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2017

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RACIAL AND SOCIOECONOMIC VARIATION IN CAREGIVER KNOWLEDGE OF SAFE INFANT SLEEP SPACES

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BACKGROUND

- Approximately 3500 infants die annually in the United States from Sudden Unexpected Infant Death (SUID) and Sudden Infant Death Syndrome (SIDS).
- SUID and SIDS rates are twice as high among non-Hispanic black infants as non-Hispanic white infants.¹
- A key risk factor for SUID and SIDS is an unsafe infant sleeping space.²
- Caregiver knowledge of safe infant sleeping spaces is one factor that affects the overall implementation of safe spaces and infant health outcomes.
- It remains unclear whether caregiver knowledge differs among subgroups; previous studies that measured knowledge were not comparative or did not publish their results.^{3,4,5}
- This study examines caregiver knowledge of safe infant sleep spaces in several scenarios for potential differences in this knowledge among different racial and socioeconomic groups.

METHODS

- Data used from a larger study examining the utility and perceived safety of infant sleep spaces.
- 541 American adults expecting a child within 5 months completed a 12-question survey.
- Respondents recruited via Amazon Mechanical Turk and were paid \$0.75 for participation.
- Survey images depicted (see Figures 3a, 3b, 3c):
 - infants in safe and unsafe sleeping spaces
 - variations of infant positioning, objects in sleep space, and presence of blankets
 - three unique infant sleepers
 - black or white infant
- Data analysis:
 - total score out of 12 was used as a measure of knowledge of safe infant sleep spaces
 - models for both total score and individual question correctness were examined and covariates were identified (see Tables 1 and 2)

REFERENCES

- CDC: SUID death by race/ethnicity 2011-2014. <https://www.cdc.gov/sids/data.htm>.
- AAP Task Force on SUID, SIDS and other sleep-related infant deaths: updated 2016 recommendations for a safe infant sleeping environment. *Pediatrics*. 2016; 138:e20162938.
- Hutton JS, Gupta R, Gruber R, et al. Randomized Trial of a Children’s Book Versus Brochures for Safe Sleep Knowledge and Adherence in a High-Risk Population. *Acad Pediatrics*. 2017; in press.
- Moon RY, Oden RP, Joyner BL, and Ajao TI. Qualitative Analysis of Beliefs and Perceptions about SIDS in African-American Mothers. *J Pediatrics*. 2010; 157:92-7.
- Robida D, Moon RY. Factors influencing infant sleep position. *Arch Dis Child*. 2012; 97:900-905.

RESULTS

Figure 1. Caregiver knowledge score by race and gender

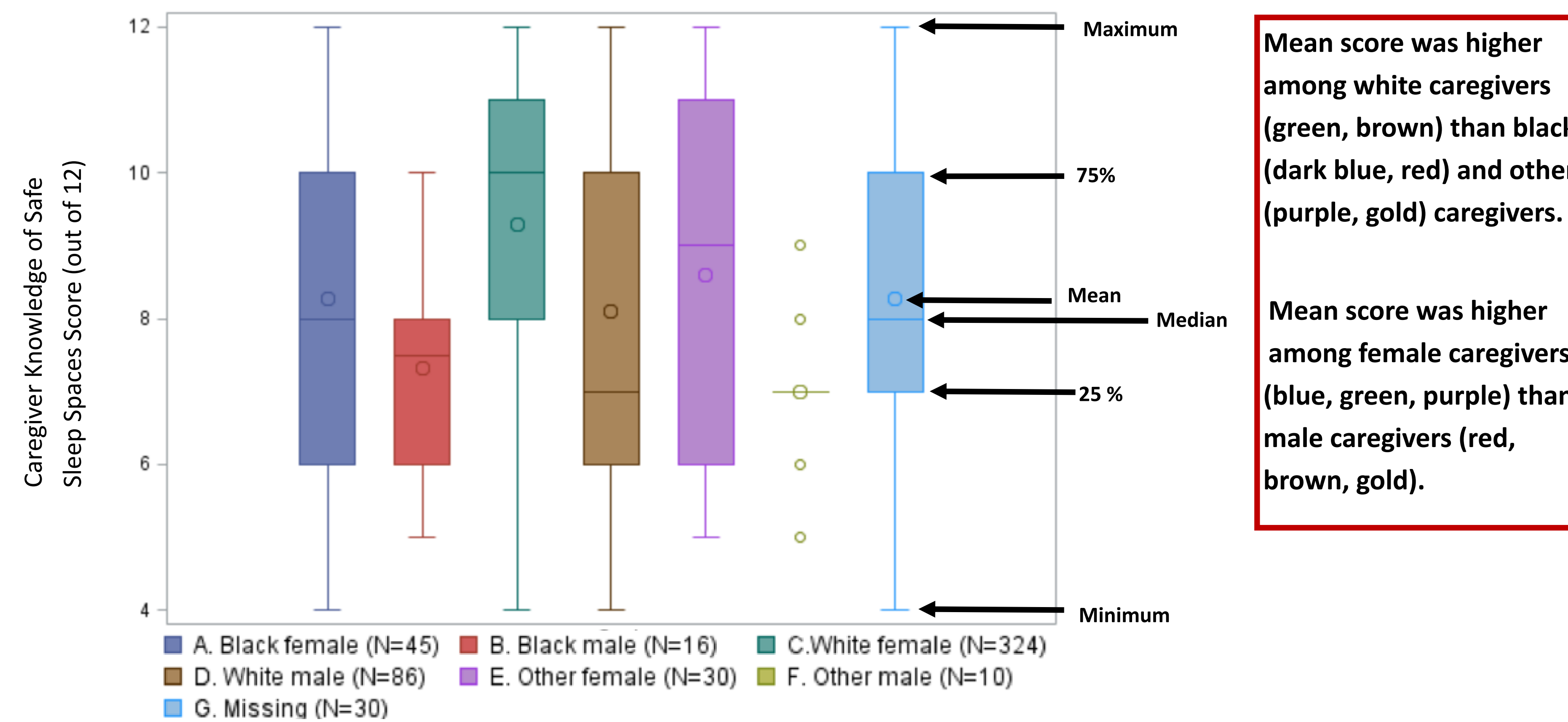


Table 1. Effects of race and gender on caregiver knowledge total score

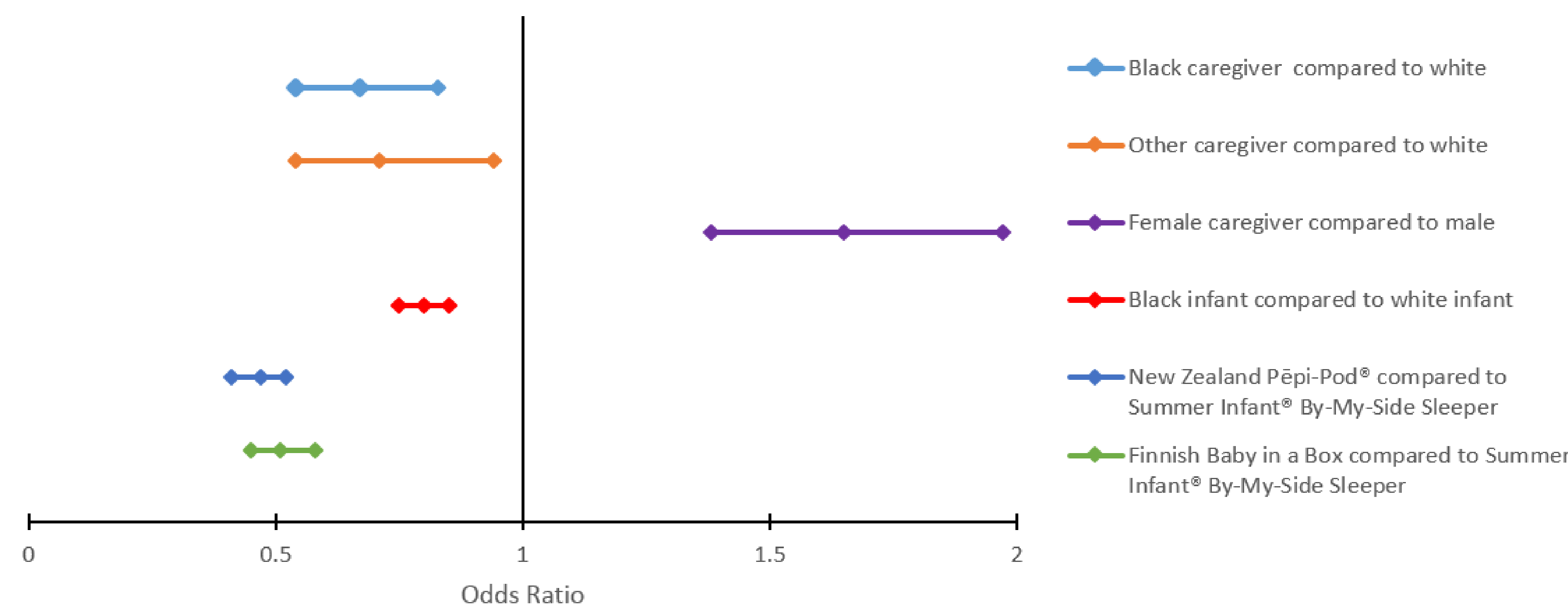
Parameter	Estimate	Std. Error	P
Intercept	8.1	0.21	<0.0001
Female caregiver	1.19	0.23	<0.0001
Black caregiver	-0.96	0.3	0.0013
Other caregiver	-0.8	0.36	0.0270

Table 2. Effects of selected characteristics of images on individual question correctness

Parameter	Estimate	Lower CL	Upper CL	ChiSq	ProbChiSq
Intercept	1.36	1.20	1.53	259.32	<0.0001
Black infant	-0.23	-0.34	-0.11	14.49	0.0001
New Zealand Pēpi-Pod®	-0.77	-0.91	-0.62	102.25	<0.0001
Finnish Baby in a Box	-0.68	-0.83	-0.53	79.25	<0.0001
Female caregiver	0.50	0.37	0.63	54.09	<0.0001
Black caregiver	-0.41	-0.58	-0.24	21.83	<0.0001
Other caregiver	-0.34	-0.55	-0.13	10.37	0.0013

Note: education, public assistance, age, and number of children did not have a significant effect on caregiver knowledge total score or individual question correctness and were therefore excluded from these tables.

Figure 2. Odds ratios of estimates from Table 2



SAMPLE IMAGES

Figure 3a. Black infant in New Zealand Pēpi-Pod® - Safe



Figure 3b. White infant prone in Summer Infant® By-My-Side Sleeper - Unsafe



Figure 3c. Black infant with excessive blankets in Finnish Baby in a Box - Unsafe



KEY FINDINGS

- Black respondents scored significantly lower than white respondents on total score (see Figure 1).
- Education level and participation in public assistance, measures of socioeconomic status, were not significantly related to score.
- Females scored significantly higher than males (see Figure 1).
- Question more likely to be answered correctly if infant in image was white or if infant was depicted in Summer Infant® By-My-Side Sleeper (see Table 2, Figure 2).

DISCUSSION

- Race was a predictor of caregiver knowledge score but socioeconomic status was not.
 - first study to show disparity in knowledge between white and black caregivers
 - difference may be one factor in the overall disparity between black and white infant deaths due to SUID and SIDS
 - agrees with previous study that showed no significant variation in caregiver knowledge among different socioeconomic groups⁵
- In addition to respondent race and gender, sleeper type and infant race significantly affected individual question correctness.
 - potential biases may include familiarity with Summer Infant® sleeper or belief that black infants are at higher risk in sleep spaces due to personal experience or other reasons
- First study to evaluate responses to images instead of text as a measure of knowledge of safe infant sleep spaces.
 - images reduce potential for confusing or unknown vocabulary to affect response and therefore increase response accuracy
- Lower scores among black and male respondents suggest that theses populations should be targeted for increased and/or enhanced safe infant sleep education.