

Child and Adolescent Obesity: The Country's “Developing” Dilemma

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- No financial interests to disclose



Outline

- **Introduction**
- **Scope of the problem**
 - **Global**
 - **Caribbean**
 - **Bahamas [~ 25 Years (1988-2013)]**
- **Interventions and strategies**
- **Challenges**
- **Achievements/Successes**



Introduction

Introduction

- Obesity - Global public health challenge
 - ≥ 2.8 million deaths/yr due to overweight or obesity
- **Definitions (Adults):**
 - Overweight \rightarrow BMI ≥ 25 kg/m²
 - Obesity \rightarrow BMI ≥ 30 kg/m²
- Worldwide: **35%** of adults (≥ 20 yrs) - Overweight (34% male, 35% female) (*WHO, 2008*)

Introduction

- Globally - Obesity in adults ≥ 20 (*WHO*)
 - Males \uparrow from 5% (1980) to 10% (2008)
 - Females \uparrow from 8% (1980) to 14% (2008)
 - ~Half a billion adults
- Caribbean (2013 *Ng et. al.*)
 - Males 12.3%
 - Females 24.5%
- Bahamas (STEPS Survey, 2012)
 - Adults now estimated at 49%
 - (little sex difference)

Introduction

- More prevalent in the past among older Adults
 - normal aging → metabolism slows down

- Obesity among Children and Adolescents
 - Appears to be growing
 - Becoming a health concern

(Obesity Prevention Source, Harvard University)

Introduction

- Overweight and obese children tend to grow up to be overweight and obese adults

(Obesity Prevention Source, Harvard University)

- Children living in households with overweight adults are **4 times more likely** to be overweight, or at risk of becoming overweight *(BLCS 2001)*

Scope of the Problem

- Worldwide(WHO 2013)
 - > 42 million children <5 years overweight
 - Nearly 31 million live in developing countries
- Caribbean
 - 7% children <5 in Latin America and the Caribbean were estimated to be overweight or obese (*WHO growth standards, 2010*)

Scope of the Problem

- *Caribbean Food & Nutrition Institute, 2007*
 - Overweight/obese children account for as much as 15% of population in various Caribbean countries
 - Rising rates linked to increases in consumption of:
 - Fatty foods
 - Snacks
 - Soft drinks
 - High-energy foods and drinks



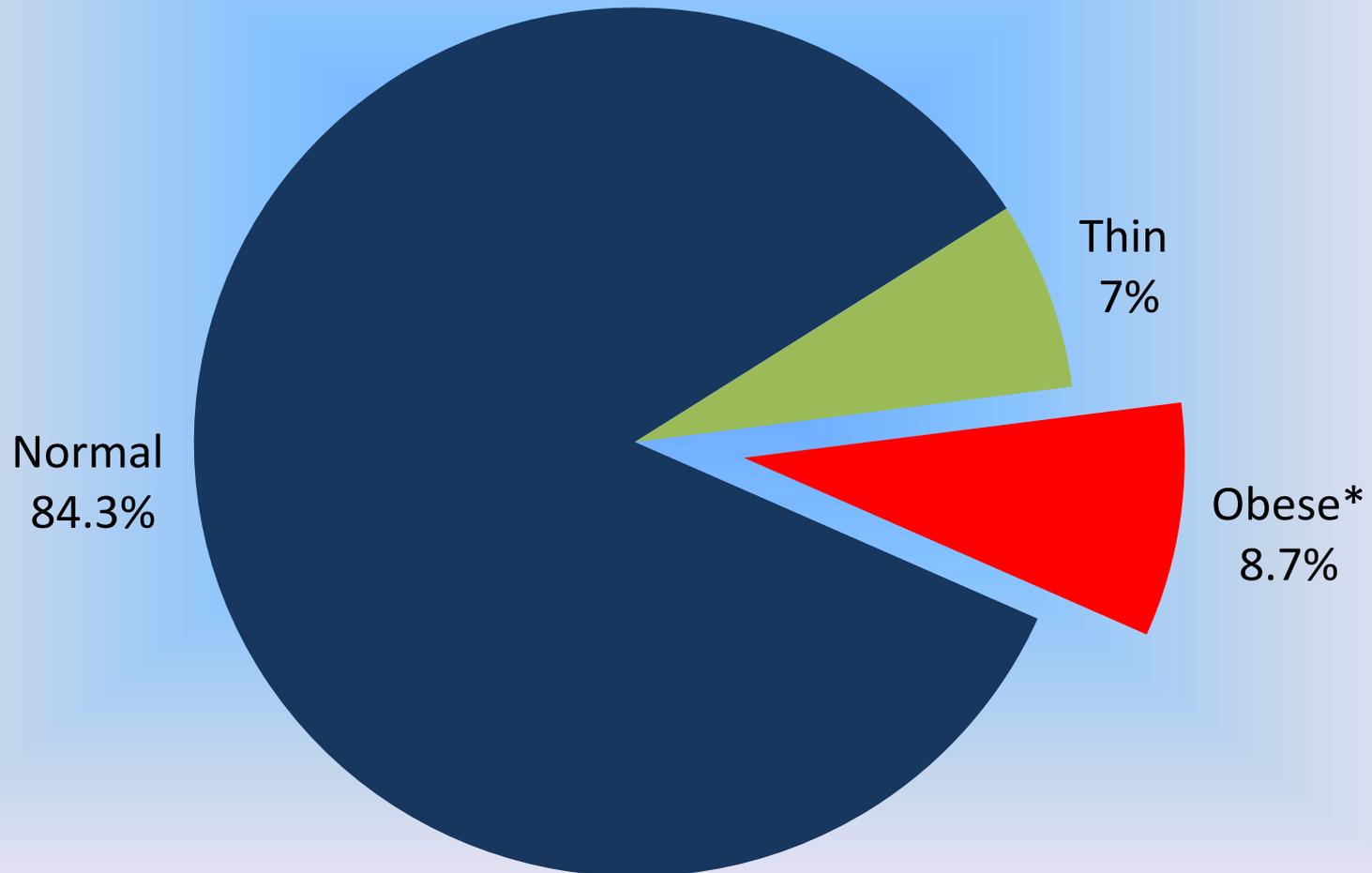
Bahamas

(1988-2013)

National Health and Nutrition Survey, 1988-1989

- Children under 5 years (n=950)
- Obese ($> 95^{\text{th}}$ %ile – Wt for Age)
 - **9% All Bahamas**
 - 10% New Providence
 - 9% Grand Bahama
 - 6% Family Islands

Nutritional Status of Children Under 5 Years, Based on Weight for Age, Bahamas, 1988-1989



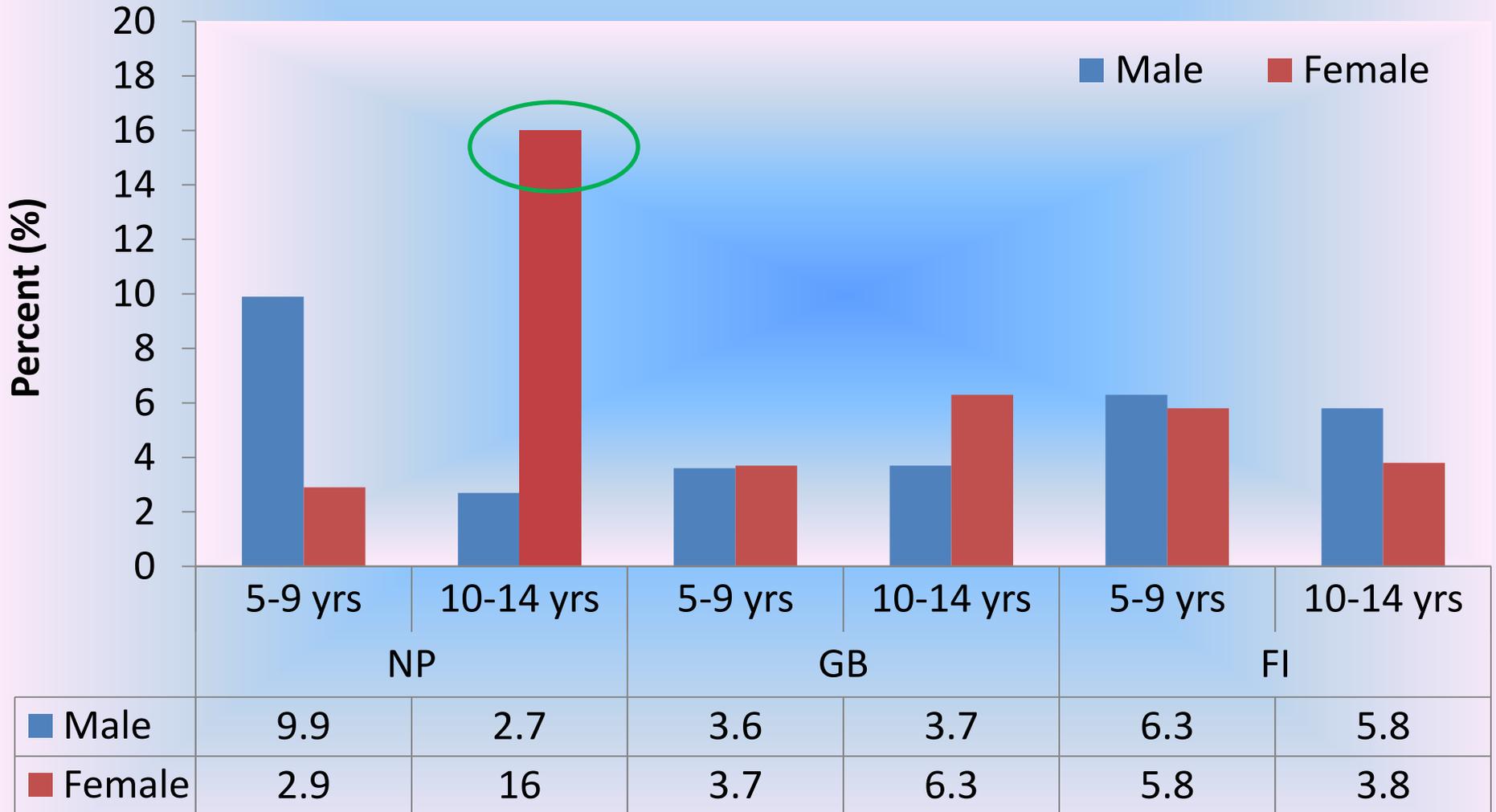
**Obesity classified as above the 95th centile; based on weight for age standards.*

Data Source: National Health and Nutrition Survey, 1988/1989

National Health and Nutrition Survey, 1988-1989

- Children **5-14 years** (n=773)
 - **7%** obese
- Children 5-9 years (n=391)
 - **→ 10%** Males (New Providence)
- Children 10-14 years (n=382)
 - **→ 16%** females (New Providence)

Prevalence (%) of Obesity Among Children and Adolescents Ages 5-14 Years, by Age Group and Location - Bahamas, 1988/1989



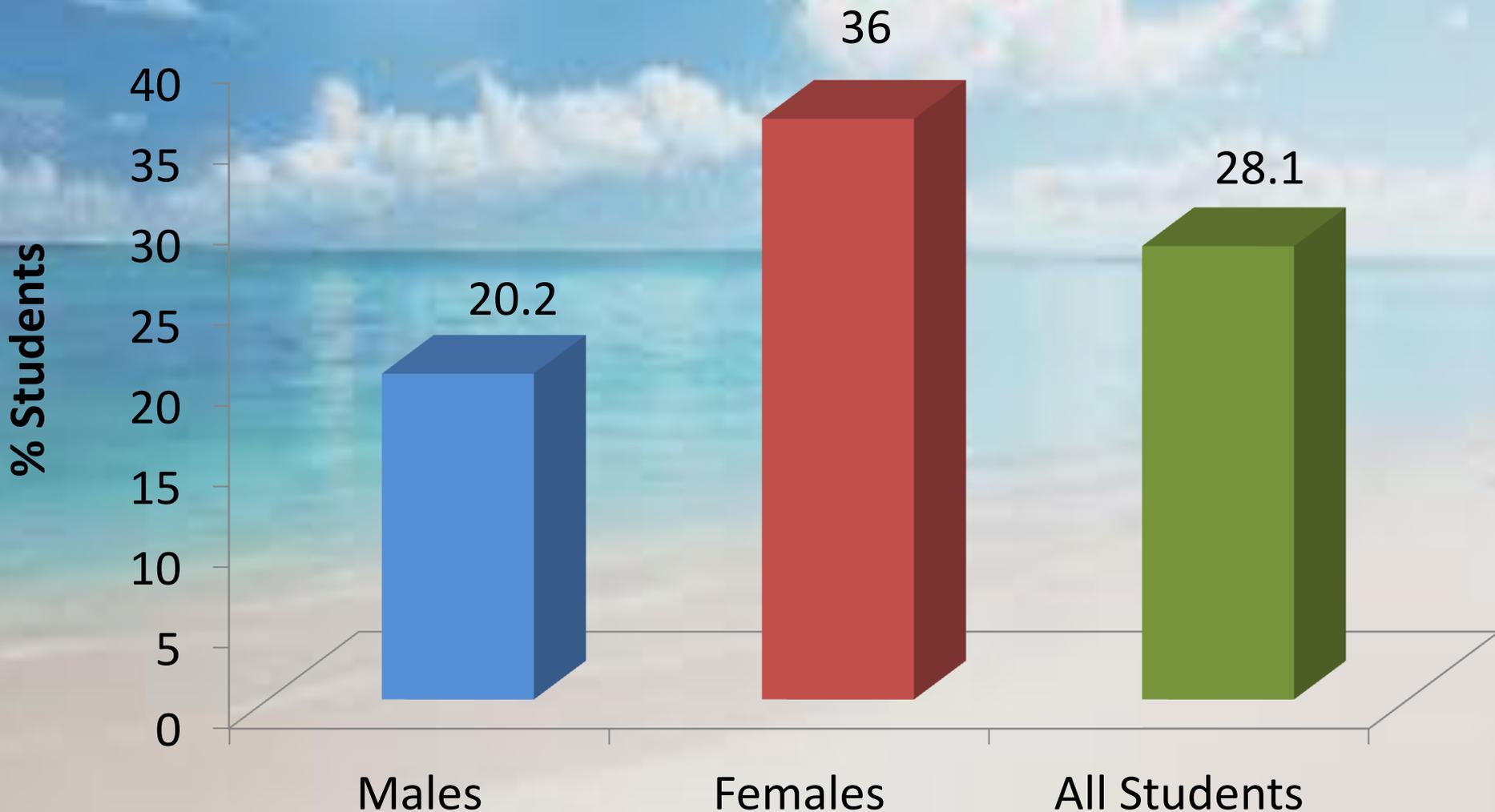
**Based on BMI*

Data Source: National Health and Nutrition Survey, 1988/1989

Bahamas Youth Health Survey 1997

- Students 10-19 years (n=2,007)
- 28% thought they needed to lose weight
 - 20% males, 36% females
- 14% students “not happy” with their bodies
 - 11% males, 17% females
 - 70% felt they needed to lose weight
 - Affected eating habits, e.g. more likely to eat less than three meals a day
 - No association with amount of exercise

Percent (%) Students Who Felt They Needed to Lose Weight Bahamas, 1997 (n=2,007)



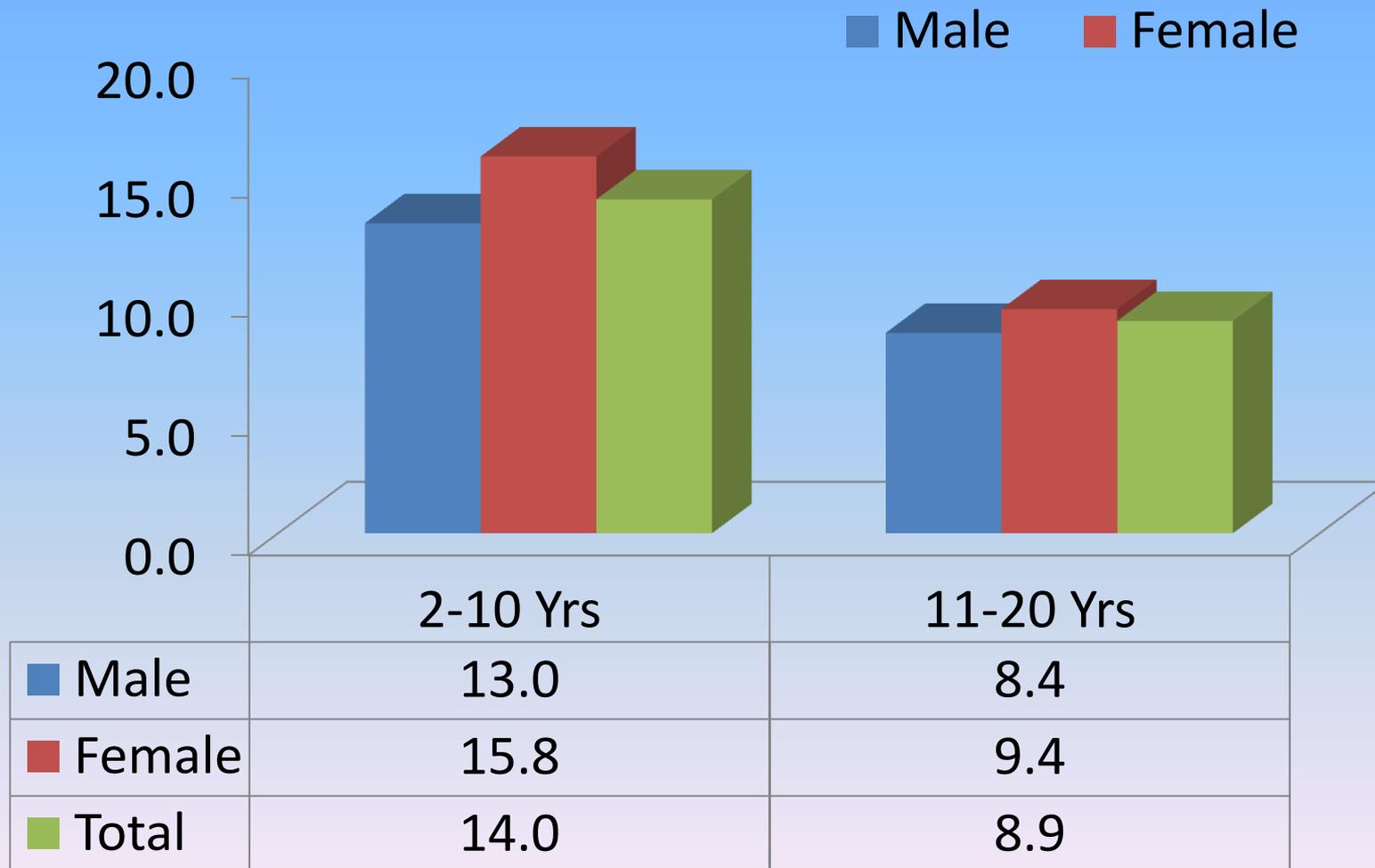
Bahamas Living Conditions Survey 2001

- Children 2-10 years (n=824)
 - **14%** overweight
 - 13% male
 - 16% female
- (6 times more than expected ~2.3%)
- Overweight increased with age
 - 2-4 years, 11%
 - 5-6 years, 14%
 - 7-10 years, **16%**
- New Providence and Grand Bahama – 14%
- **Exuma and Long Island** had highest prevalence - (20%)

Bahamas Living Conditions Survey 2001

- Adolescents 11-20 years (n=927) (BMI)
 - **9% (>95th %ile)**
 - 14% (>85th %ile)
- Increased with age
 - 11-15 years, **7%**
 - 16-20 years, **11%**
 - Especially females, 13%
- All regions similar prevalence except very rural islands
 - Combined 2%
- Slightly higher among those from higher SES

Prevalence of Overweight in Children 2-10 Years and Adolescents 11-20 Years Bahamas 2001

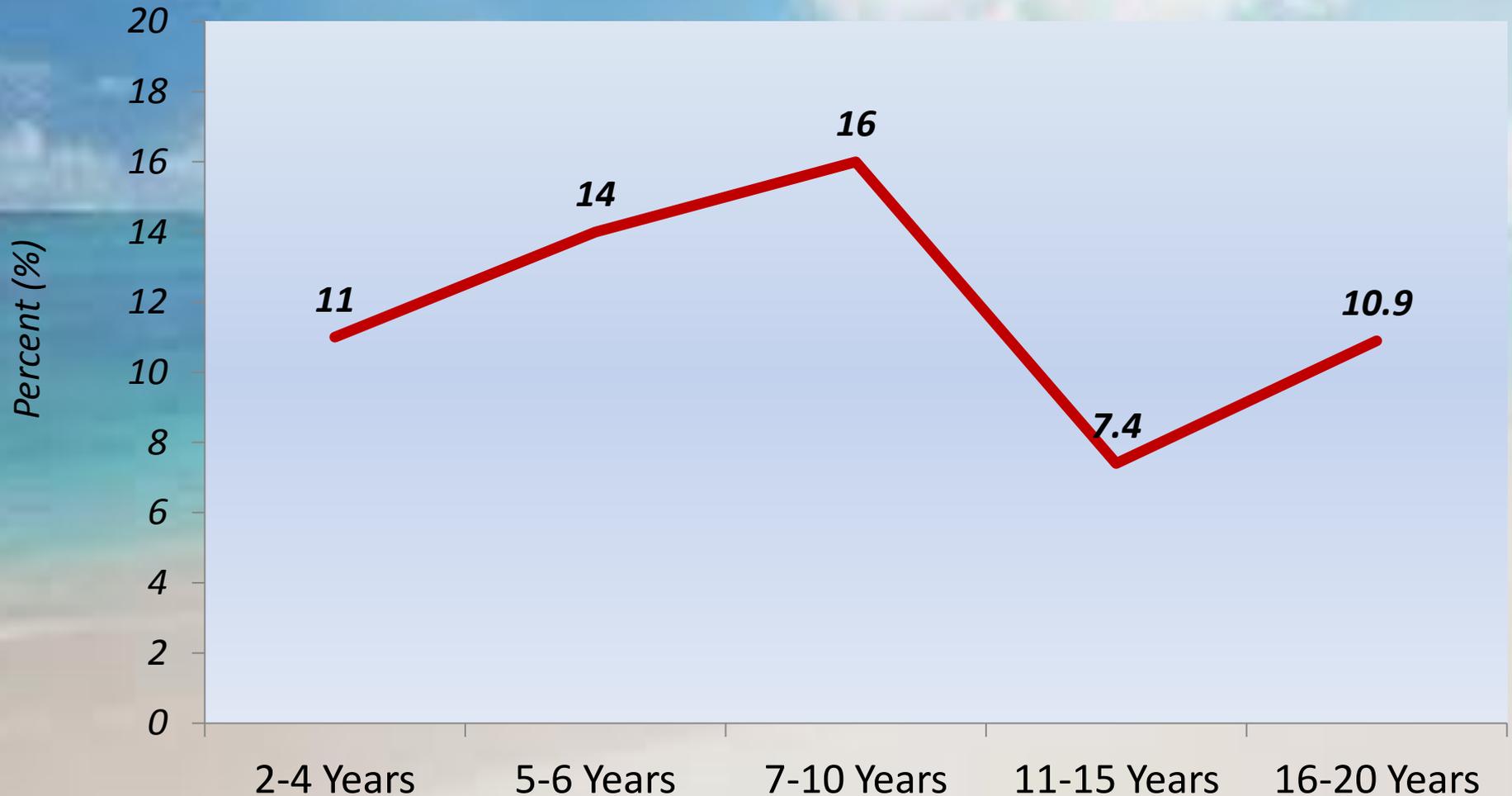


*Based on BMI; n=927

Data Source: Bahamas Living Conditions Survey, 2001

Bahamas Living Conditions Survey 2001

Percent Overweight by Age Groups



Healthy Lifestyle Program Screenings 2006-2010

- Among adolescents 15-19 years (373 health screenings)
 - 17% obese (little sex difference)

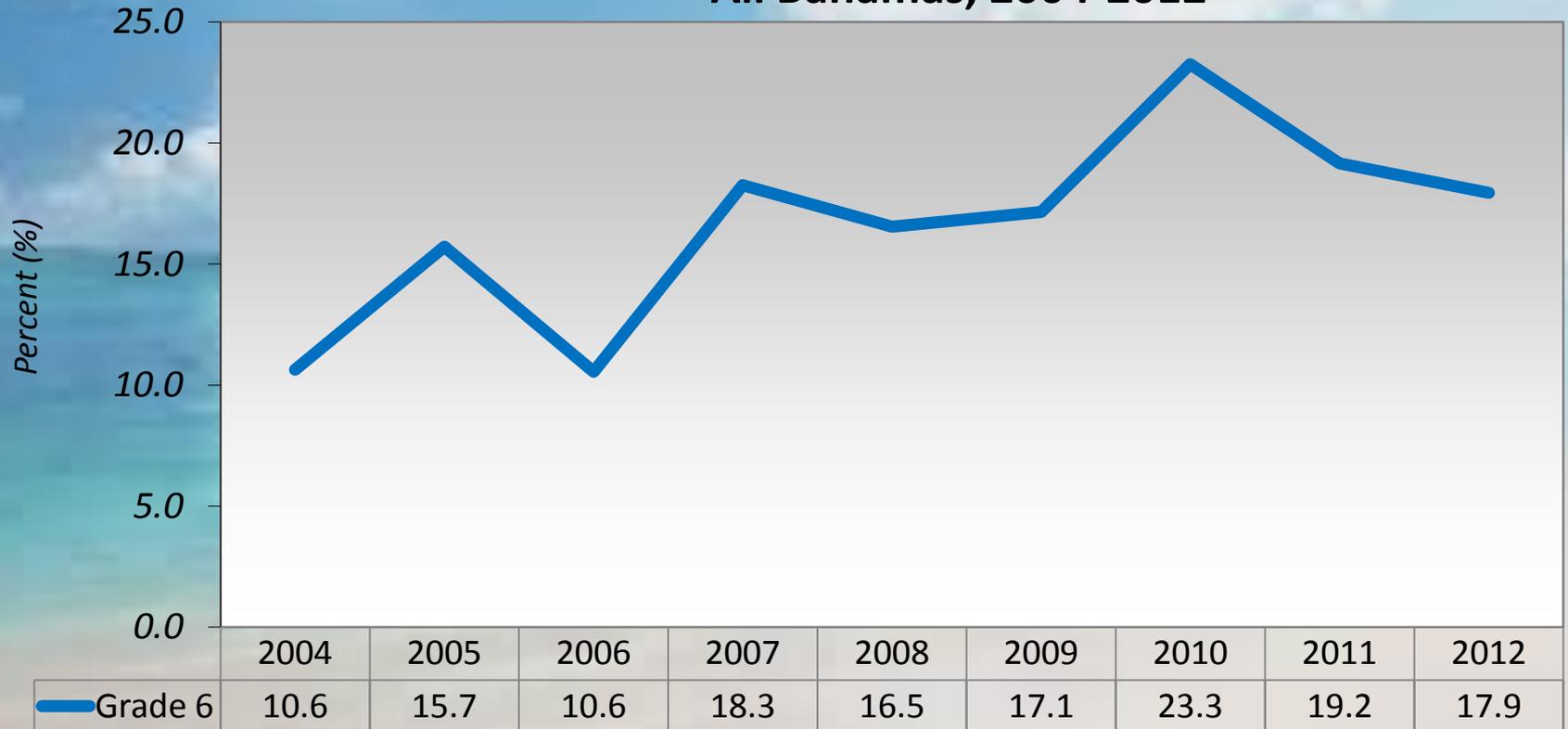
Primary Health Care Reports 2004-2012

Percent Overweight Children Seen by School Health Services, All Bahamas, 2004-2012



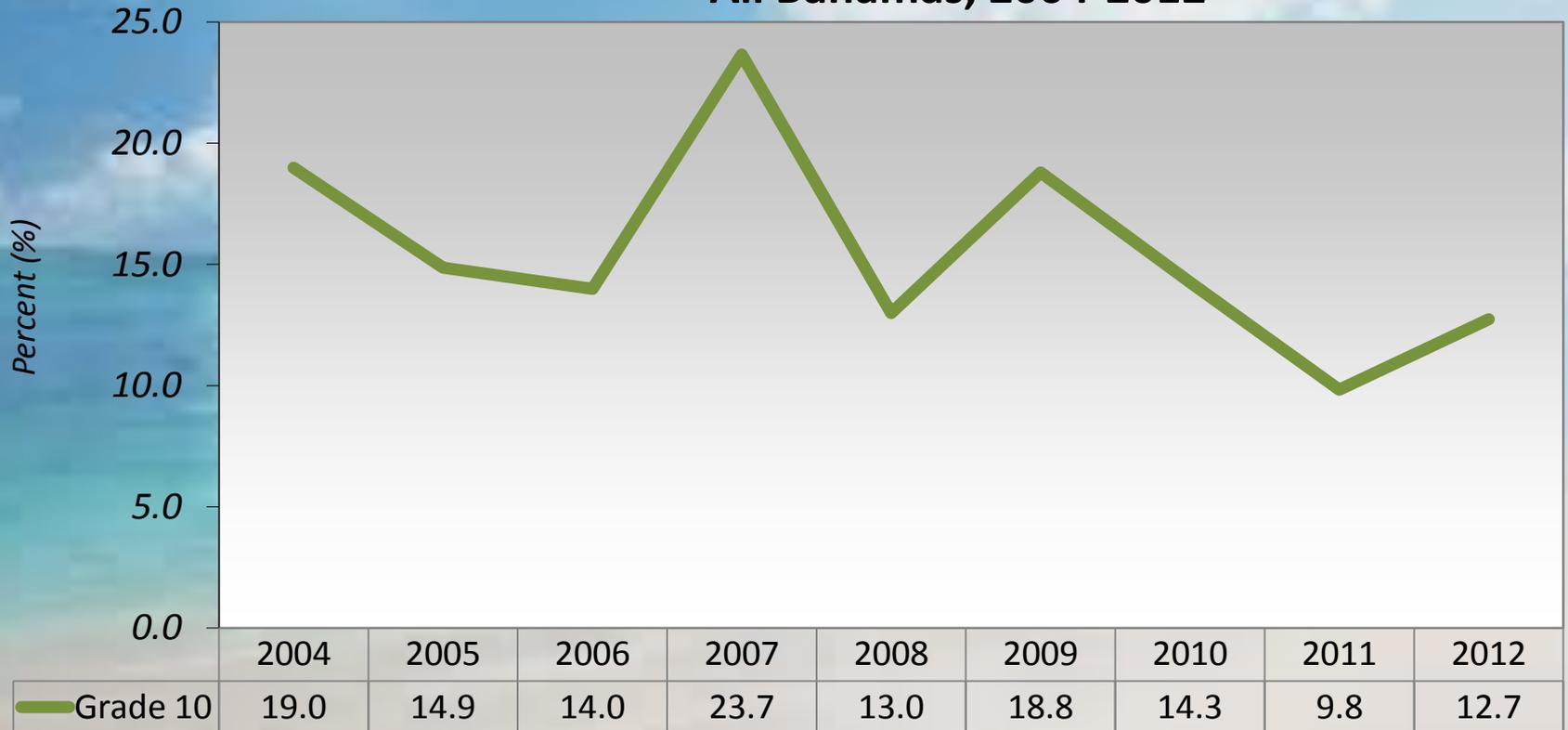
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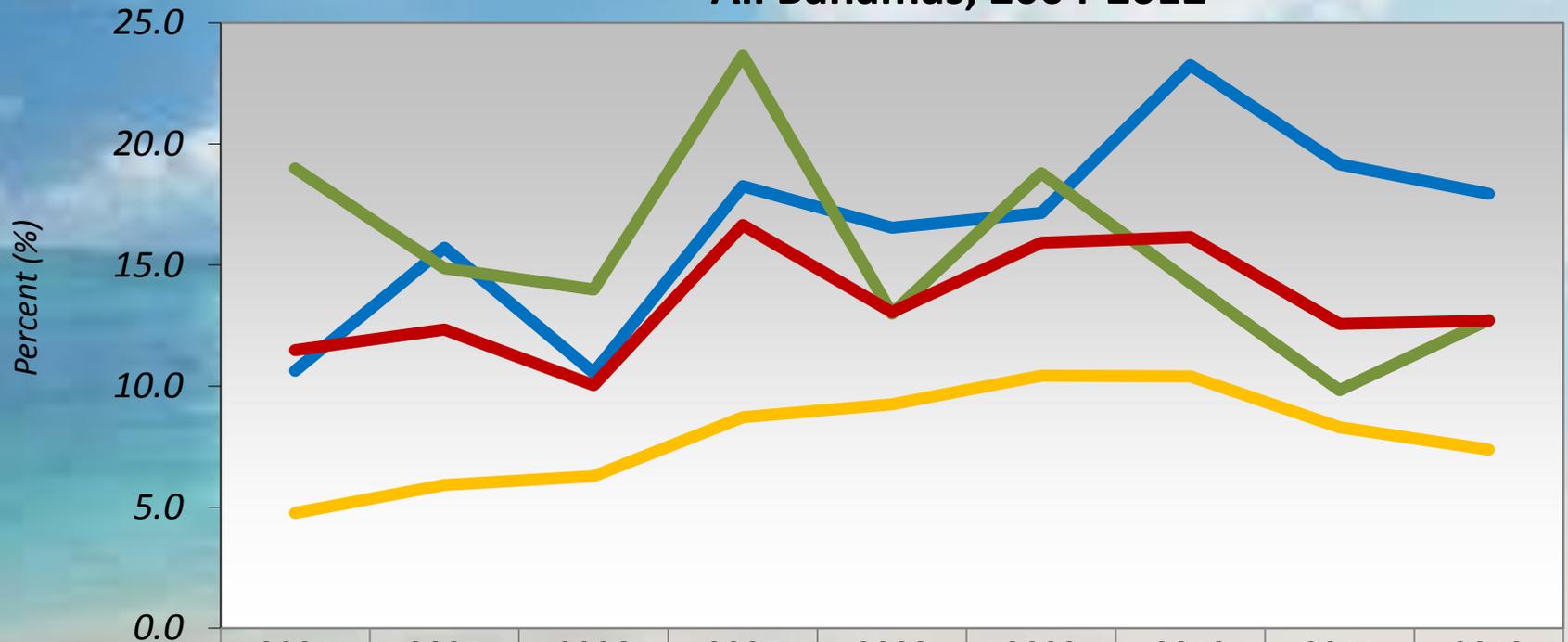
Primary Health Care Reports 2004-2012

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Primary Health Care Reports 2004-2012

Percent Overweight Children Seen by School Health Services, All Bahamas, 2004-2012



Grade 1	4.8	5.9	6.3	8.7	9.2	10.4	10.4	8.3	7.4
Grade 6	10.6	15.7	10.6	18.3	16.5	17.1	23.3	19.2	17.9
Grade 10	19.0	14.9	14.0	23.7	13.0	18.8	14.3	9.8	12.7
Total Percent (%) Overweight	11.5	12.3	10.0	16.6	13.1	15.9	16.2	12.6	12.7

Obesity and Overweight as it Relates to Blood Pressure in 10th Grade Students Attending Public Schools in New Providence, Bahamas, 2008/2009

S. Taylor, S. Carroll et. al.

- **Overweight and Obesity in Students (n=719 in 10th Grade (Ages ~ 14-15 years))**

Nutritional Status/Age	%
Overweight/Obese	27.9 (35.3 girls, 20.5 boys)
Overweight	13.9 (16.4 girls, 11.5 boys)
Obese	14.0 (18.9 girls, 9 boys)

Association Between Obesity and Impaired Glucose Intolerance Among High School Adolescents, New Providence, Bahamas (2012)

K. Rivers, C. Hanna-Mahase, M. Frankson, et al

Overweight and Obesity in 861 Adolescents, 13-19 Years

Nutritional Status/Sex	(%)
Overweight/Obese	38.1
Overweight	15.0
Obese	23.1
Sex	
Males	33.1
Females	40.4

Prevalence of Elevated Blood Pressure in Adolescents in Nassau, Bahamas, 2012

C. Conliffe, C. Hanna-Mahase, M. Frankson, et al

Overweight and Obesity in Students (n=785) in Selected Grades 9, 10, 11 (2012)

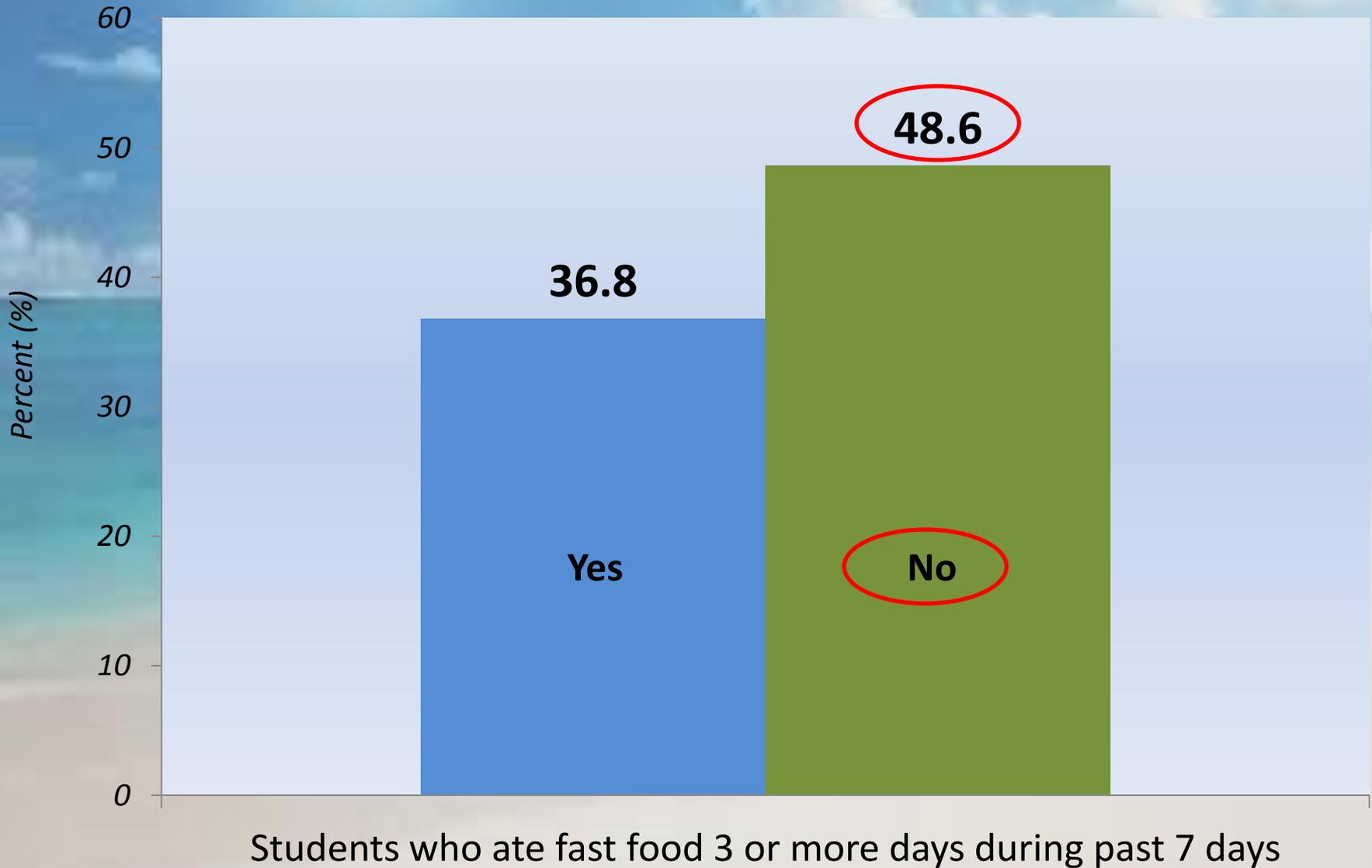
Nutritional Status/Age	%
Overweight/Obese	34.3
Overweight	14.4
Obese	19.9
Mean Age (Yrs)	14.6 (\pm 1.2)

BMI Classifications: overweight ($\geq 85^{\text{th}}$ < 95^{th} percentile); obese ($\geq 95^{\text{th}}$ percentile)

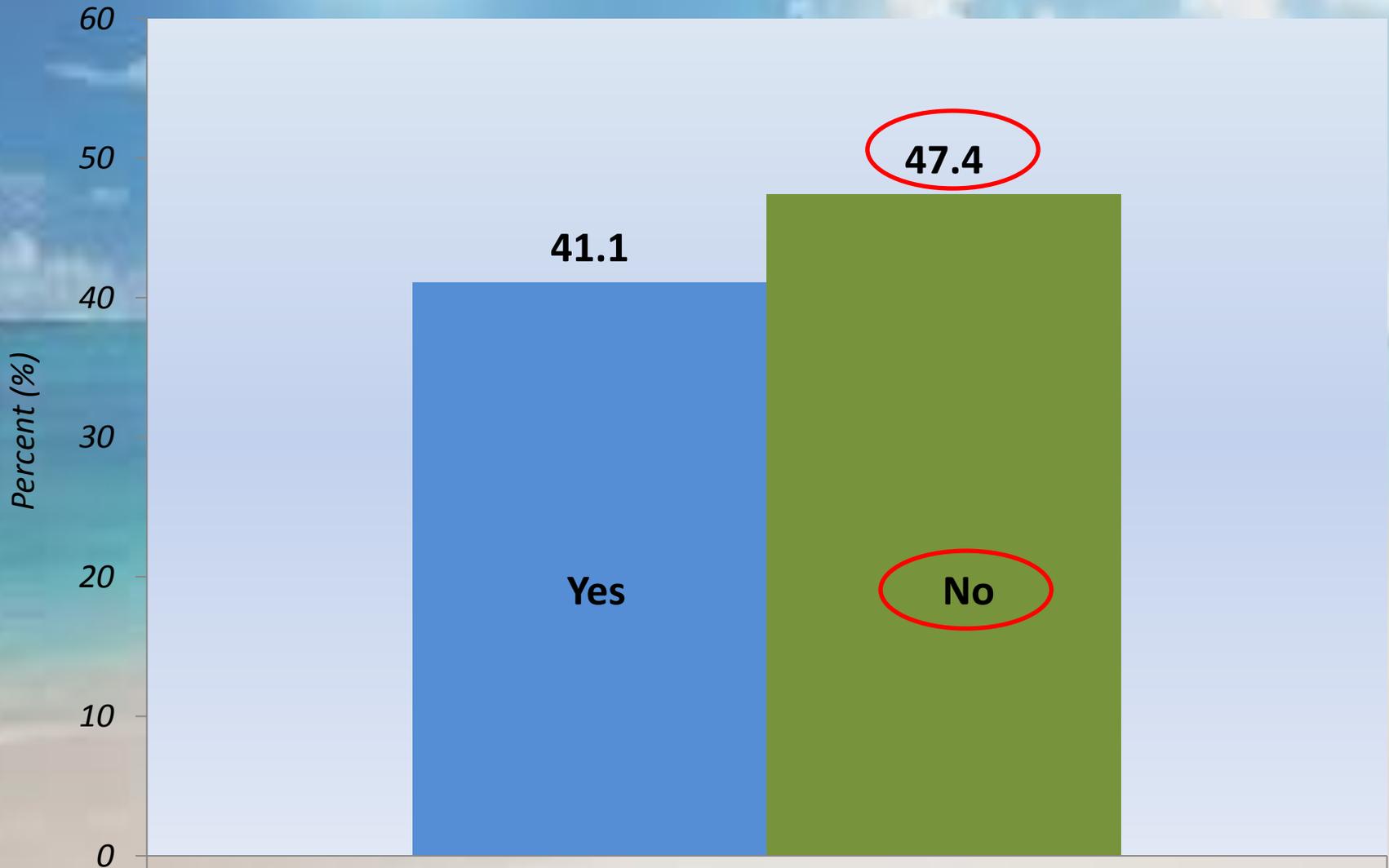
Global School Health Survey Bahamas 2013

- Students 13-15 years (n=962)
- 45% overweight or obese (No significant sex difference)
 - **21% obese**
 - 18% males
 - 24% females
- When overweight and obesity were tested for association with risk factors such as fast food consumption and low physical activity, results were unexpected.

Percent (%) Differences in Overweight by Whether or Not Students Ate Fast Food (n=949)

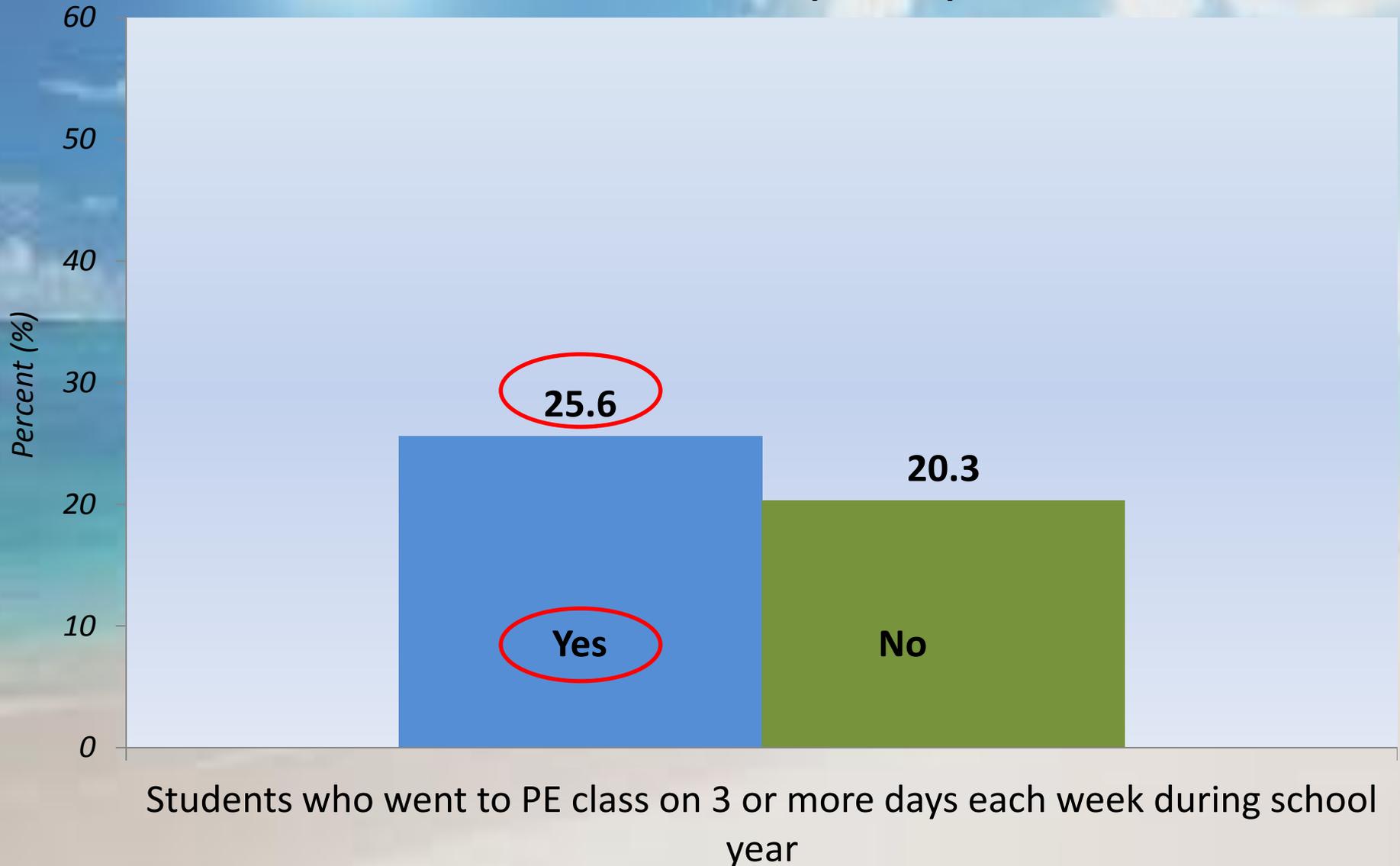


Percent (%) Differences in Overweight by Whether or Not Students Ate Salty Food (n=953)

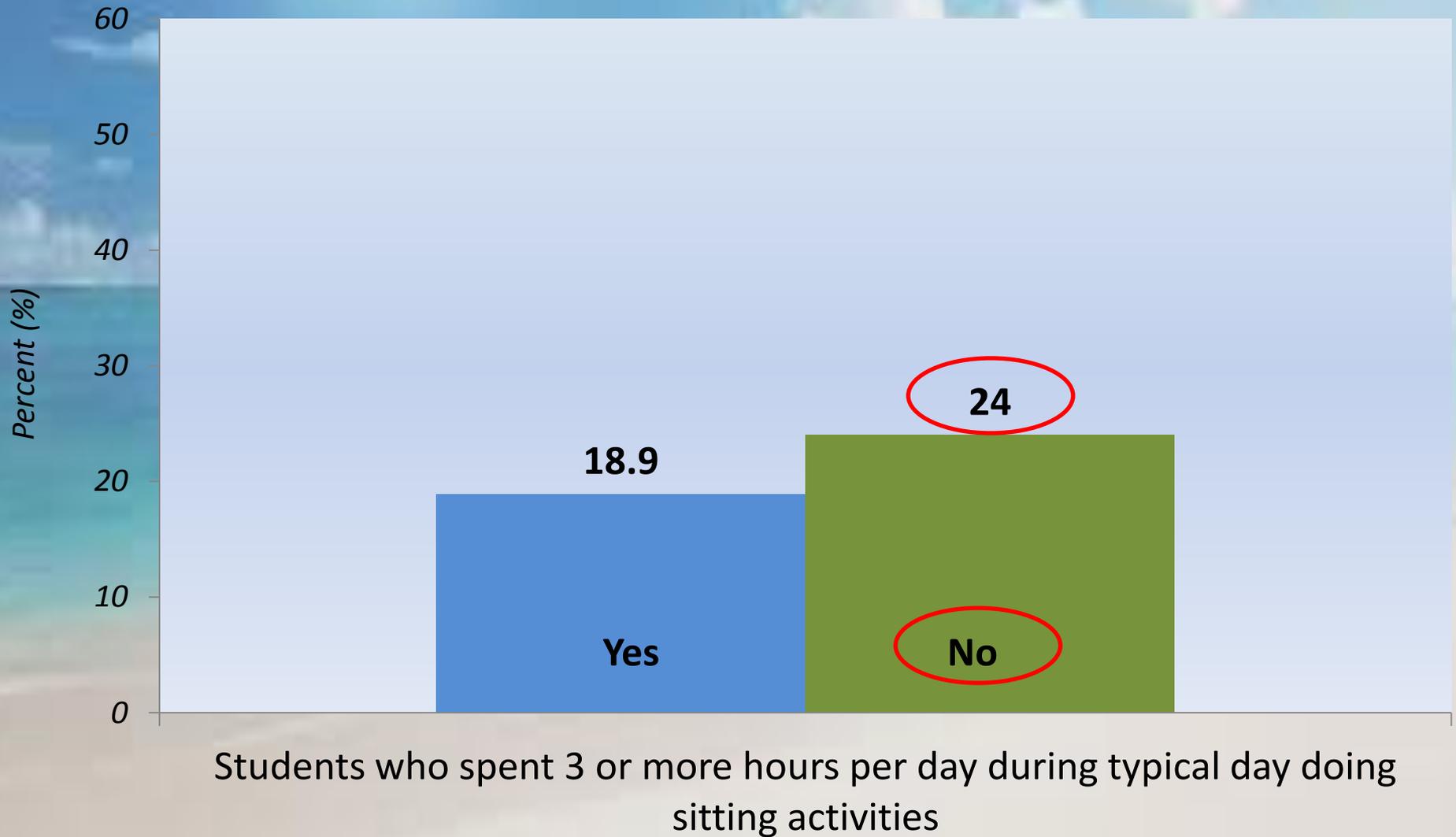


Students who usually ate salty foods 2 or more times per day during past 30 days

Percent (%) Differences in Obesity by PE Class Attendance (n=923)



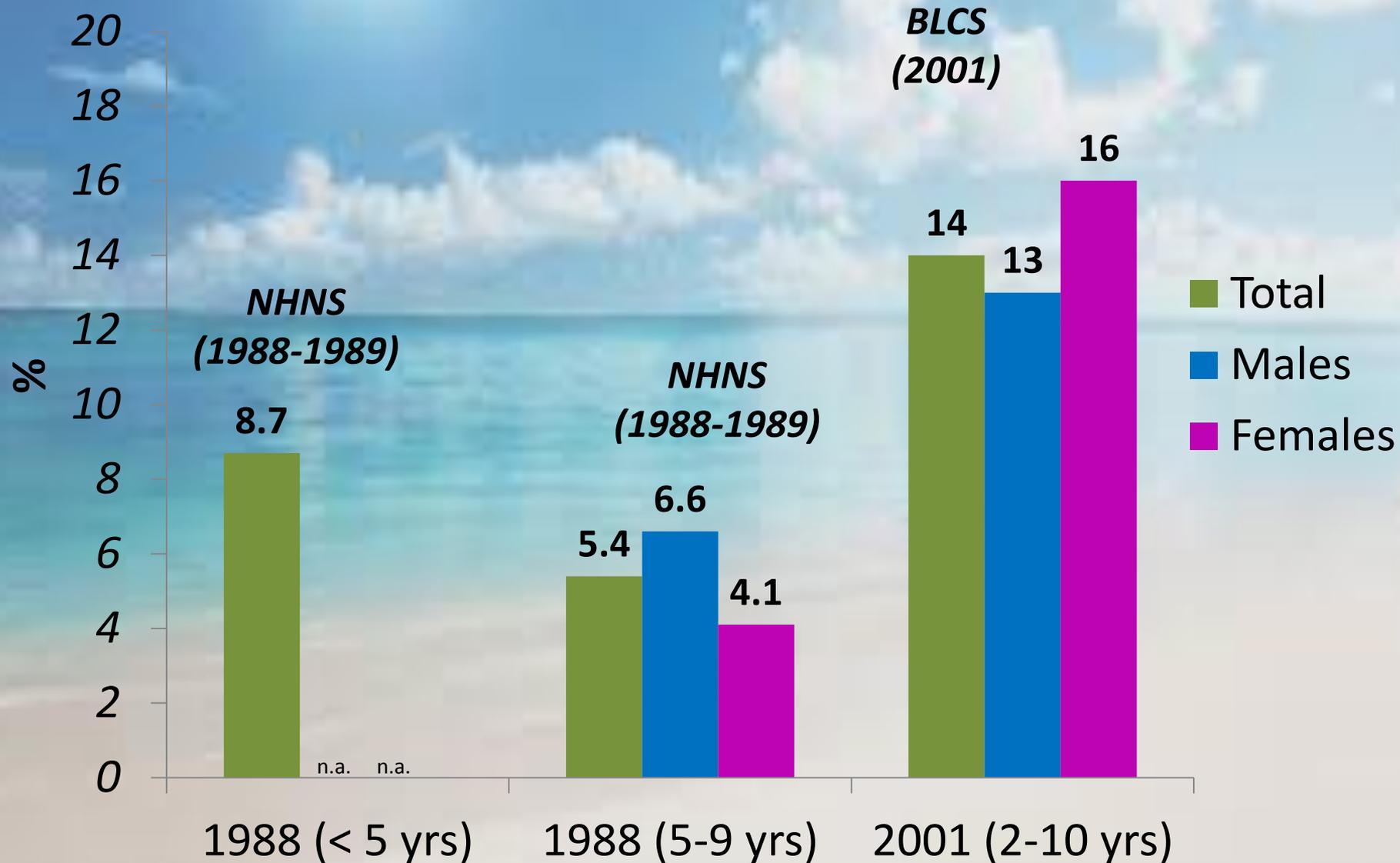
Percent (%) Differences in Obesity by Sitting Activities (n=914)



Global School Health Survey Bahamas 2013

- Exploring self-perception and dieting behaviours:
 - 45% of O/O students think they are slightly/very overweight
 - 46% of O/O students tried to lose weight in the past month.
 - 62% of obese students think they are slightly or very overweight.
 - 50% of obese students tried to lose weight in the past month.

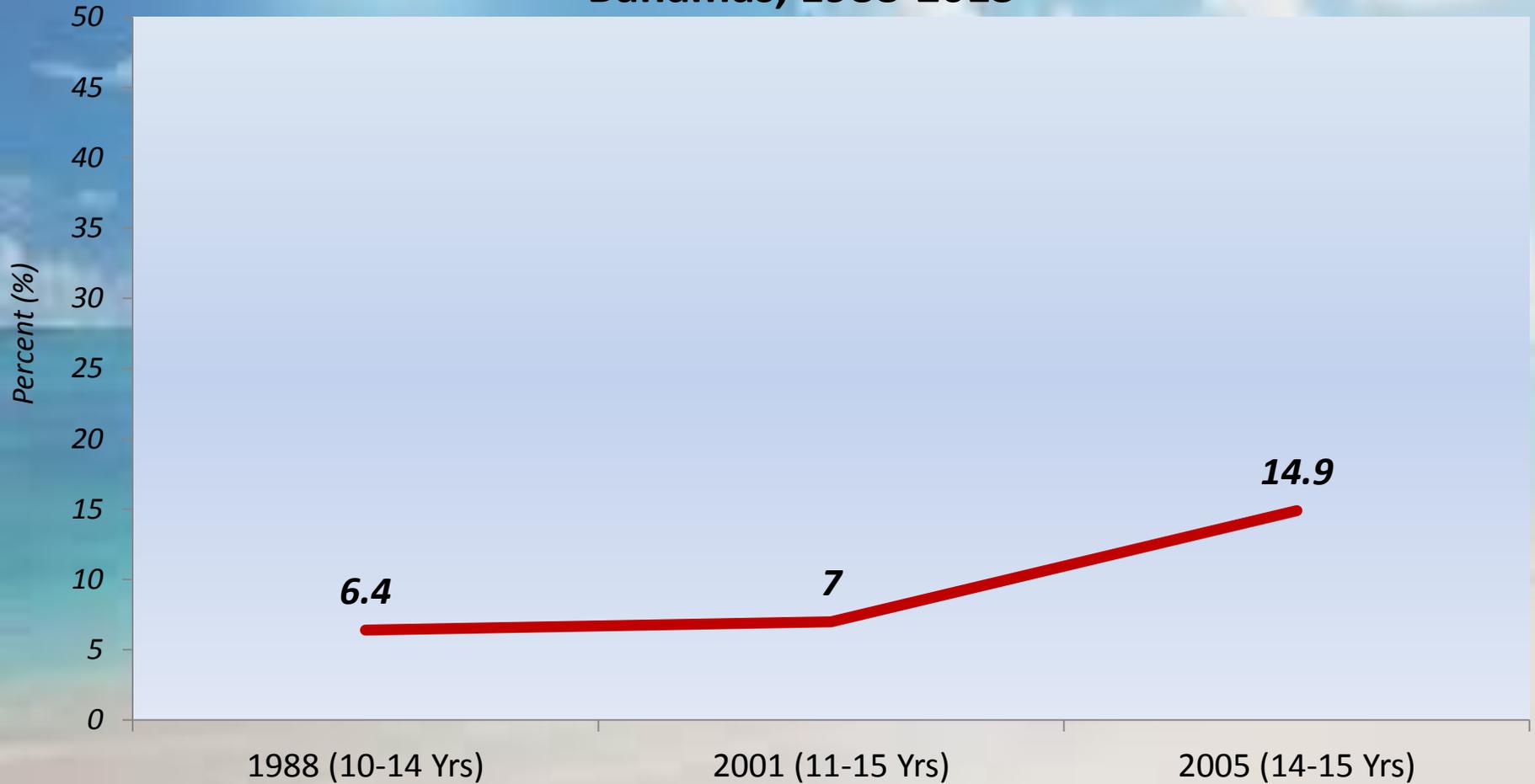
Recap: Children Under 10 Years Bahamas, 1988-2001



Recap: Percent Overweight/Obese Young Adolescents (10-15 Years) Bahamas, 1988-2013



Recap: Percent Overweight/Obese Young Adolescents (10-15 Years) Bahamas, 1988-2013



Recap: Percent Overweight/Obese Young Adolescents (10-15 Years) Bahamas, 1988-2013



Recap: Percent Overweight/Obese Young Adolescents (10-15 Years) Bahamas, 1988-2013



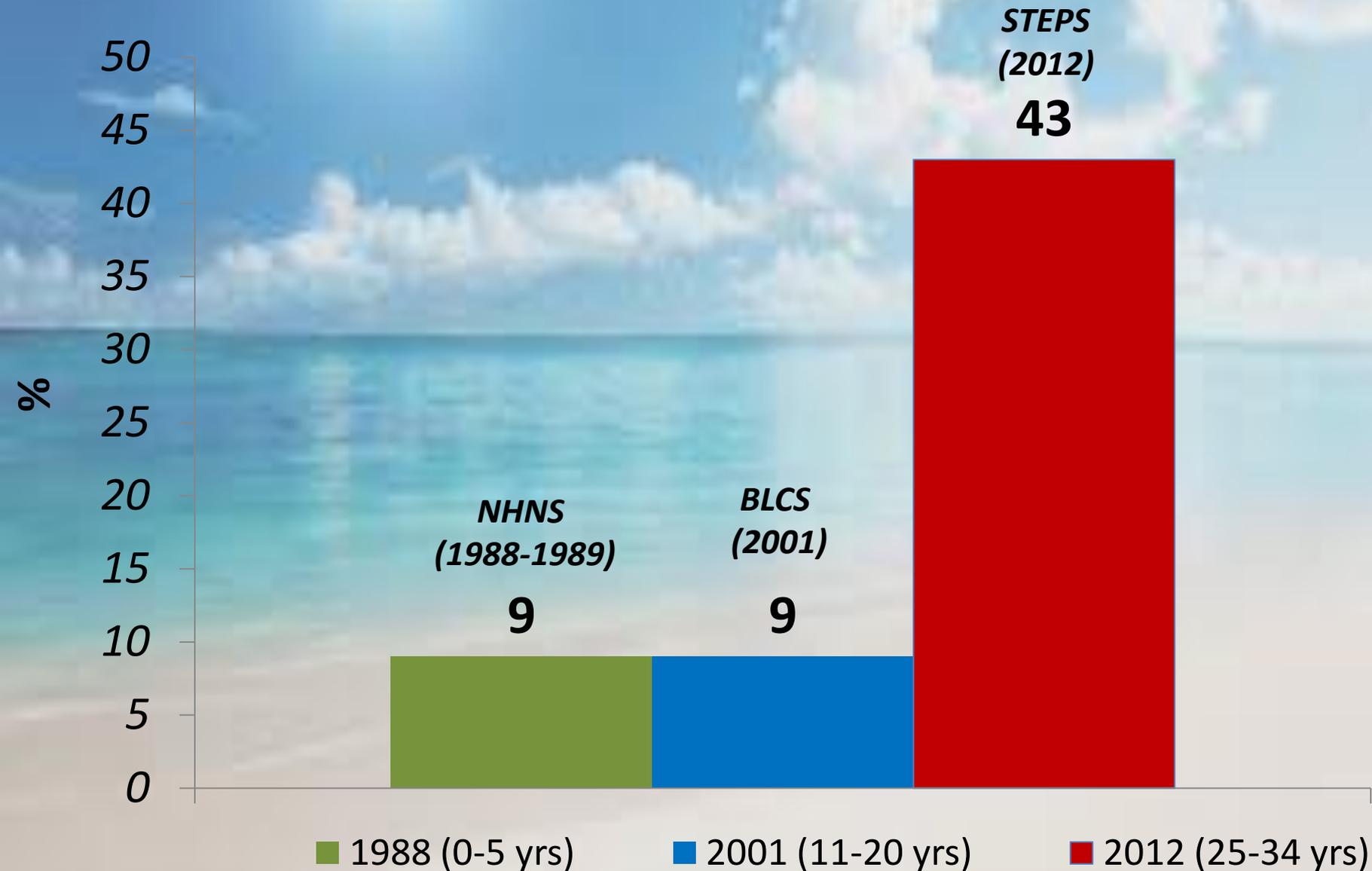
Recap: Percent Overweight/Obese Young Adolescents (10-15 Years) Bahamas, 1988-2013



Recap: Percent Overweight/Obese Older Adolescents (15-20 Years) Bahamas, 2001-2012



Fictional Cohort from Childhood to Young Adults, % Obese/Overweight 1988-2012





Overweight and Obesity: *Challenges*

Challenges

- Growing overweight/obesity epidemic
- Health sector competing against fast food corporations
- Ill health of the population
- Making the healthy choice the easy choice



***Interventions
&
Strategies***

Interventions & Strategies

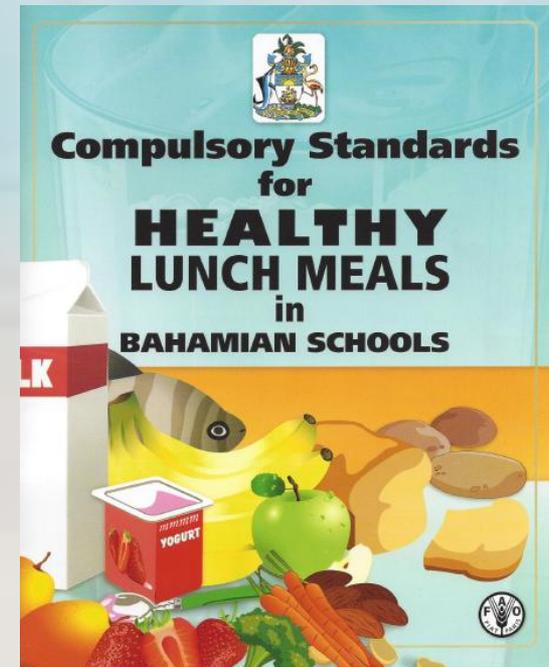
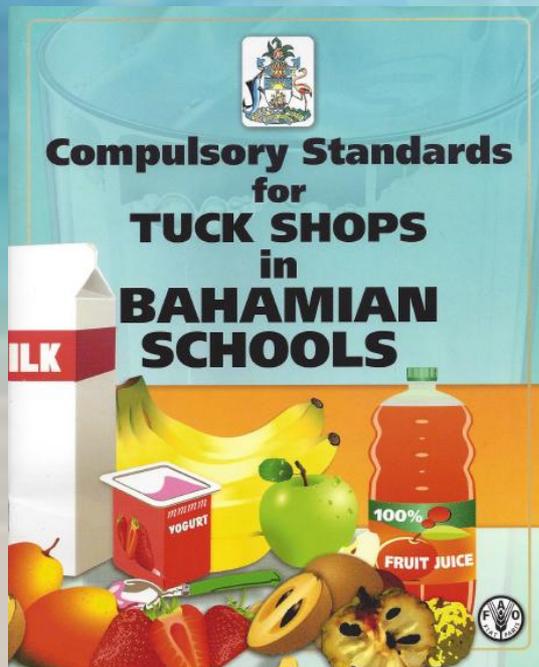
Initiatives used to Combat Childhood/Adolescent Obesity:

- Mandatory physical education (PE) classes in school curriculum (*MOE Policy*)
- Revision of compulsory standards for tuck shops and healthy lunch in schools (*MOE/MOH Collaboration*)

Interventions & Strategies

Initiatives, Cont'd:

- MOE Healthy Lifestyle Committee established
 - Focus: Consumption of food while at school
 - Two booklets produced with nutritional guidelines:



Interventions & Strategies

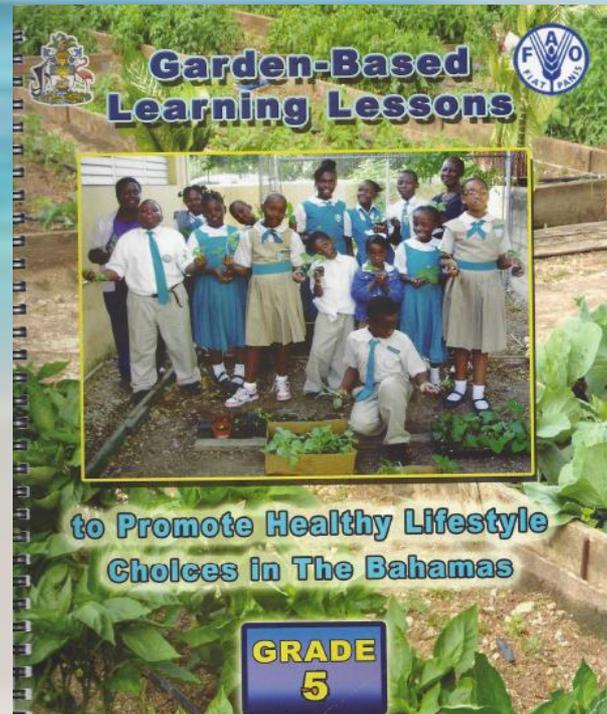
Initiatives, Cont'd:

- Garden-based learning project (*MOE*)
 - Garden labs created to integrate nutrition into all subjects
 - Aim to integrate nutrition into the primary school curriculum and into all subjects
 - Reference manual developed for primary school teachers

Interventions & Strategies

Initiatives, Cont'd:

- Reference manual developed for primary school teachers



Interventions & Strategies

Possible Future Initiatives:

- Regularly review the nutrition component of the Family Life Education curriculum to reflect changing diet and exercise recommendations
- Restrict areas for lunch/snack vendors in school zones.

Interventions & Strategies

Possible Future Initiatives, Cont'd:

- Enforce regulations and standards for school bus stops and routes – Healthy movement
- School “Walking School Bus”



Interventions & Strategies

Future Population Measures:

- Create more healthy and open spaces for eating, physical activity and recreation
- Healthy food choices at restaurants and other food outlets
- Differential pricing for healthy vs. unhealthy food
- Promotion of exclusive breastfeeding & accommodations for breastfeeding mothers in the workplace

Achievements/Successes

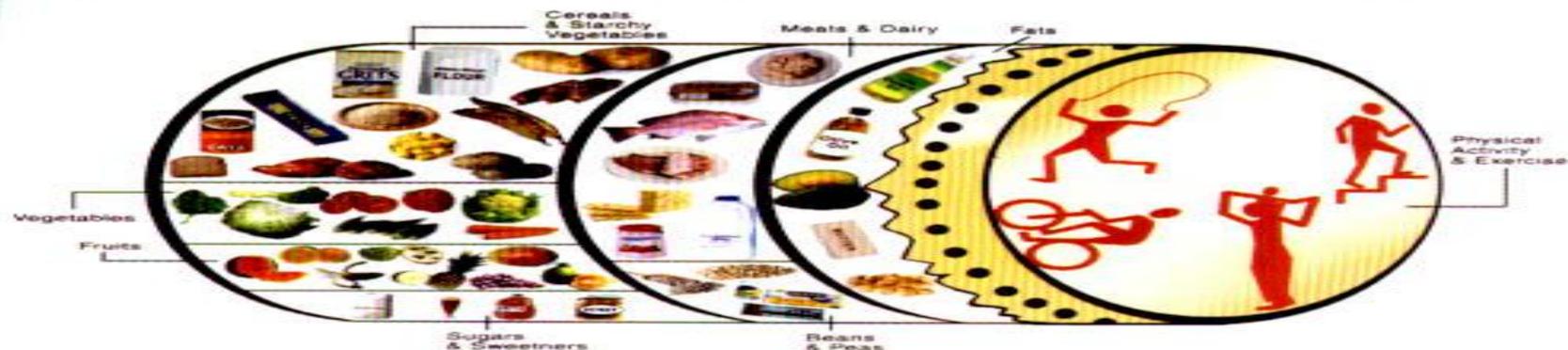
- Growing adoption of backyard farming (Min. of Agr)
- *“Get Well Bahamas”* campaign
- Increased awareness of healthy living and physical activity:
 - Greater visibility of community wellness/fitness groups
 - Frequent Fun Run/Walks
 - complemented by free health screenings

Achievements/Successes

- Increased number of sidewalks
 - support healthy lifestyle and pedestrian safety
- Development of National Dietary Guidelines & Food Guide Drum

Go For The GOLD Standard For Healthy Living

The New Dietary Guidelines For The Bahamas



1. Use our drum to help you choose a variety of foods daily.
2. Limit the amount of high fat and greasy foods you eat.
3. Make starchy vegetables, peas and beans a part of your diet.
4. Choose foods with less sugar and less salt.
5. Choose a variety of fruits and vegetables everyday.
6. Drink plenty of water everyday.
7. It is advisable not to drink alcohol, but if you drink, do so in moderation.
8. Make physical activity and exercise a part of your lifestyle.
9. Choose foods for their nutritional value not for the 'name brand' or cost.
10. Breast milk is the best choice for infants to start a healthy life.

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References

- "Child Obesity." *Obesity Prevention Source*. Harvard University, 20 Oct. 2012. Web. 20 Feb. 2015. <<http://www.hsph.harvard.edu/obesity-prevention-source/obesity-trends/global-obesity-trends-in-children/#Latin-America-and-the-Caribbean>>.
- *Caribbean Unity to Fight Chronic Diseases Epidemic : Obesity a Major Target*. Caribbean Community Secretariat (CARICOM), 28 Aug. 2007. Web. 20 Feb. 2015. <http://caricom.org/jsp/pressreleases/pres194_07.jsp>.
- "Childhood Overweight and Obesity." *WHO*. World Health Organization, 2015. Web. 11 Feb. 2015. <<http://www.who.int/dietphysicalactivity/childhood/en/>>.
- "Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013" Ng, Marie et al. *The Lancet* , Volume 384 , Issue 9945 , 766 – 781
- *National Health and Nutrition Survey 1988-1989*. Nassau, Bahamas: Ministry of Health, PAHO, CFNI, 1989.
- *Bahamas Living Conditions Survey 2001*. Nassau, Bahamas: Ministry of Finance, Dept. of Statistics, 2004. Print.

References

- *Bahamas Youth Health Survey 1997*. Nassau, Bahamas: Ministry of Health, 1998.
- K. Rivers, C. Hanna-Mahase, M. Frankson, et al. *Association Between Obesity and Impaired Glucose Intolerance Among High School Adolescents, New Providence, Bahamas 2012*. Nassau, Bahamas (Abstract).
- C. Conliffe, C. Hanna-Mahase, M. Frankson, et al. *Prevalence of Elevated Blood Pressure in Adolescents in Nassau, Bahamas. 2012 (Abstract)*.
- S. Taylor, S. Carroll et. al. *Obesity and Overweight as it Relates to Blood Pressure in 10th Grade Students Attending Public Schools in New Providence, Bahamas, 2008/2009 (Abstract)*.
- *Global School Based Student Health Survey*. PAHO. 2013
- Food and Nutrition Policy. Ministry of Health. 2012 (Unpublished).



Thank You

Questions ?