

OBESITY: HEALTH BEHAVIOR OF TONGAN-AMERICAN YOUTH IN UTAH WITH A FOCUS ON PHYSICAL ACTIVITY

by

O. Fahina Tavake-Pasi, MS
National Tongan American Society
Salt Lake City, UT

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OUTLINE

- INTRODUCTION
- PACIFIC ISLANDER BACKGROUND
 - PIs in Utah
 - Obesity Among Pis
- PHYSICAL ACTIVITY
- SPECIFIC AIM / OBJECTIVES
- DESIGN / METHODS
- DATA COLLECTION
- DATA ANALYSIS
- RESULTS
- IMPLICATION / SUMMARY
- LIMITATION
- CONCLUSION

UTAH'S HOME

TONGANS & PACIFIC ISLANDERS IN UTAH

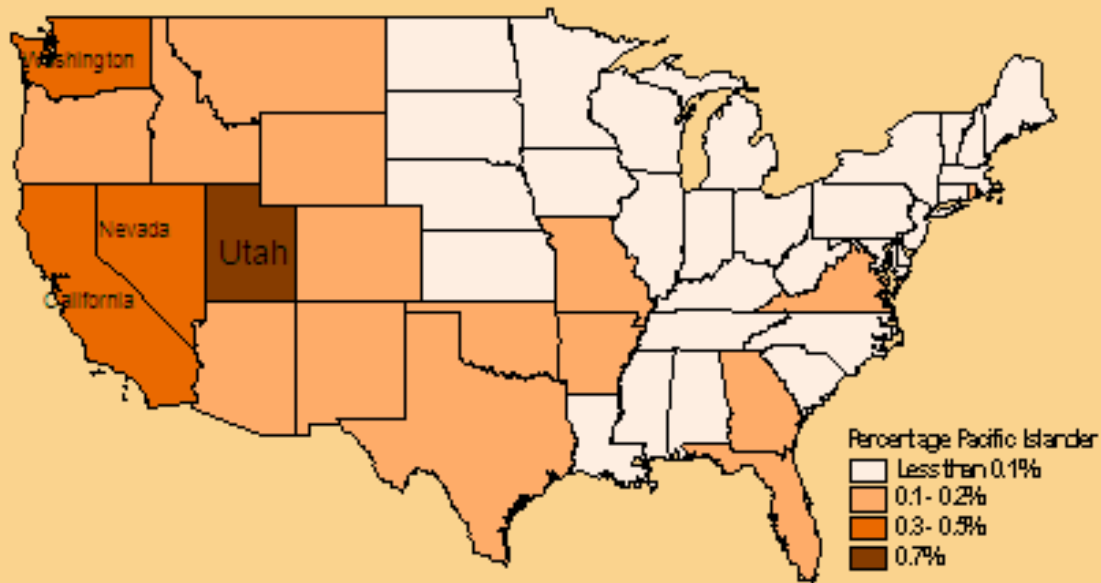


Pacific Islanders in Utah

- Over 25,000 Pacific Islanders live in Utah today
- Tongans are the largest Pacific Islander population in the state
- Samoans are increasing at same rates as Tongans
- Fair numbers of Hawaiians, Fijians, Maoris, Tahitians, and Cookies

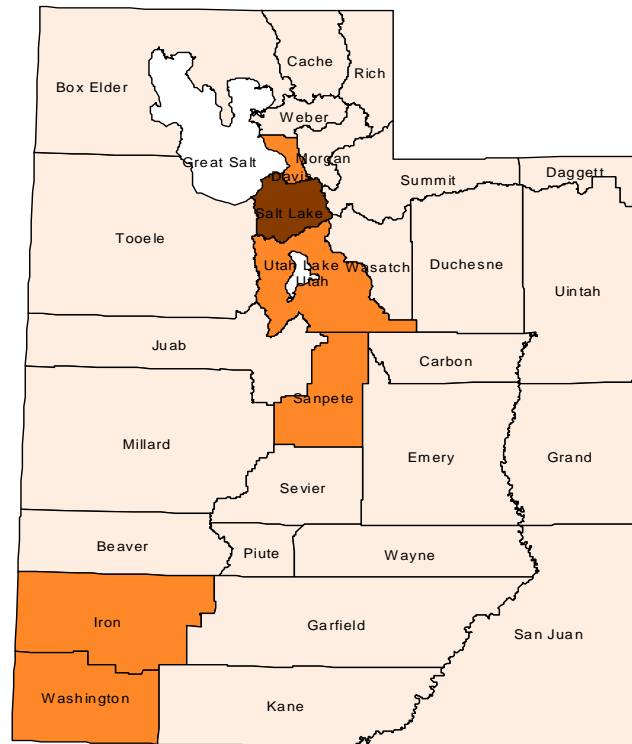
UTAH – HIGHEST PERCENTAGE ON MAINLAND

Percentage of Population That Is Pacific Islander in Mainland U.S.



Source: U.S. Census 2000

Percentage of Utah Population That Is Pacific Islander by County



Percentage Pacific Islander

- Less than 0.3%
- 0.3% - 0.6%
- 0.7% - 1.2%

Obesity

- * Utah Department of Health (DOH) estimates that PI (with majority being Tongan and Samoan) have highest rate of obesity in Utah... 79.9%
- * Two of the top three leading causes of death (strokes, diabetes) for PI in Utah can be linked to being overweight and obese
- * Obesity healthcare treatment costs = ~ \$8,500 per year \$2,700 more than for a person with a healthy weight!

OBESITY PREVALENCE

- Prevalence of obesity in Tongans appears to be increasing and occurring at a younger age in adolescents, especially females



Obesity

- Low SES
- Genetics
- Diet
- Physical Activity

Study Focus: Physical Activity

Tongan vs. Utahn

What is PHYSICAL ACTIVITY?

- Physical Activity
 - “...any bodily movement that results in energy expenditure”
 - Occupation
 - Transportation
 - Leisure-time
 - Activities of daily living (i.e., housework, etc.)
- Exercise
 - Physical activity using large muscle groups that is planned, structured, repetitive, and purposive.

Objectives of Study

- Recognize the unique health care needs of Pacific Islanders and look at root causes of obesity
 - *-physical activity: Tongan vs. Utah (youth and adults)*
 - *-dietary habits: Tongan vs. Utah (youth and adults)*

STUDY

To increase understanding of Tongan health behaviors related to obesity...



Design

- 1) Very little to no data specifically on this population – collection of data (probably one of the very first data collection of its' type)
- 2) Explorative in nature
- 3) GIVE INSIGHTS TO NEEDS, HABIT AND ENVIRONMENT OF TARGET POPULATION

Data Collection

- Churches
- Health Fairs
- Festivals
- Senior Centers
- Consent Forms/IRB Compliant



Data Analysis

- Statistical data was analyzed through SPSS for Tongan surveys
- Utah surveys were analyzed with SAS

SAS Programs for UTAH

```
■ libname cdlib 'c:\';  
■ options nofmterr;  
■ data www;  
■ set cdlib.y09cdc;  
  
■ age4=.;  
■ if 18<=age<=24 then age4=1;  
■ if 25<=age<=39 then age4=2;  
■ if 40<=age<=54 then age4=3;  
■ if 55<=age<=99 then age4=4;  
  
■ bmi3=.;  
■ if newbmi=1 then bmi3=1;  
■ if newbmi=2 then bmi3=2;  
■ if newbmi=3 then bmi3=3;  
■ exer=.;  
■ if _rfparec=1 then exer=1;  
■ if _rfparec in (2,3) then exer=0;
```

```
■ proc surveyfreq;  
■ weight _finalwt;  
■ strata _ststr;  
■ tables exer /row clm;  
■ run;  
■ proc surveyfreq;  
■ weight _finalwt;  
■ strata _ststr;  
■ tables sex*exer/row cl;  
■ run;
```

% of adults
who
exercise

```
• libname cdlib 'c:\';  
• data www;  
• set cdlib.uth2009_yrbs_data;  
  
•  
•  
• proc contents data=www;run;  
• proc freq;  
• tables qn72;run;  
• proc surveyfreq;  
• weight weight;  
• strata stratum;  
• tables qn72;run;
```

% of youth
who
exercise

SPSS Program for Tongan Survey

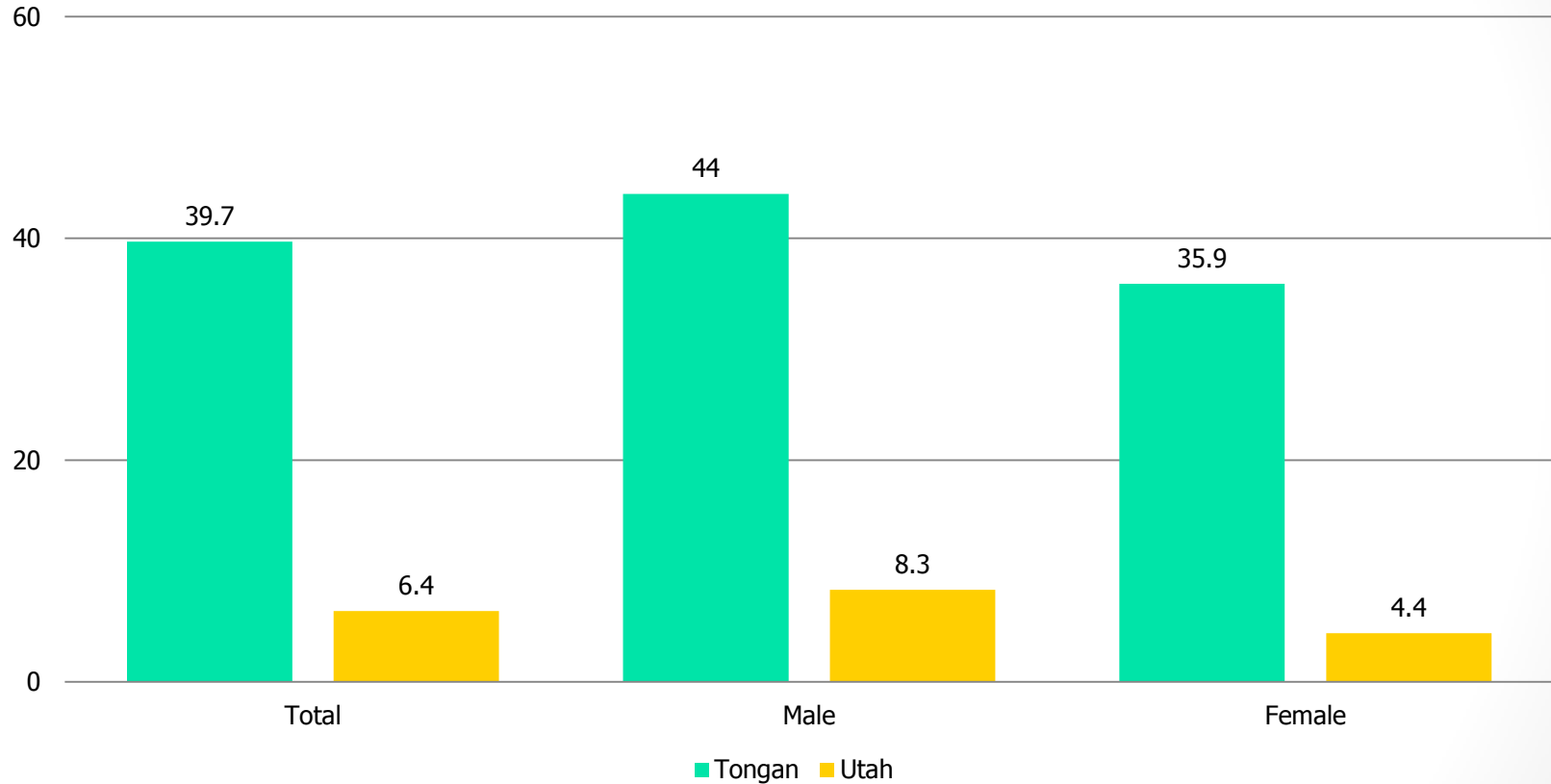
```
• RECODE
•   q32age
•   (18 thru 24=1) (25 thru 49=2) (50 thru 74=3) (75 thru 124=4) INTO age4
•   .
• EXECUTE .

• RECODE
•   q7a q7b q7c q7d q7oth (CONVERT)
•   ('1'=1) ('2'=2) ('3'=3) ('4'=4) ('5'=5) INTO q7an q7bn q7cn q7dn
•   q7othn .
• EXECUTE .
• IF (q7an = 1 | q7bn = 1 | q7cn = 1 | q7dn =1 | q7othn = 1) rank = 1 .
• EXECUTE .
• IF (q7an =2 | q7bn = 2 | q7cn =2 | q7dn =2) rank = 2 .
• EXECUTE .
```

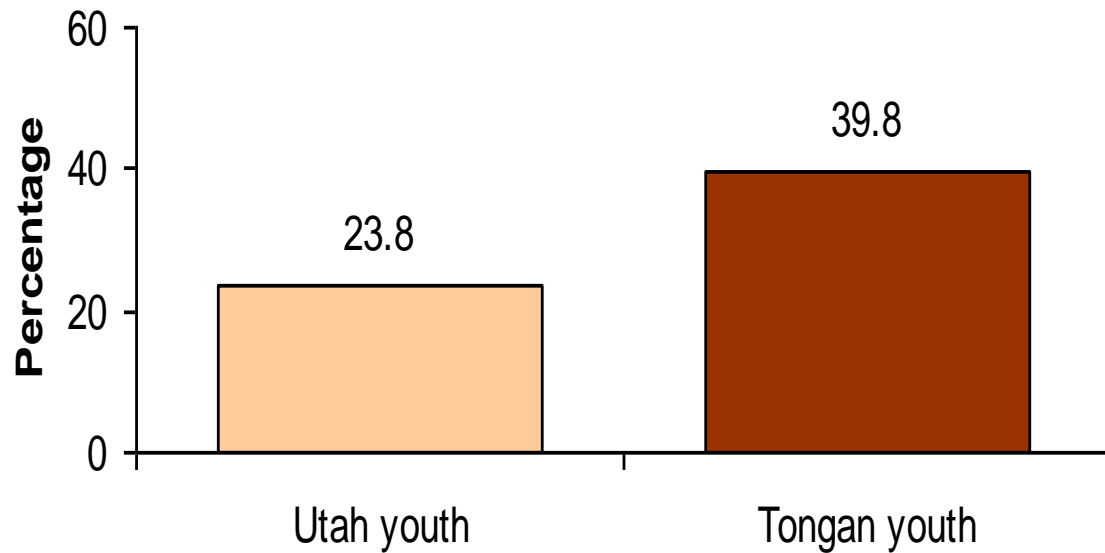
```
■ q13
■ (2=0) (MISSING=SYSMIS) (ELSE=1) INTO exerwtlo .
■ VARIABLE LABELS exerwtlo 'exer for weight loss?'.
■ EXECUTE .
■ RECODE
■   q15
■   (1=1) (2=2) (3=3) (4=4) (MISSING=SYSMIS) INTO exerweek .
■ VARIABLE LABELS exerweek 'how often exercise in a week?'.
■ EXECUTE .
■ RECODE
■   q26
■   (ELSE=Copy) INTO exer7day .
■ VARIABLE LABELS exer7day 'how many days pa in last 7 days?'.
■ EXECUTE .
■ RECODE
■   q27
■   (ELSE=Copy) INTO exintent .
■ EXECUTE .
■ RECODE
■   q28 q29
■   (ELSE=Copy) INTO exer7_20 exer30da .
■ EXECUTE .
■ RECODE
■   q38 q39
■   (ELSE=Copy) INTO tv video .
■ EXECUTE .
■ RECODE
■   exer30da
■   (1 thru 3=0) (4 thru 8=1) INTO ex30_2 .
■ EXECUTE .
■ RECODE
■   q28
■   (1 thru 3=0) (4 thru 8=1) INTO q28_20sw .
■ EXECUTE .
■ RECODE
■   q28 q29
■   (1 thru 3=0) (4 thru 8=1) INTO q28_20sw q29_30da .
■ EXECUTE .
■ RECODE
■   tv video
■   (1 thru 3=0) (4 thru 7=1) INTO tv1hour video1hr
```


Results...

Percentage of Youth Who Are Obese Tongan vs. Utah Youth



Percentage of Youth Who Describe Themselves as Slightly or Very Overweight: Utah vs. Tongan Youth

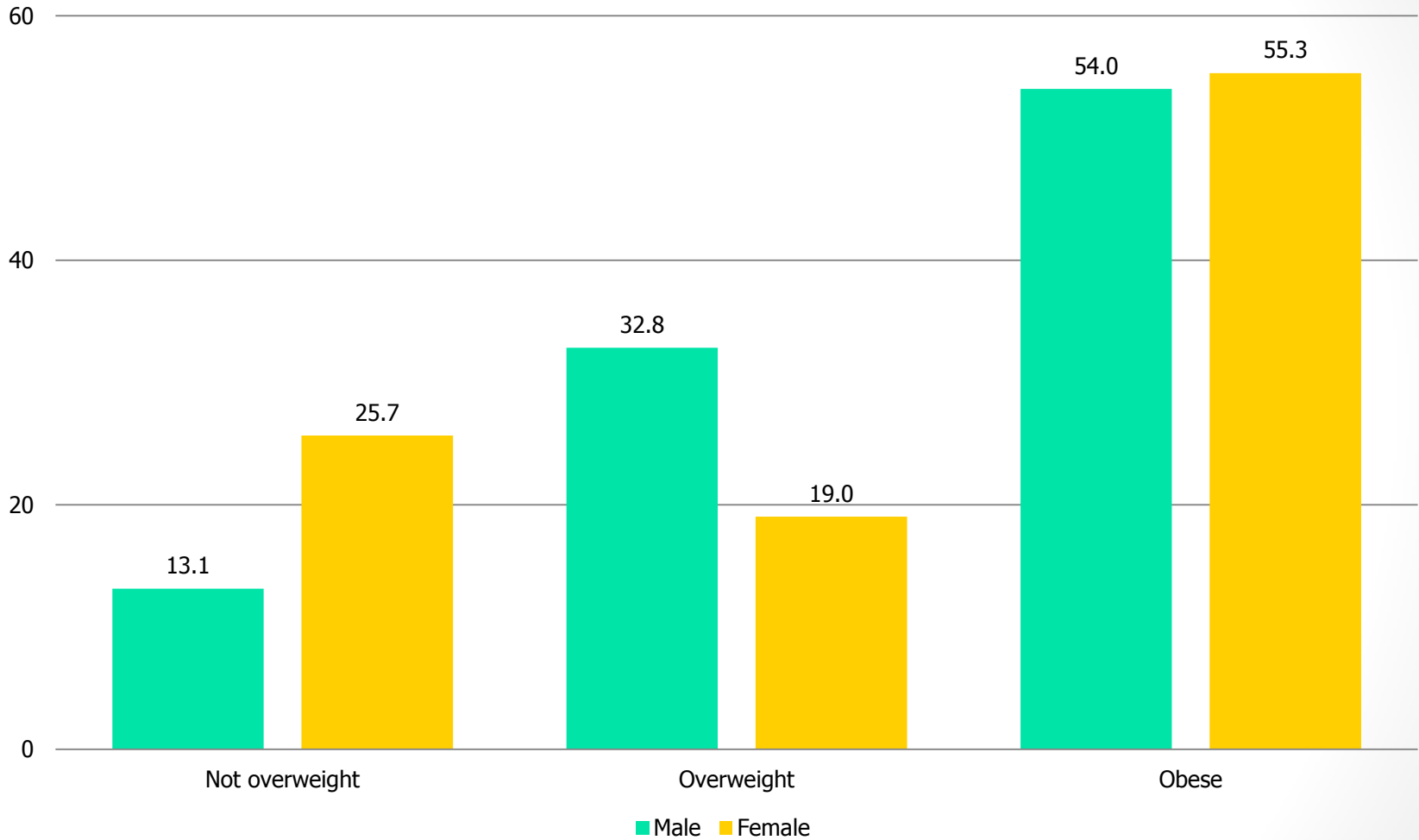


$p < .05$

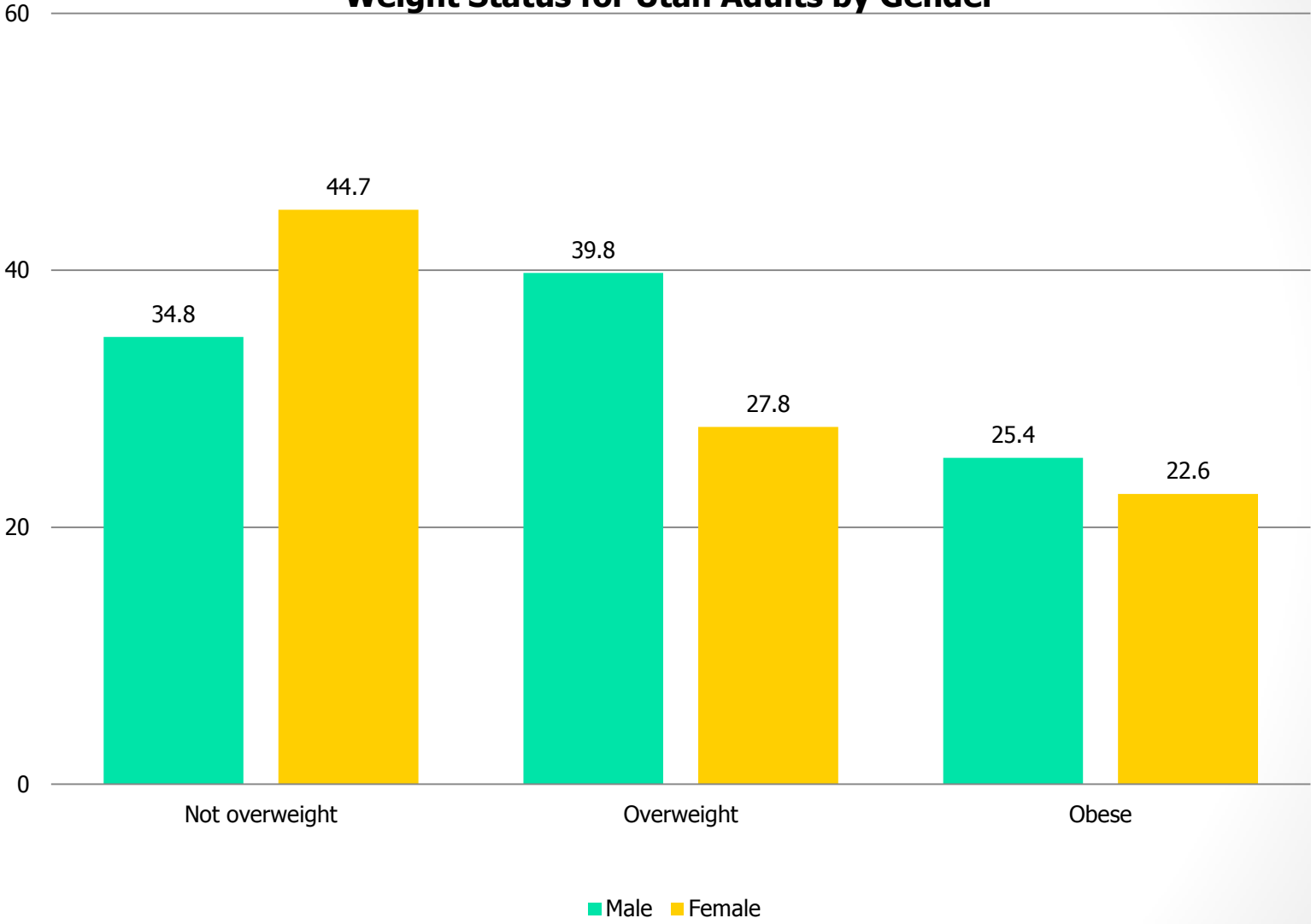
Accuracy of Weight Perception

- 67% were overweight or obese
- Among those, only 43.6% described themselves as slightly or very overweight
- 24% of Utah youth described themselves as overweight
- Among those, only 8% were overweight

Weight Status for Tongan Adults by Gender

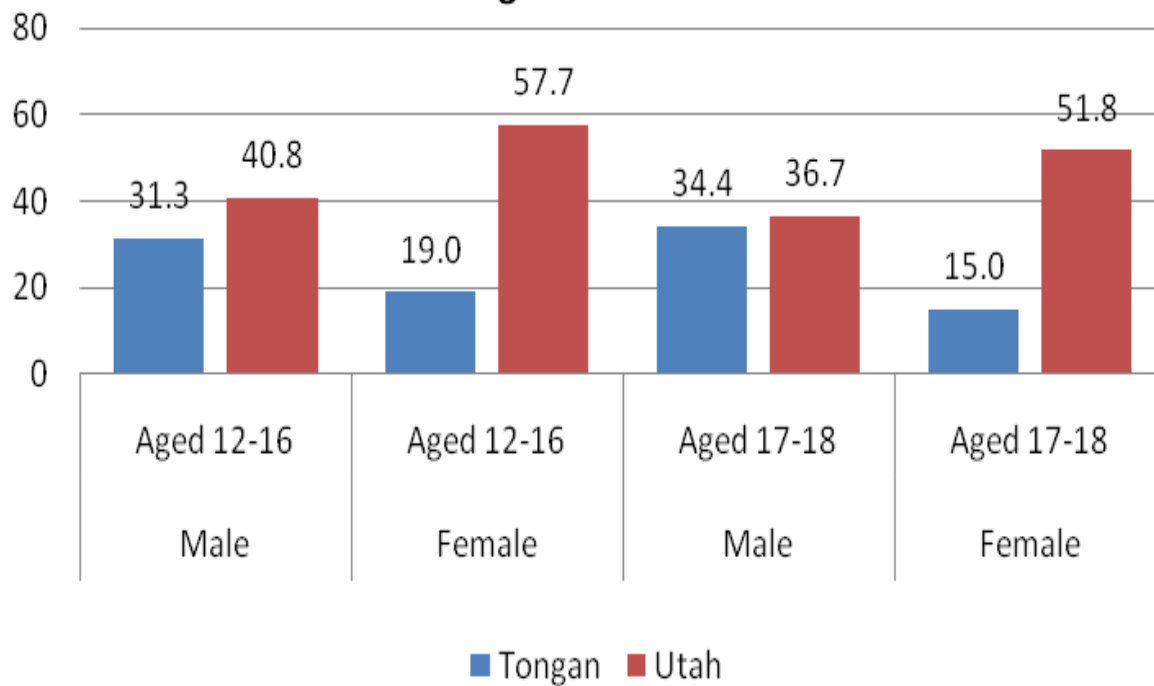


Weight Status for Utah Adults by Gender



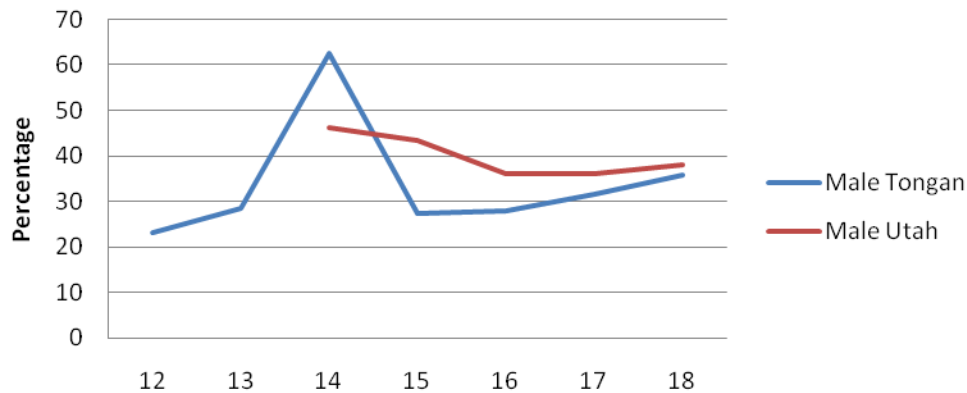


**Percentage of Youth Engaging in 5+ Days of Exercise 60+ Minutes a Week by Age Group and Gender
Tongan vs. Utah Youth**

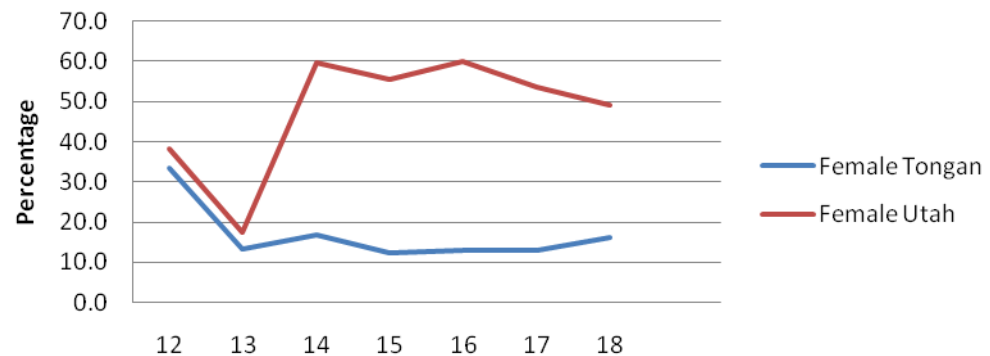


Boys and Girls

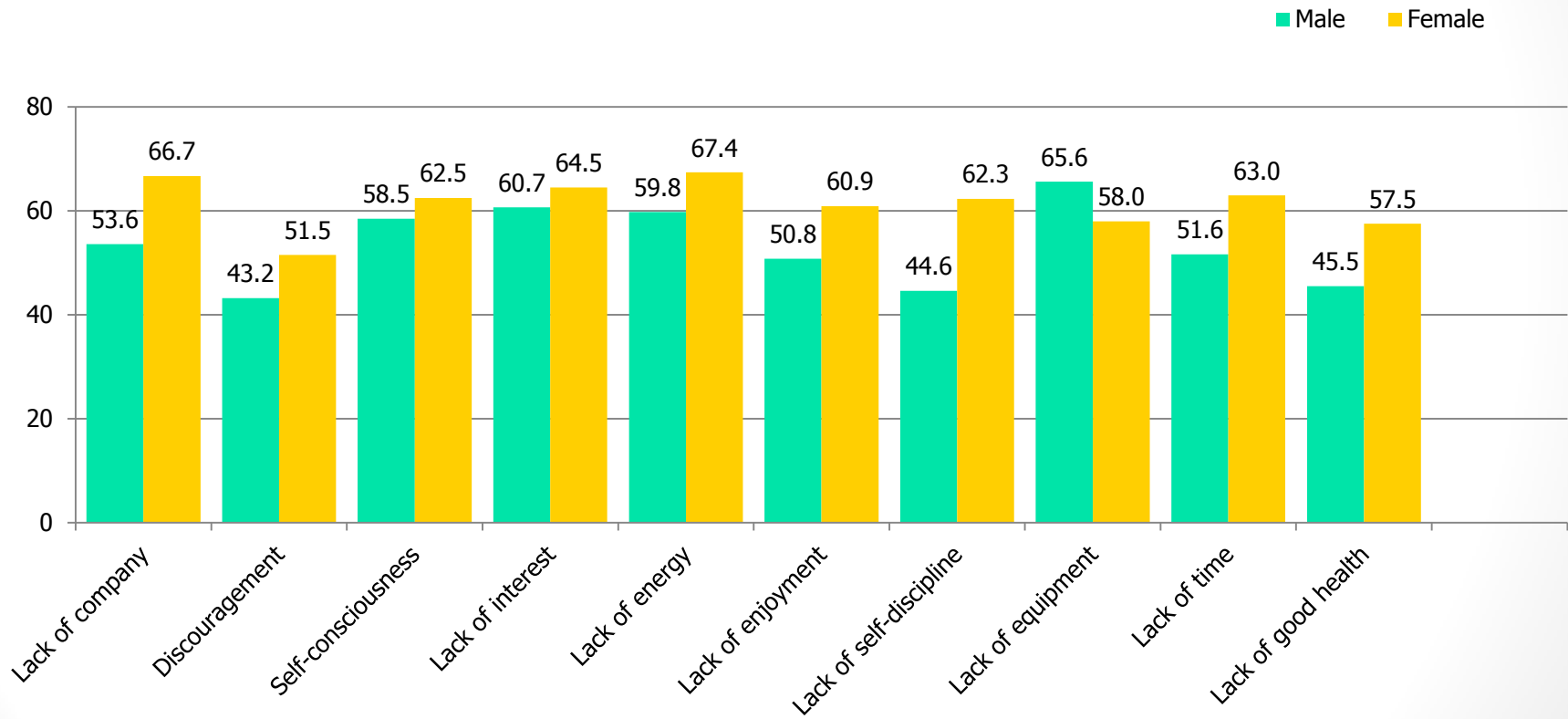
Percentage of Males Engaging in 5+ Days of Physical Activity a Week by Age Tongan vs. Utah Youth



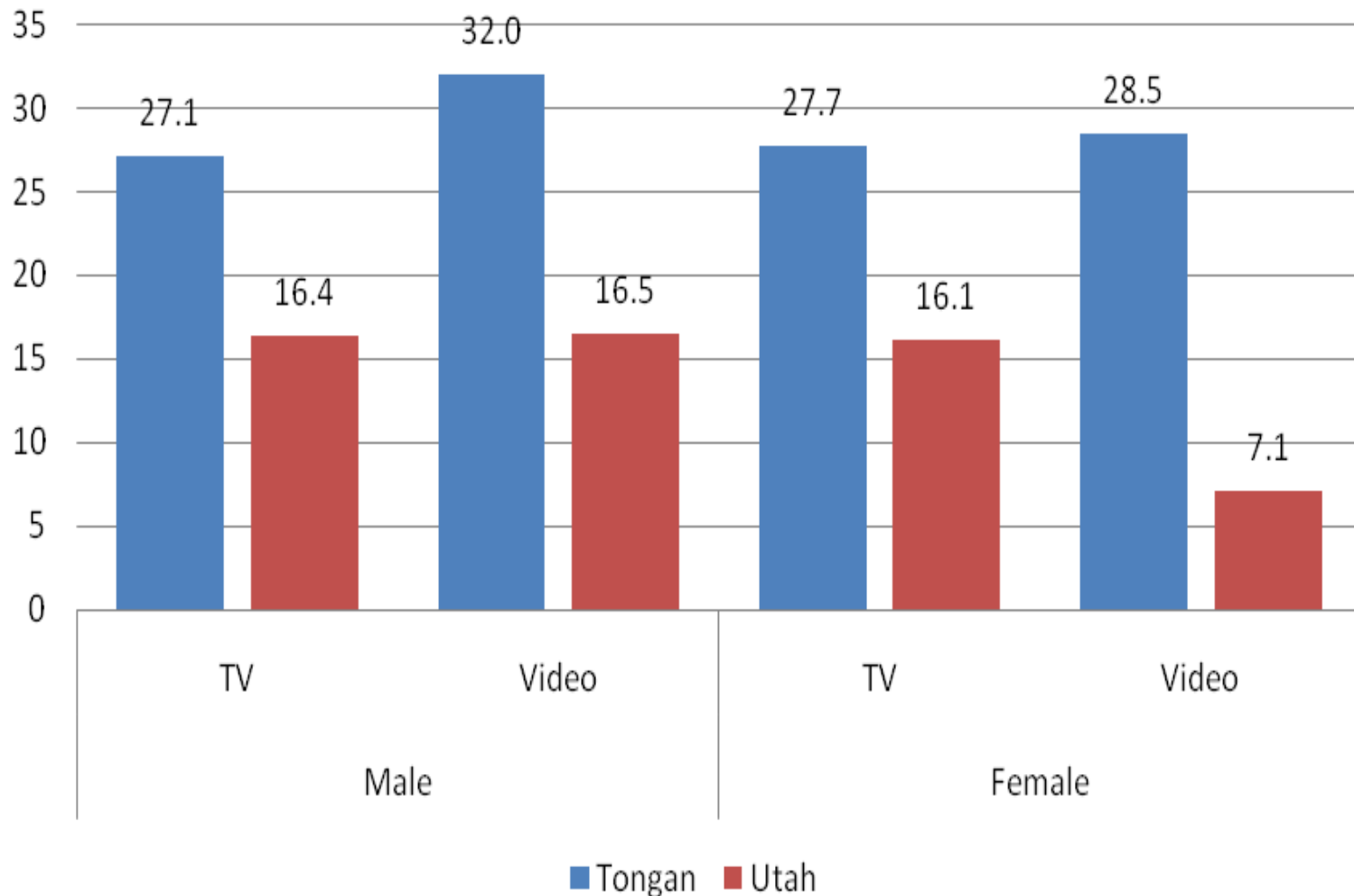
Percentage of Females Engaging in 5+ Days of Physical Activity a Week by Age Tongan vs. Utah Youth



Percentages of Barriers to Engaging in Physical Activity Reported by Pacific Islander Adolescents by Gender

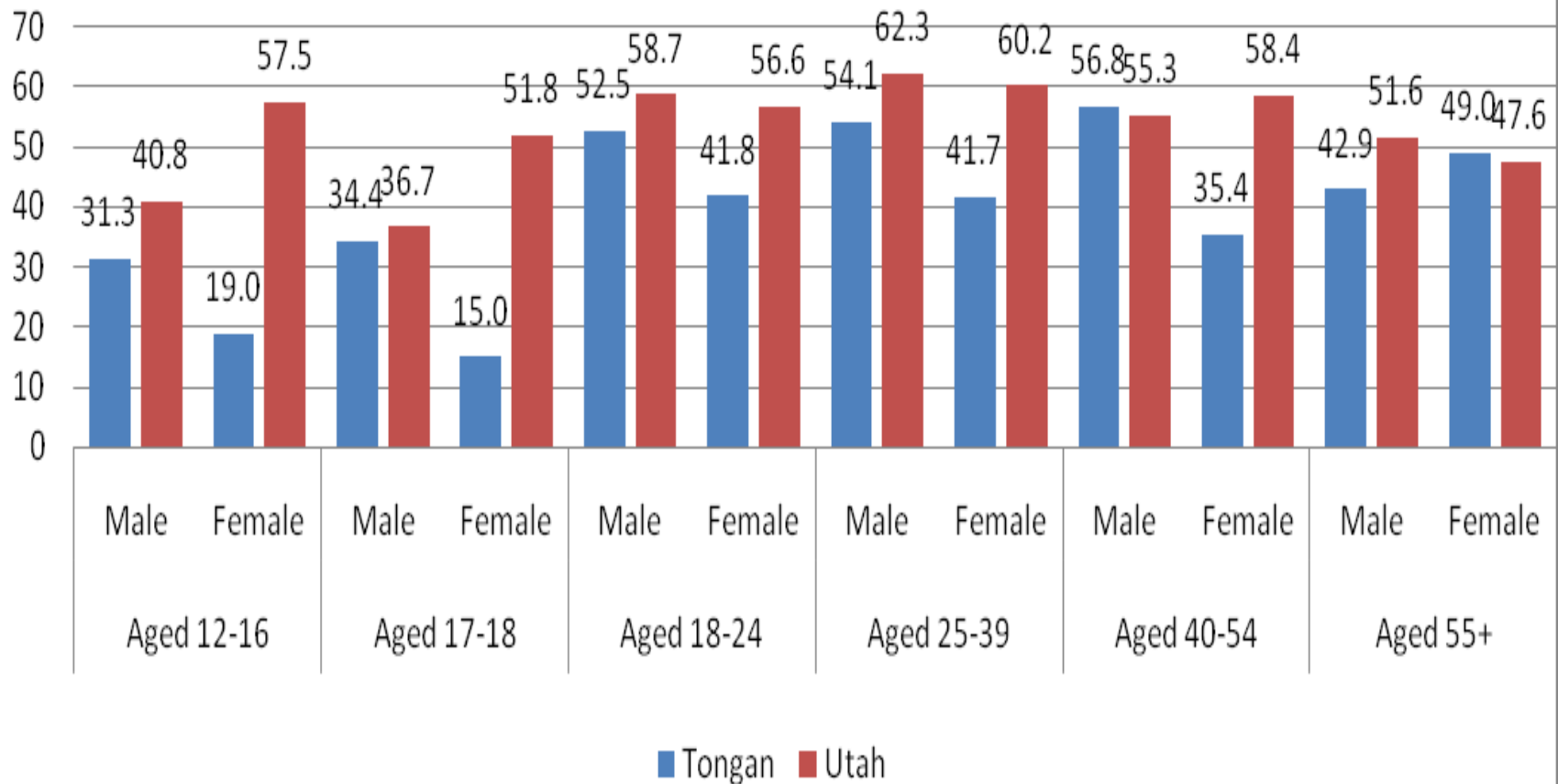


Percentage of Youth Who Engage in 3+ Hours of Screen Time a Day Tongan vs. Utah Youth



Percentages of Youth and Adults Who Engage in Regular Physical Activity

Tongan Youth vs. Utah Youth
Tongan Adults vs. Utah Adults



Summary

- Both adult and young Tongans have higher rates of obesity than Utah counterparts.
- Both also have lower rates of physical activity.

How does this compare with other studies?

Behren's Study

Variable	Total (N = 38)	Male (n = 13)	Female (n = 25)
Inactive (min/d)	868.4 ± 145.2	782.5 ± 86.5	912.9 ± 150.8**
Light PA (min/d)	113.2 ± 59.8	141.0 ± 63.4*	98.8 ± 53.4
Moderate PA (min/d)	20.3 ± 19.1	33.5 ± 22.3*	13.4 ± 12.9
Vigorous PA (min/d)	0.3 ± 1.5	0.1 ± 0.2	0.5 ± 1.9
Meeting PA Recommendation	8 (21.1)	6 (46.2)	2 (8.0)

*p < 0.05; males > females

**p < 0.05; females > males

*** χ^2 < 0.01; males > females

Also....

- Results aligned with focus group findings.
- Confirmed by key informant interviews

Now What??

Physical Inactivity as a Public Health Issue

- PIA and poor diet accounted for 365,000 deaths in the year 2000, second only to smoking as the leading cause of actual death in the U.S.²
- The direct medical costs of PIA are approximately \$76.6 billion³

² Mokdad, et al., 2004 (correction); ³Pratt, Macera, & Wang, 2000

SOME SOLUTION IMPLEMENTATION: Strengthening Families Health Program



Strengthening Families Health Program

- Worked with churches to implement 7-wk program
- Included the whole family
- Did not have the typical exercise, but rather family games, some brought in by the families themselves (sock throwing, red-light green-light, tickle/protect family member, balloon popping, etc.)

BodyWorks

- Parent and children physical activity.
- Parents as strong role models.
- Community Faces considering broad-spread use of this program.



Men's & Women's Rugby Tournaments

- 8 Women's team*
- 7 Men's team

*New in 2010

- Over 160 women participated AND their children
- 3-4 days/at least 2 hrs exercise



Limitations

- Different definitions of physical activity among youth and adults
- Tongan survey are not generalizable

Conclusion

- Tongans have low rates of physical activity
- Lower rates of physical activity contribute to obesity risk
- This problem is clearly evident in our Tongan youth

THANK YOU!! 😊