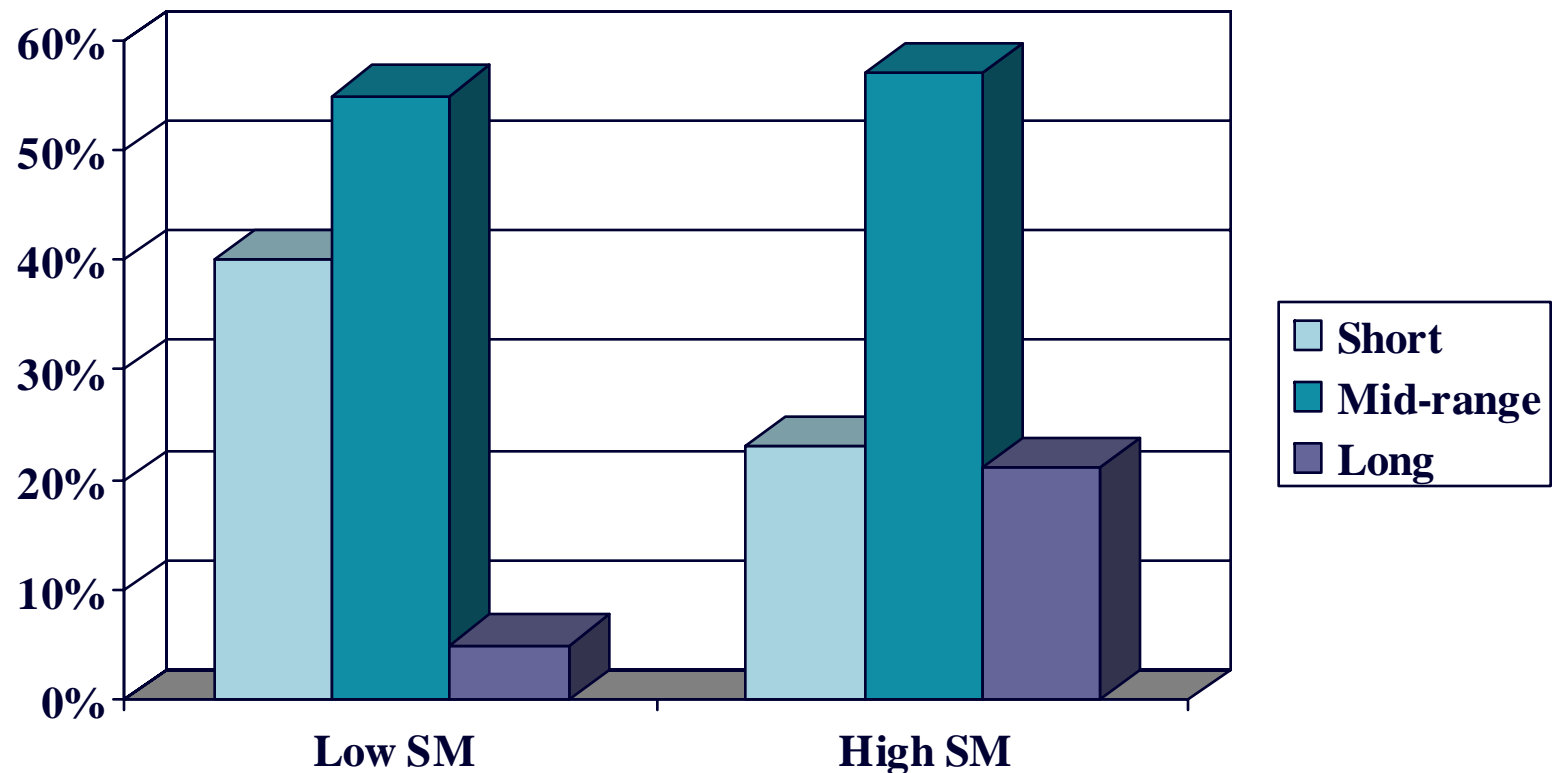
e7   I'm not clear how this slide shows associations
              earredondo, 10/29/2007

Acculturation, Social Mobility, and Sleep Duration

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

Low social mobility associated with short sleep.

Acculturation, Social Mobility, and Sleep Duration

- 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

- The prevalence of short sleep was higher than in a recently published study (30% vs 15%).[1]

- Similar to a previous study, short sleep duration was associated with lower SES.[1]

- Consistently with a number of studies, short sleep was associated with a greater prevalence of several health conditions.[2-4]

[1]Stamatakis et al., 2007
[2]Singh et al., 2005
[3]Vioque et al., 2000
[4]Steptoe et al., 2006

Discussion

- 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

Strengths

- □ Random sample of community members

- □ One of first studies to examine socio-cultural correlates

Limitations

- □ Self-reported data

- □ Single ethnic/cultural group

Conclusions

☐ 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

Thank you

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