

A Snapshot of Local NAP SACC Effectiveness:

**A Partnership between LSU Health Sciences Center, University
of New Orleans, Pennington Biomedical Research Center and LA
Office of Public Health, Maternal and Child Health**

**Melinda S. Sothern, PhD , Professor
Jim Finks Endowed Chair in Health Promotion**

Behavioral and Community Health Sciences

School of Public Health

Department of Pediatrics

School of Medicine

Louisiana State University Health Sciences Center

Prevention of Childhood Obesity Laboratory

Pennington Biomedical Research Center

Email: msothe@lsuhsc.edu



LSUHealthNewOrleans

Scientists Should Practice What They Preach

30-minute rule

- **The ability to focus and pay attention begins to decline after 30 minutes of intense mental activity – less time for children**
- **After 30 minutes of computer or written work take a 3-5 minute break**



Classy Moves Physical Activity Breaks

- **Rocky (martial arts/boxing moves)**
- **Raise the Roof (overhead press)**
- **Hot Seat (chair squats)**
- **Do the Swim**
- **Music break (dance to one song)**
- **Off the Wall (wall push-ups)**
- **Flex at Your Desk**
- **Stand like a tree and balance**
- **Reward positive behavior with indoor or outdoor play periods**




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Classy Moves Physical Activity Breaks

- Do the *Swim*
- Music break (dance to one song)
“We can dance if we want to... as long as there is music, you’re never gonna lose it...” (Men Without Hats)
- Off the Wall (wall push-ups)
- Flex at Your Desk
- Stand like a tree and balance
- Reward positive behavior with indoor or outdoor play periods



Preschool Children are not Little Adults

- **Movement is required for cognitive development**
- **Enjoy unstructured physical activity (play)**
- **Play fosters healthy emotional development**
- **Unable to stay focused for long periods of time**
- **Immature metabolic systems**



Sothorn, M. Profile of the Overweight Child, in Safe and Effective Exercise for Overweight Youth, CRC Press, 2014

Position Statement: American Academy of Pediatrics

Play is essential to the social, emotional, cognitive, and physical wellbeing of children beginning in early childhood.....

It is essential that parents, educators, and pediatricians recognize the importance of lifelong benefits that children gain from play.....

Regardless of their socio-economic status, all children have the right to engage in safe and regular physical activity that will decrease the incidence of lifelong health disparities



Pre-school Outdoor Play is not an Option

- Promotes creativity and imagination while building dexterity and physical strength
- Encourages healthy brain development
- Improves self-advocacy skills
- Improves social skills: working in groups, sharing, negotiating, resolving conflicts
- Increases Vitamin D levels
- Improves symptoms of ADHD
- Improves well-being and problem solving

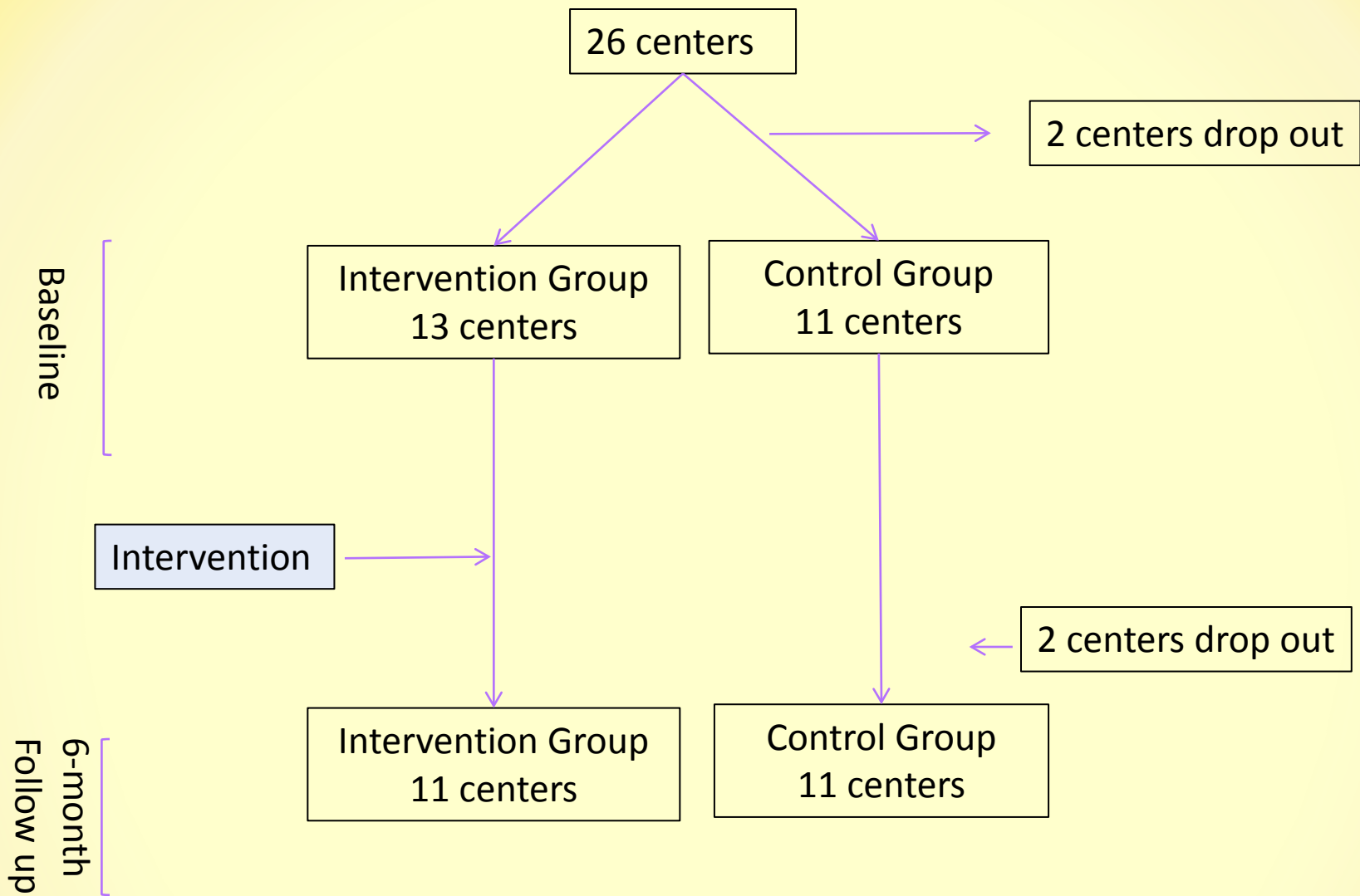
Pre-school Day Care Centers: Opportunity to Prevent Childhood Obesity

- About 75% of children between 3-6 years are in some type of out-of-home child care.
- More than 50% of children are in centers; others in family child care homes (NCHS, 2007)
- **NAP SACC:**
 - Nutrition And Physical-activity Self Assessment for Child Care (Ammerman, 2007)
 - Developed by University of North Carolina School of Public Health (Dianne Ward, PhD)
- Statewide Program in Preschool Day Care Centers with Louisiana Office of Public Health Maternal and Child Health and LSU Health Sciences Center, UNO, PBRC

Sampling and Selection Criteria

- The sampling frame included parishes: Orleans, Jefferson, Lafourche, Calcasieu and Quachita, which were selected based on obesity prevalence data.
- Day care centers were selected using a stratified sampling method.
- The study aimed to include a number of head start centers.
- Inclusion Criteria:
 - 2-5 years old
 - Enrollment in participating child care centers
- Exclusion Criteria:
 - Parents unwilling or unable to communicate with study staff or provide informed consent
 - Chronic medical condition or disease that is life threatening or would interfere with the measurements of the study





Measurement Methods (Pre and Post 6-month Intervention)

- Physical Activity
 - Physical activity was measured in each participant by Actigraph accelerometer (Model GT1M) for 2 “child care center” days.
 - The accelerometer data was downloaded and analyzed by the LSUHSC study staff.
- Environment & Policy Assessment & Observation (EPAO)
 - 64-item tool
 - 33 items described nutrition practices and behaviors

Methods: Weight Status

- Height
 - The participant was required to remove their shoes and have their heels, buttocks and upper part of the back remain in contact with the stadiometer.
- Weight and Body Fat
 - An electronically calibrated bioelectrical impedance analysis (BIA) scale (Tanita Model TBF-300A) will be used to obtain the weight in kilograms and body fat % of each study participant.
- Waist circumference: taken at the umbilicus.

Parent-reported Food Frequency Questionnaire

Children's Nutrition Questionnaire

What Have You Been Eating Lately?

"During the past 4 weeks, how often did you eat a serving of each of the foods listed here?"

Mark only one X for each food

Example:

Number of times	last 4 weeks		each week				each day			
	0	1-3	1	2-4	5-6	1	2-3	4-5	6+	
Milk				X						
Hot chocolate	X									

Name: _____

ID: _____

Date ____ / ____ / ____

DOB: ____ / ____ / ____

Age: _____

Respondent: (please check)

Mother

Other _____

Number of times	last 4 weeks		each week			each day			
	0	1-3	1	2-4	5-6	1	2-3	4-5	6+
Milk									
Hot chocolate									
Cheese, plain or in sandwiches									
Yogurt									
Ice cream (cones, sandwiches, sundaes)									
Pudding									

What kind of milk does your child usually drink? (Check one)

- 1 breastmilk 3 whole 5 1% 7 Chocolate Milk
 2 formula 4 2% 6 skim 8 other _____

Number of times	last 4 weeks		each week			each day			
	0	1-3	1	2-4	5-6	1	2-3	4-5	6+
Orange juice or grapefruit juice									
Other juice									
Fruit drinks (Hi-C, Kool-aid, lemonade, sportsdrink)									
Banana									
Peaches									
Fruit cocktail, mixed fruit									
Orange or grapefruit									
Apple or pear									
Applesauce									
Grapes									
Strawberries									
Melon									
Pineapple									
Raisins or prunes									

Methods

- **Food Environment (GIS)**
 - Parent/guardian of each participating child was asked to provide home residential address
 - The home residential address was used to identify characteristics in the neighborhood that contribute to increased risk for obesity

Methods: Knowledge and Feeding Practices

- **Subjects:** Childcare center providers (directors, cooks, staff and teachers) from centers who participated in the NAPSACC program
- **Recruitment:** Telephone calls to each center director to request participation in a follow-up survey and to obtain signed agreement
 - 21 centers
- **Response rate:** 71% (15 of 21 centers)
- **Categorize centers using EPAO** (Benjamin, et al, 2007)
 - 64-item tool
 - 33 items described nutrition practices and behaviors
 - 16 items identified to categorize centers
 - Scored on 0-2 point scale (Maximum Score of 32)
 - *Cutoff point at 17 = score of 53%*
- **Center Identification**
 - Centers implementing *More* Healthy Nutrition & Feeding Practices (score of ≥ 17)
 - Centers implementing *Less* Healthy Nutrition & Feeding Practices (score of < 17)

Methods: Knowledge and Feeding Practices

- Developed & distributed *Childcare Provider Nutrition Survey*

- Quantitative*

37-item survey

- Health Belief*

Model

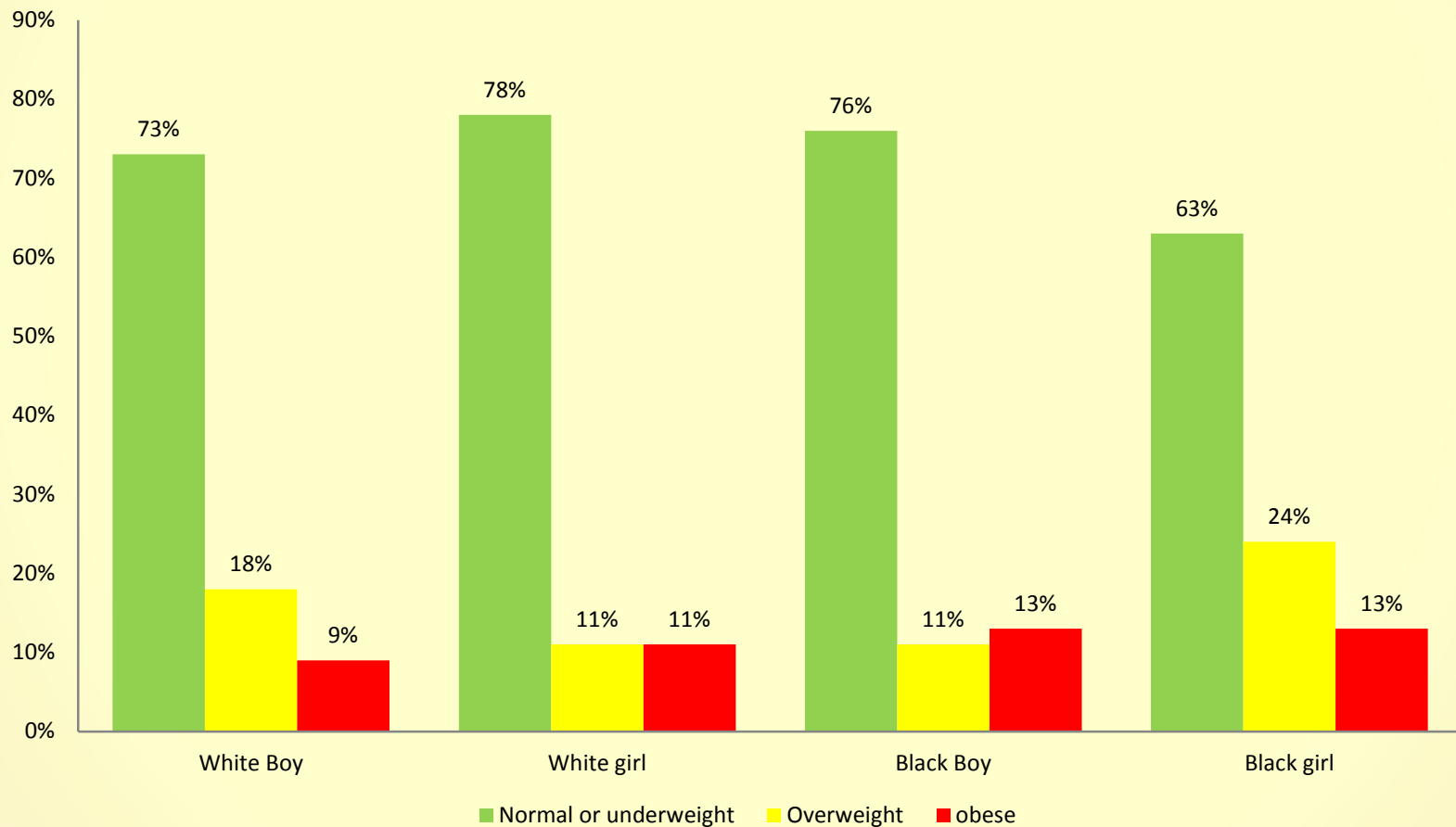
- Adapted from

EPAO items

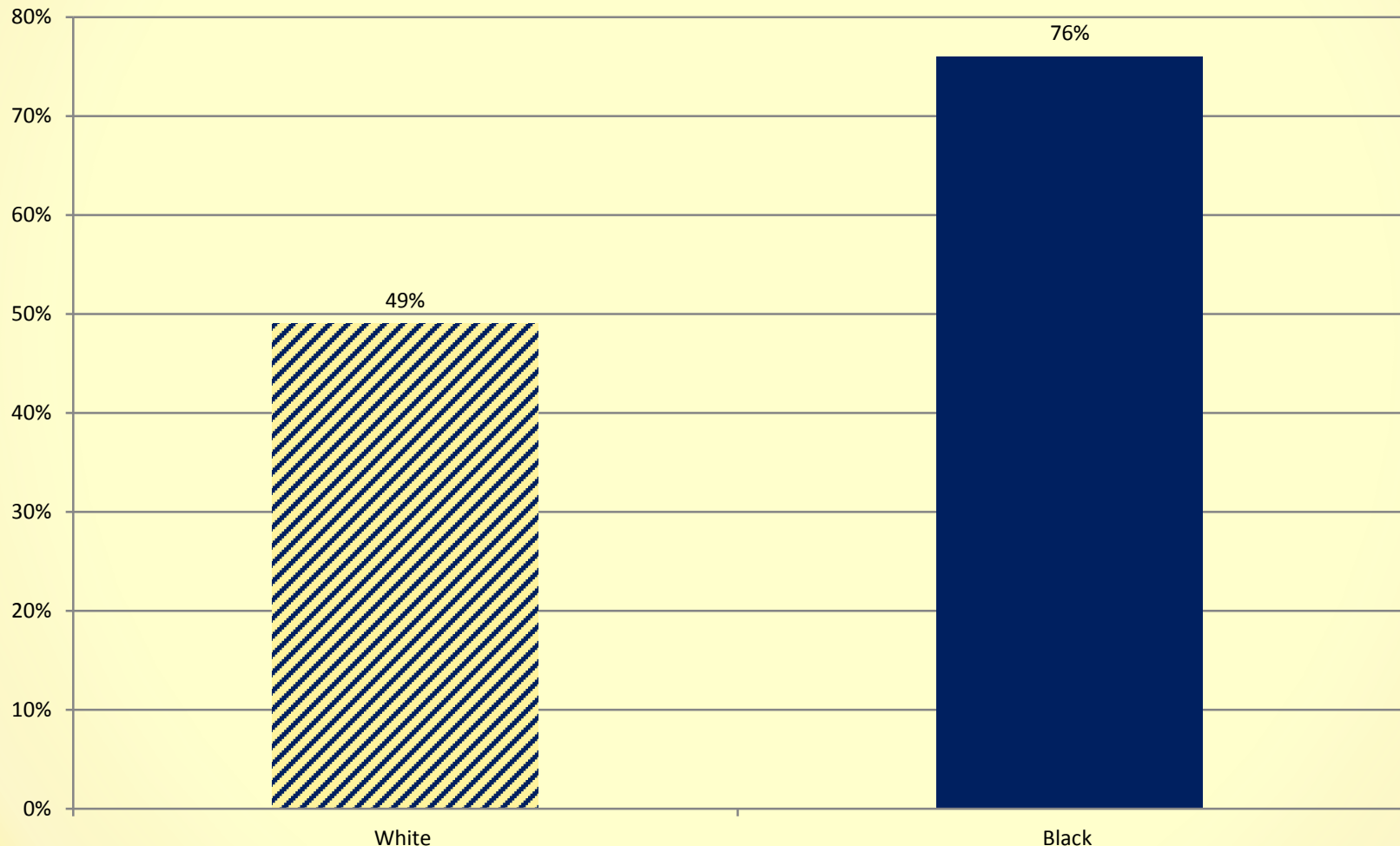
- Approved by IRB

<i>HBM</i>	Survey Area	Response	Questions
	Demographics	Open-ended	5
	Sources of Nutrition Information	Yes/No	9
	Knowledge	Yes/No	9
Perceived Benefits	Attitudes	5-point Likert “Not Important” to “Very Important”	6
Perceived Barriers	Barriers	5-point Likert “Not Likely” to “Very Likely”	3
Self-efficacy	Self-efficacy	Likert “Not Likely” to “Very Likely”	3
	Nutrition Workshops	Yes/No	2

NAP SACC Results: Louisiana preschool children obesity by race and gender

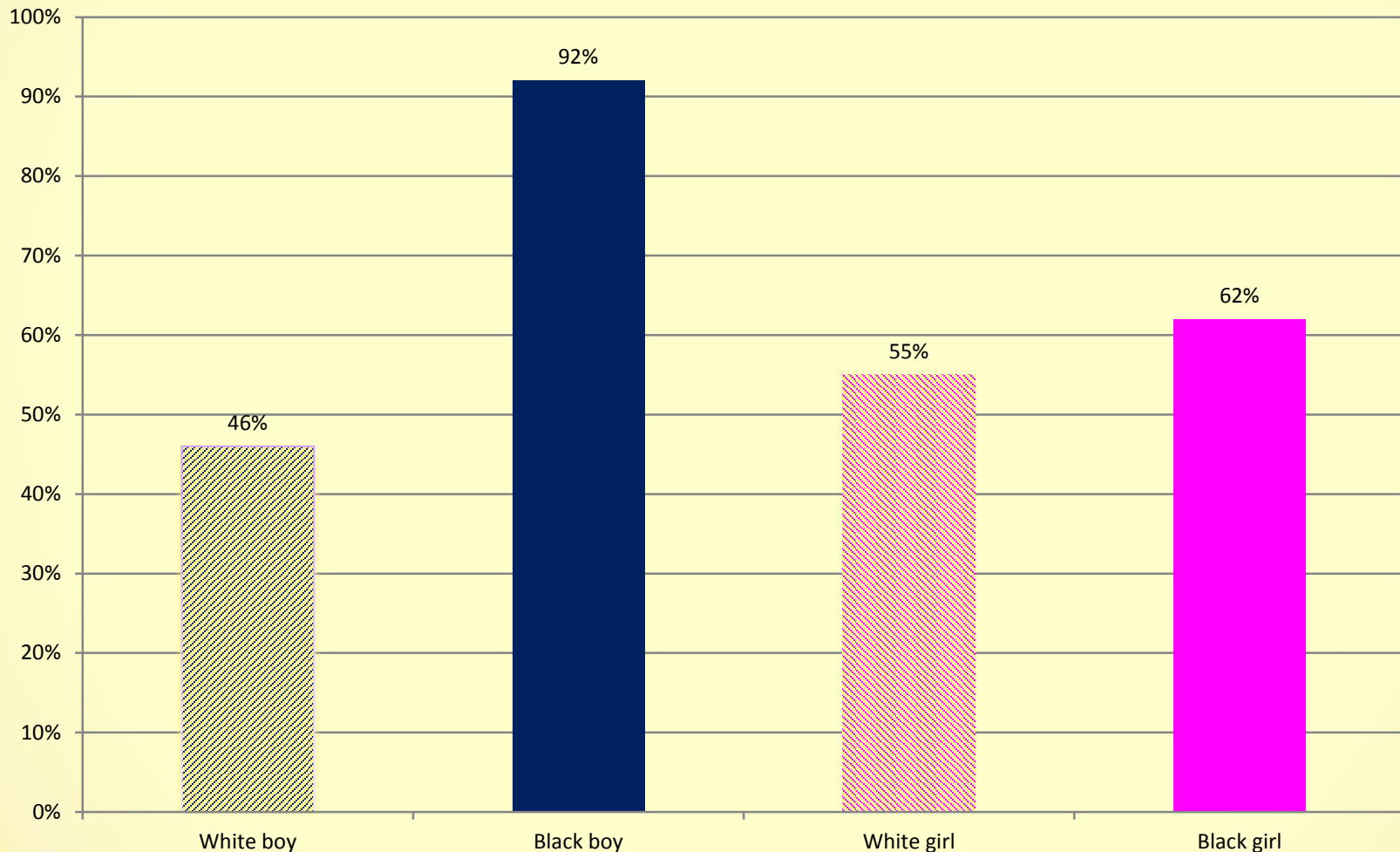


Louisiana Black preschool children, aged 2-5 years, had a significantly ($p = 0.025$) higher intake of coke at least once or more per month, when compared to whites.



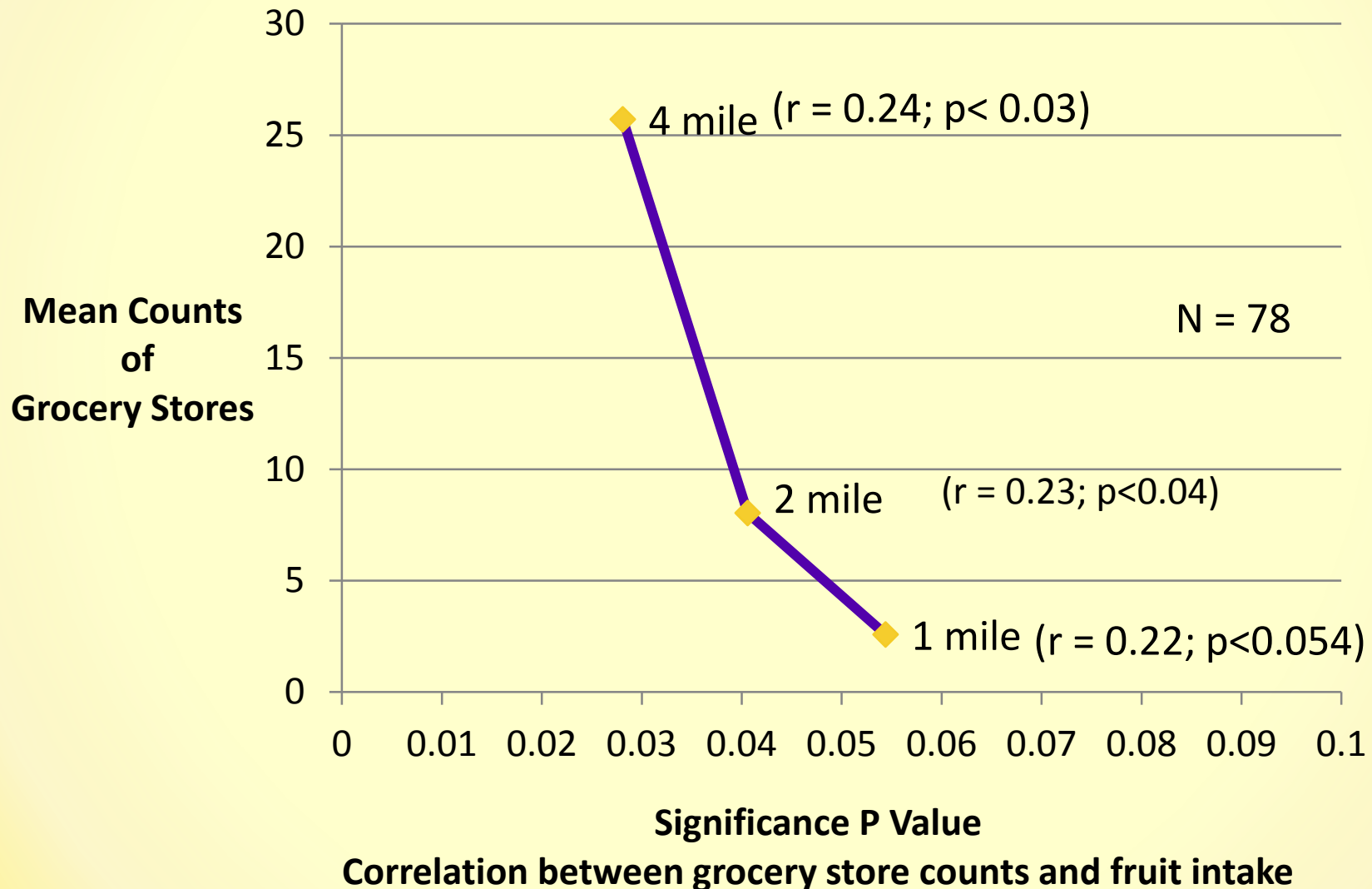
Tseng, T.S., Bonis, M., Mohler, M., Arguello, A., Volaufova, J., Velasco-Gonzalez, C., Clesi, A., Lewis, L., Sothorn, M., 2013, Obesity

Louisiana Black preschool boys had a significantly ($p = 0.011$) higher intake of coke at 91.67% at least once or more per month, when compared to white boys at 46.15%, respectively.



Tseng, T.S., Bonis, M., Mohler, M., Arguello, A., Volaufova, J., Velasco-Gonzalez, C., Clesi, A., Lewis, L., Sothern, M., 2013, Obesity

Relationship Between Increased Availability of Grocery Stores with varying distances around Pre-schooler's Residence and Fruit Intake



Nutrition and Physical Activity Self-Assessment in Child Care Centers (NAPSACC) Intervention - Physical Activity Results

(Bonis, M., Loftin, M., Ward, D., Lewis, L., Volaufova, J., Tseng, T., Clesi, A., Mohler, M., Arguello, A., Sothern, M., *Childhood Obesity*, 2014, 10(4): 334-341

Objectively Measured Physical Activity Level (Accelerometry)		Minutes (Mean + SD)		
		Pre-Intervention		Post-Intervention
Treatment	110	Sedentary	488.0 ± 20.7	476.6 ± 26.6*
		Light	27.7 ± 9.6	29.9 ± 13.3
		Moderate	17.1 ± 8.4	22.7 ± 10.4*
		Vigorous	7.2 ± 4.7**	10.8 ± 6.3*
		Total PA	52.0 ± 20.9	63.4 ± 26.6*
		Total	540	540
Control	99	Sedentary	482.8 ± 40.4	480.3 ± 36.1
		Light	27.7 ± 16.2	29.8 ± 17.3
		Moderate	19.1 ± 16.1	19.1 ± 12.6
		Vigorous	10.4 ± 11.2**	10.8 ± 8.4
		Total PA	57.2 ± 40.5	59.7 ± 36.1
		Total	540	540

* Significant to pre-intervention value; ** Significant to intensity level of the other group; p < 0.05

Results: Day Care Center Staff Knowledge and Feeding Practices:

Knowledge Item	More Healthy Centers (7) N=79 Mean (Std / %)	Less Healthy Centers (8) N=47 Mean (Std / %)	All (15) N=126 Mean (Std / %)	P-value ($\alpha=0.05$)
Total Score: <17 = Less Healthy ≥17 = More Healthy (17 = 53%)				
Overall Knowledge (Range of scores: 0-9)	7.49 (Std=1.33)	6.85 (Std=1.37)	7.25 (Std=1.37)	0.0105*
New foods, such as fruits and vegetables, may need to be re-introduced multiple times before children accept them.	78 (98.73%)	42 (91.30%)	120 (96.00%)	0.0409*
It is important to let children determine how hungry they feel so that they learn physical hunger cues.	53 (68.83%)	23 (51.11%)	76 (62.30%)	0.0513*

Day Care Center Staff Knowledge and Feeding Practices: Limitations and Conclusions

- Limitations
 - Comparing Center-based (EPAO) vs. Individual-based (survey) data
 - Potential Social desirability bias in the *Childcare Provider Nutrition Survey*
- Conclusions
 - Higher nutrition knowledge among childcare providers is associated with staff in centers implementing more healthy nutrition practices
 - Childcare providers in intervention centers implemented healthier nutrition practices compared to providers in control centers of the NAPSACC program
 - State policies are needed that support nutrition education and information on feeding practices for administration and staff in preschool child care settings



Key Takeaways

- Environmental change as a result of NAP SACC implementation, which reduce media time and encourage outdoor play in day care centers, increase objectively measured physical activity in pre-school youth.
- Childcare providers participating in the NAP SACC intervention implement healthier nutrition practices in their preschool day care center compared to controls.
- Higher nutrition knowledge among childcare providers is associated more healthy nutrition practices.
- State policies that support increased outdoor play, nutrition education, healthy feeding practices in preschool child care settings are needed.

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