



Beyond Reading Recognition: Understanding Pediatric Oral Health Literacy

Julia Richman, DDS

UW Maternal and Child Health Program

June 10, 2009



Background



- How many of these 13 people lack basic reading skills?
- How many read at a basic level only?

Background



- 12-22% (around 1-3 people) lack basic reading skills

National Assessment of Adult Literacy. 2006.

Background



- Almost 50% (6-7 people) can only read at a basic level or below

National Assessment of Adult Literacy. 2006.

Who are these people?



Our patients, clients, and parents!

Health Literacy Implications

- Low health literacy in adults associated with
 - Lack of knowledge about healthy behaviors
 - Low use of preventive services
 - Increased hospitalization
 - Unhealthy behaviors
 - Poorer health



DeWalt, DA et al. Literacy and Health Outcomes. A Systematic Review of the Literature. J Gen Intern Med 2004;19(12):1228-1239.

Oral Health Literacy

“The degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate oral health decisions”



American Dental Association 2006

Oral Health Literacy Literature

- Few published studies exist
 - Instrument development
 - Reading level of brochures
 - Calls for research
- No large scale studies
- No pediatric-specific studies
- Significant gaps in scientific knowledge



Study Questions

- How does reading recognition relate to parent's understanding of terms and practice?
- Is reading recognition an adequate indicator of a parent's oral health literacy?

Study Questions

- Is comprehension of oral health information related to outcomes such as child oral health status?
- How is basic health literacy related to oral health literacy?

Oral Health Literacy Instrument

A three part oral health literacy inventory was developed

- I. Reading recognition
- II. Vocabulary knowledge
- III. Comprehension

OH-LIP

OH - LIP Example

- I. **Reading Recognition (Process):** “Please read the word to me”: **General Anesthesia**
- II. **Vocabulary knowledge (Understand):** “What does ‘**General Anesthesia**’ mean to you?”
- III. **Comprehension (Obtain or Act Upon):**
 - “**General Anesthesia** may be recommended for children who need dental treatment.”
 - “Why might general anesthesia be recommended?”

Hypotheses

1. Reading recognition of pediatric oral health terms is weakly correlated with parents' vocabulary knowledge and comprehension of these terms and overestimates oral health literacy.
2. Parental comprehension of oral health terms is associated with oral health status of the child.

Hypotheses

3. There is little association between general health literacy and the specific subset of pediatric oral health knowledge.

Study Design

- Cross-sectional study
- Subjects
 - 45 parent - child dyads
 - Children under the age of 60 months
 - Attending Head Start or Early Head Start in western Washington
 - Parents verbally fluent in English

Survey Instruments

- Newest Vital Sign (16 subjects)
- Short Test of Functional Health Literacy in Adults (26 subjects)
- OH-LIP I, II, III
- Child Oral Health Survey
- Demographic Survey

1. Baker DW, et al. Development of a brief test to measure functional health literacy. Patient Educ Couns. 1999 Sep ;38(1):33-42.

2. Weiss BD, et al. Quick assessment of literacy in primary care: the newest vital sign. Ann Fam Med. 2005 ;3(6):514-22.

Interviews

- Interviews conducted face-to-face in private areas of Head Start schools
- Interviews lasted about 35 minutes
- Interview order:
 - Health Literacy Test
 - NVS or S-TOFHLA
 - OH-LIP
 - Child Oral Health Survey
 - Demographic Survey

Data Analysis

- Assess reliability of OH-LIP instrument using Cronbach's alpha
- Evaluate correlations between OH-LIP I, II, III and S-TOFHLA scores using Spearman Rank
- Characterize association between OH-LIP scores and parent-reported child oral health status

OH-LIP Scoring Criteria

- OH-LIP interviews were transcribed and scored
 - Initial 16 interviews scored by the team of investigators to establish scoring criteria
 - The remaining interviews were scored by the principal investigator and reviewed a second time to correct any scoring errors
- Item scores:
 - Correct=1, partially correct=0.5, incorrect=0

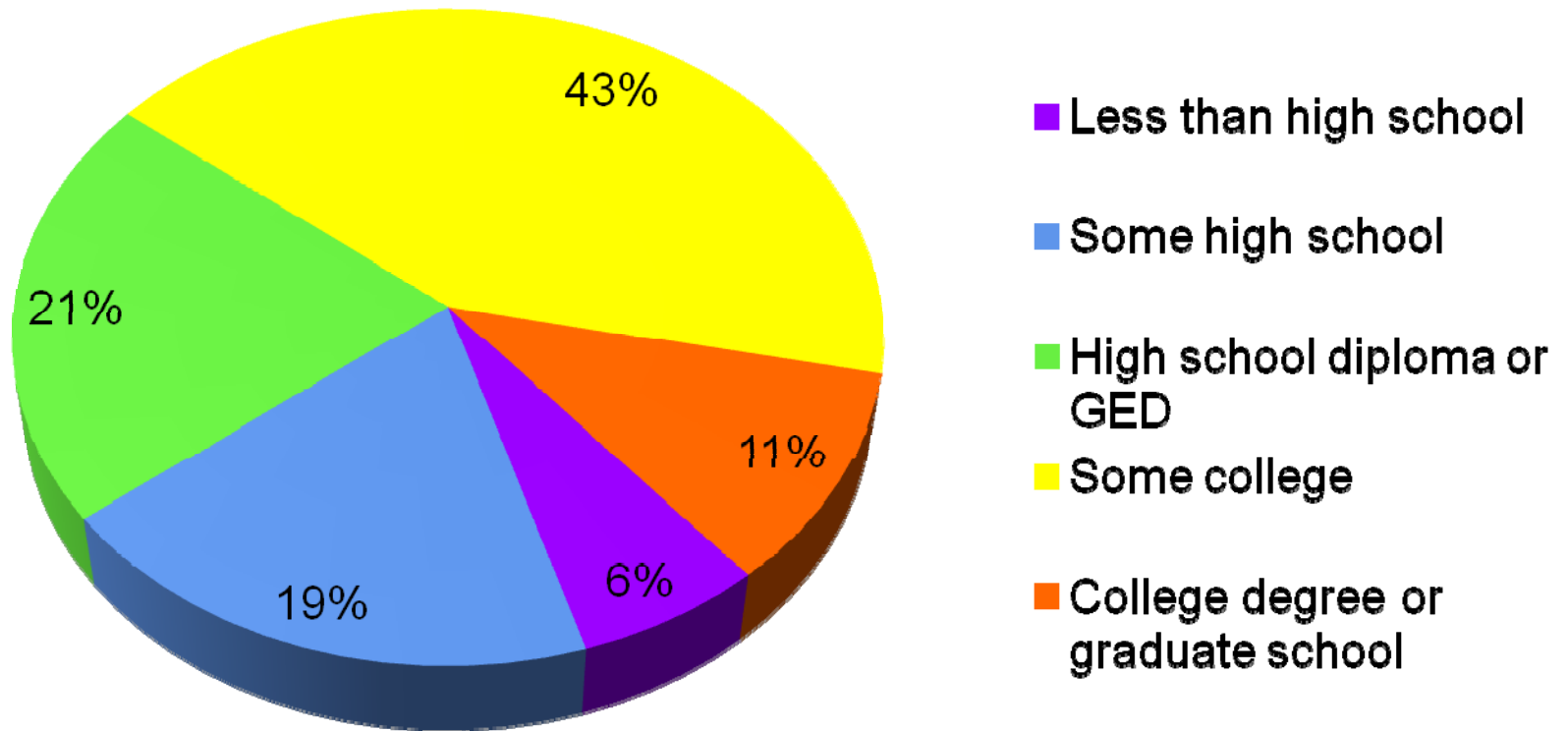
Scoring Criteria

- OH-LIP I (reading recognition)
 - Scored correct / incorrect based on pronunciation
- OH-LIP II (vocabulary knowledge)
 - Scored correct / partially correct / incorrect
- OH-LIP III (comprehension)
 - Scored correct / partially correct / incorrect

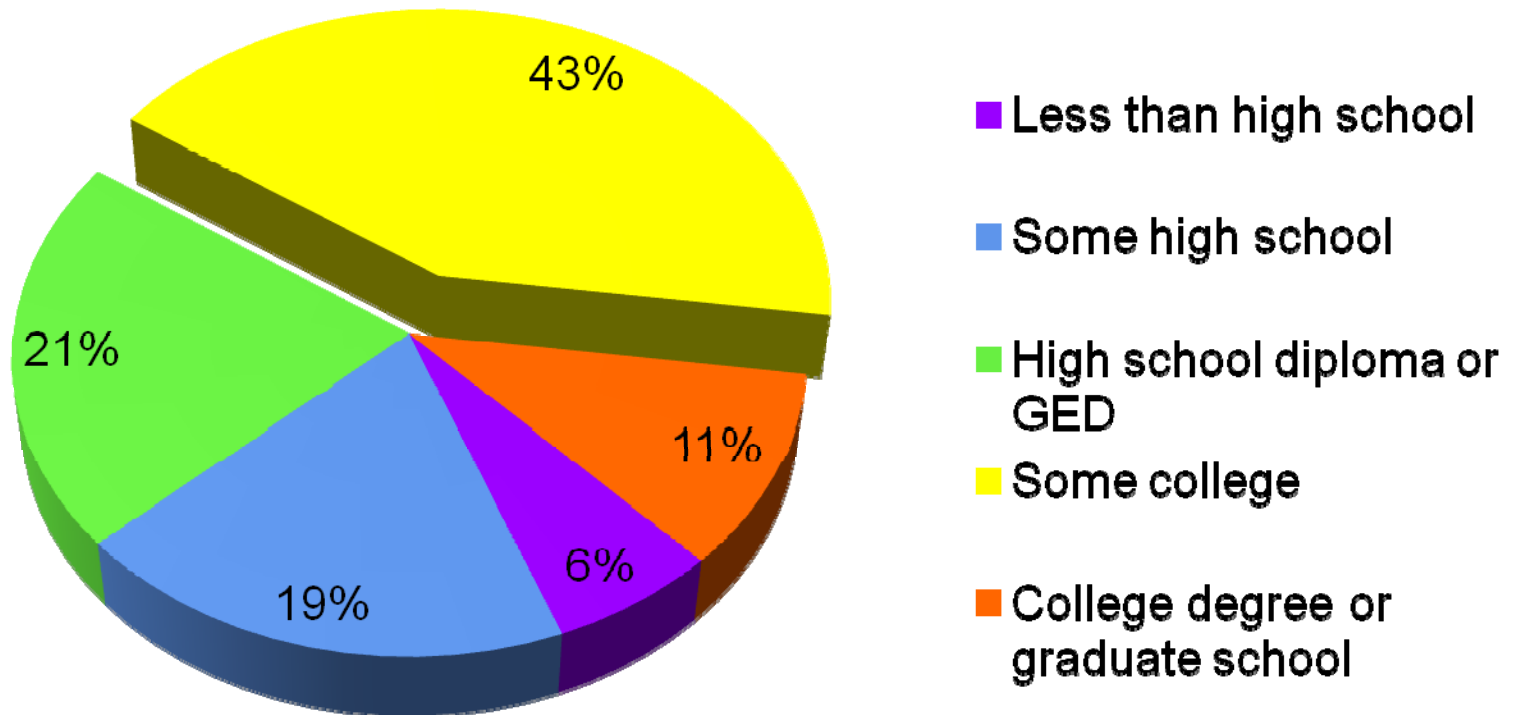
Results

- 45 parents were interviewed between September 2007 and October 2008 by the principal investigator (JR)
- Interviews were transcribed and scored according to the scoring criteria
- Mean scores were multiplied by 100 to obtain a score between 0-100

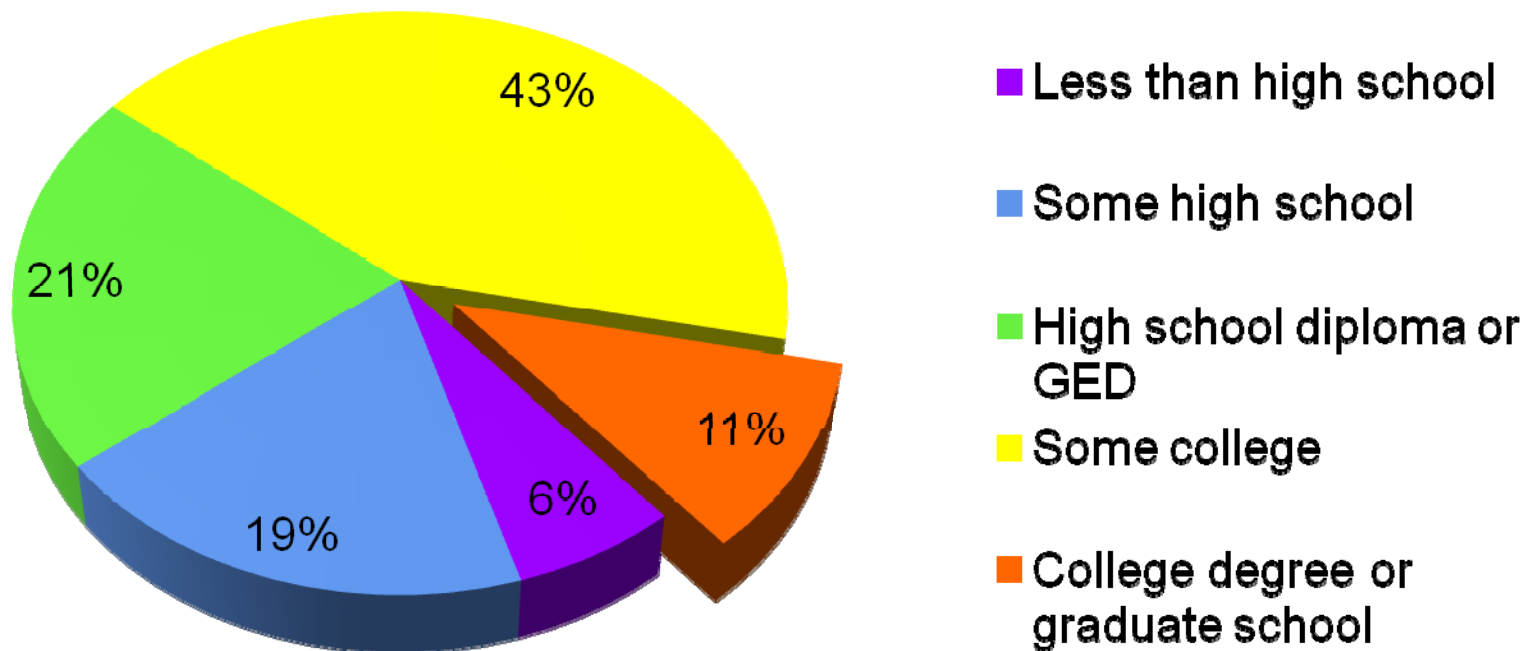
Educational Attainment



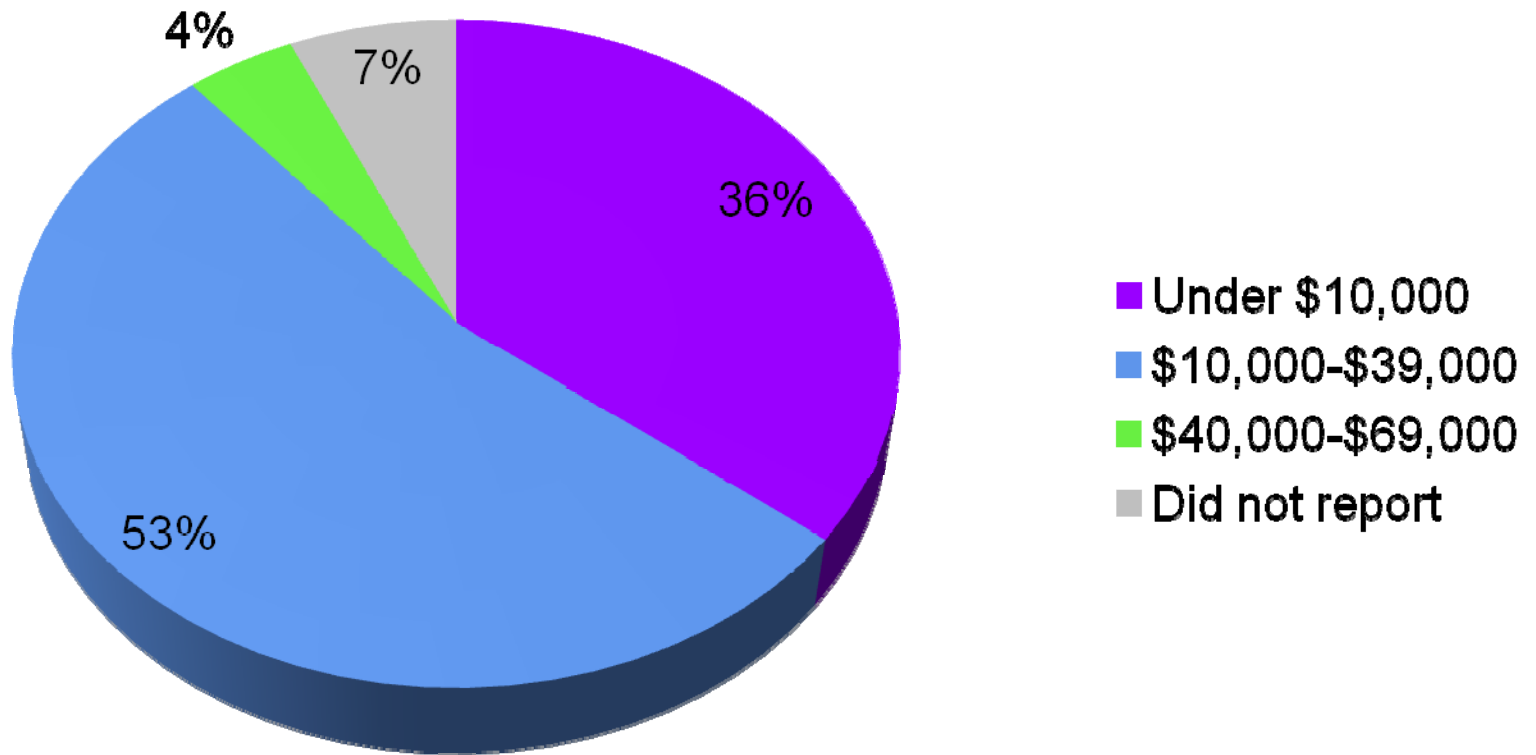
Educational Attainment



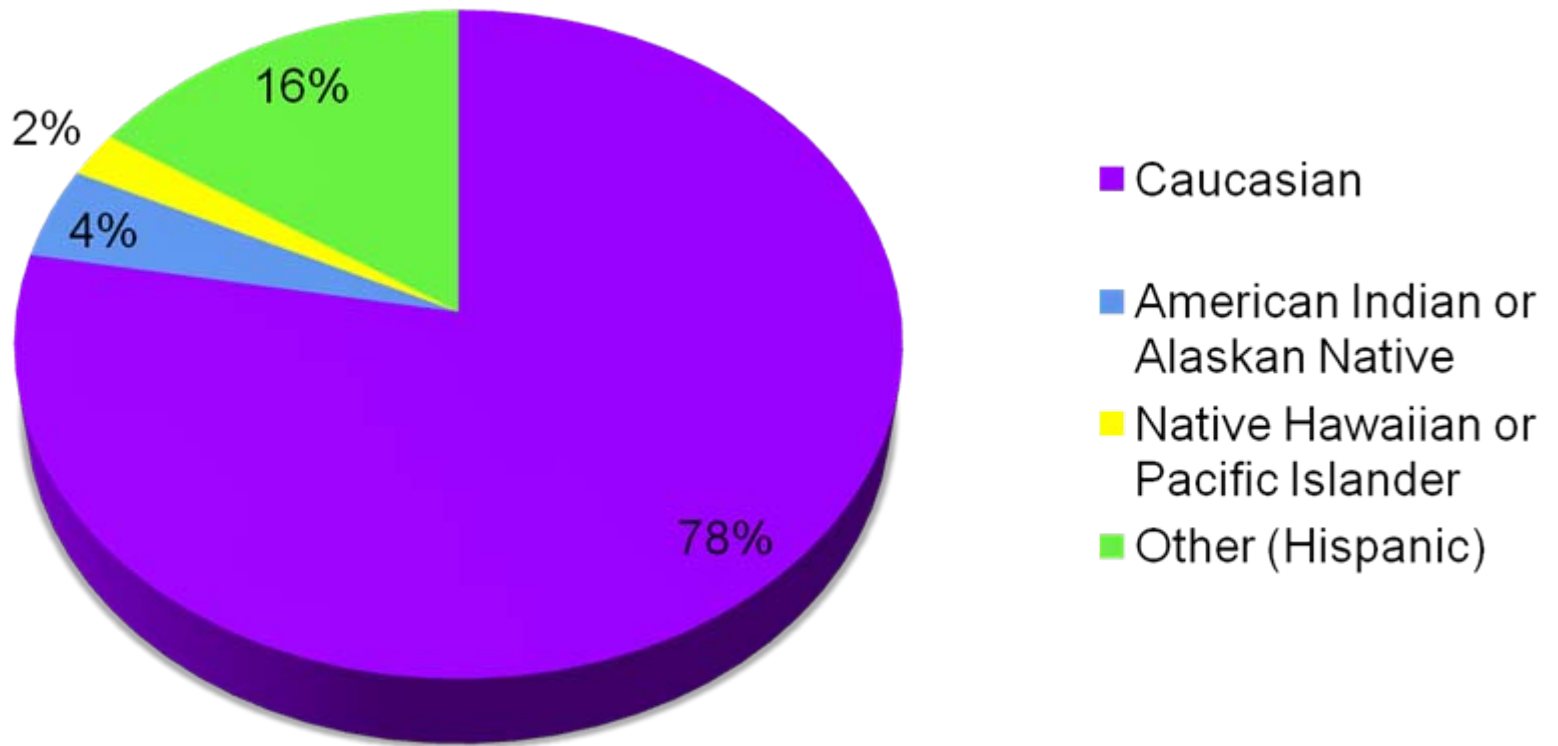
Educational Attainment



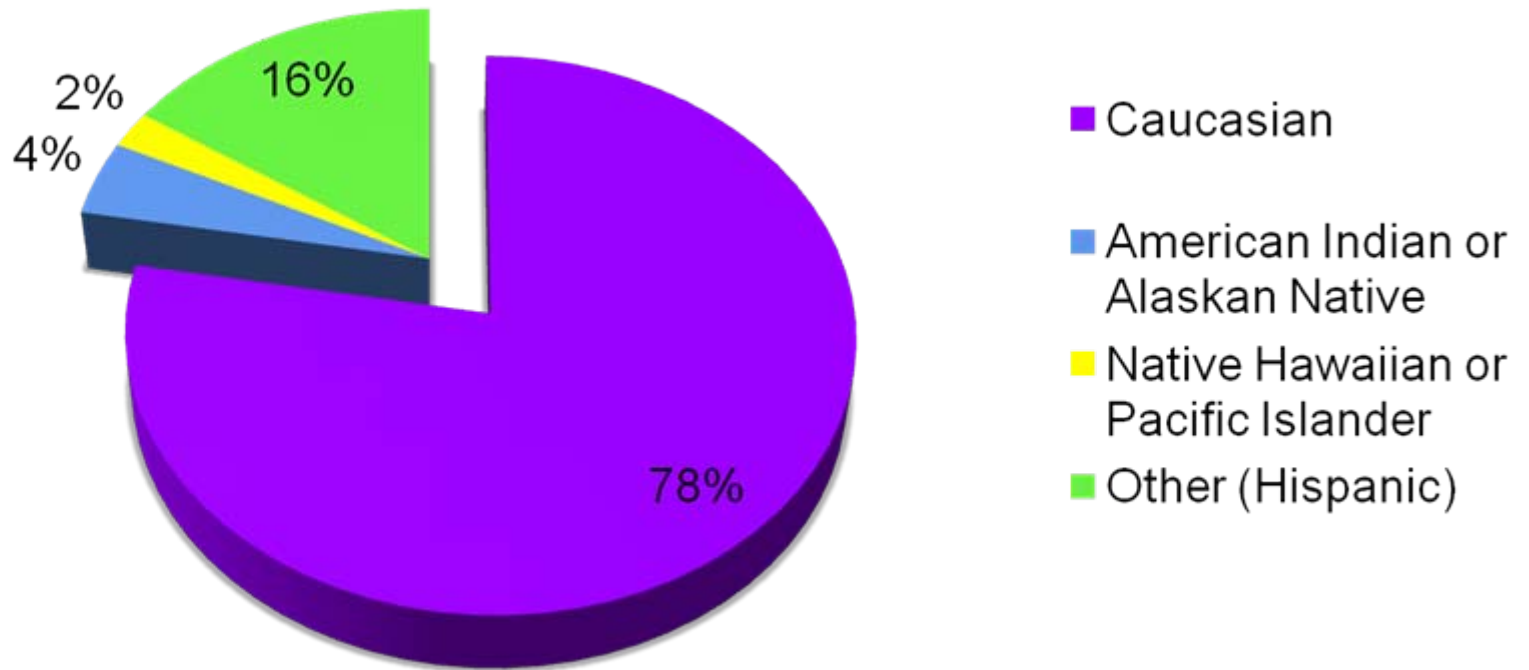
Income



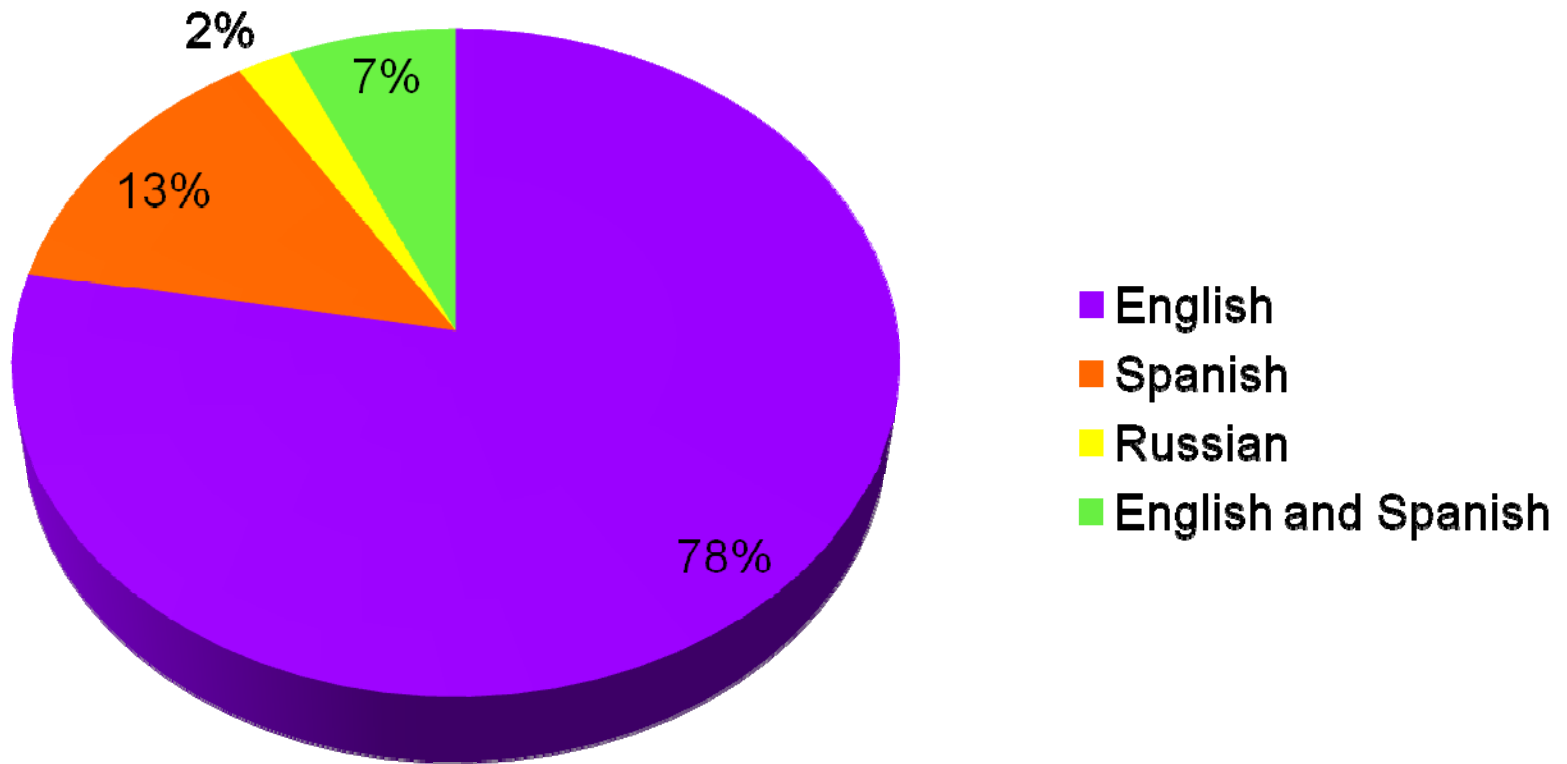
Race



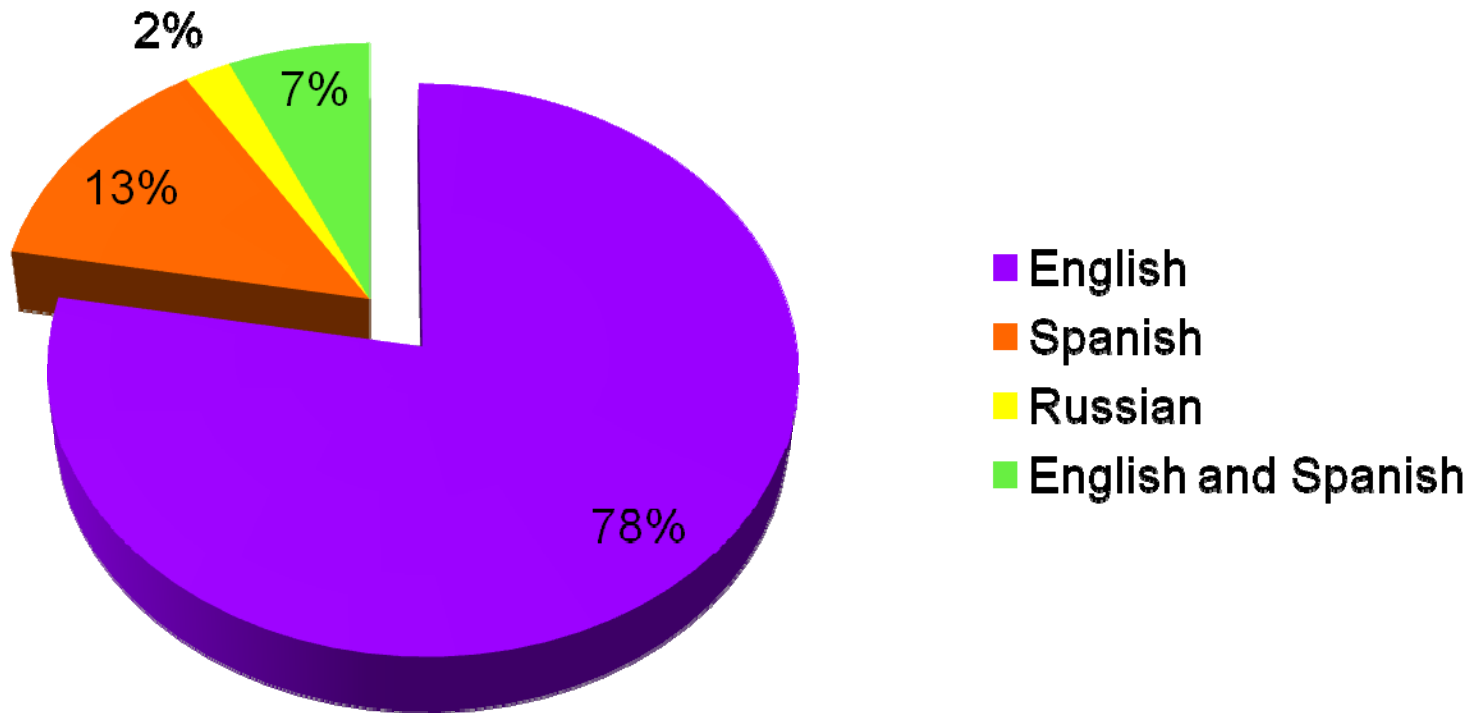
Race



Parent's Primary Language



Parent's Primary Language



OH-LIP and S-TOFHLA Scores

	n	Median	Mean	Min, Max
S-TOFHLA	26	35	34.5	25, 36
OH-LIP I	45	100	94	29, 100
OH-LIP II	45	57	55	23, 79
OH-LIP III	45	69	66	29, 89

Spearman Rank Correlations

	OH-LIP I (n=45)	OH-LIP II (n=45)	OH-LIP III (n=45)	Child's Oral Health (n=45)
S-TOFHLA	0.60 (0.001)*	0.34 (0.90)	0.09 (0.26)	0.35 (0.08)
OH-LIP I		0.28 (0.06)	0.29 (0.057)	0.08 (0.60)
OH-LIP II			0.80 (<0.001)*	0.25 (0.10)
OH-LIP III				0.11 (0.49)

Commonly Missed Items: OH-LIP II

Vocabulary knowledge

Item	Misunderstanding
Erupt	<i>blow up</i> <i>volcano but on your body</i>
Sealant	<i>covers the tooth completely</i> <i>something like fluoride</i>
Fluoride Varnish	<i>shiny teeth</i> <i>sounds like something bad</i>
General Anesthesia	<i>a shot of medicine</i> <i>Novocain</i>

Commonly Missed Items: OH-LIP III

Comprehension

Item	Misunderstanding
Floss	<i>Actually she can do that. The trick was those little things that they can just put in their mouth on their own, and she watched her grandma do it, so she'll just copy what her grandma does</i>
Fluoride varnish	<i>It's to whiten your teeth Drops I think</i>

Findings

- Reading recognition was easy for most parents
- Reading recognition overestimated vocabulary knowledge and comprehension
- Parents scored better on comprehension when asked about words in context
- Substantial misunderstandings in both vocabulary knowledge and comprehension

Discussion

- **Hypothesis 1:** Reading recognition of pediatric oral health terms is weakly correlated with parents' vocabulary knowledge and comprehension of these terms and therefore overestimates oral health literacy
- **Findings:** reading recognition is poorly correlated with comprehension and knowledge

Discussion

- **Hypothesis 2:** Parental comprehension of oral health terms is positively associated with the oral health status of the child
- **Findings:** no significant associations between reading recognition, vocabulary knowledge, and comprehension and child oral health status

Discussion

- **Hypothesis 3:** There is little association between general health literacy and the specific subset of pediatric oral health knowledge
- **Findings:** no significant associations between general health literacy and vocabulary knowledge and comprehension
- Significant correlation between reading recognition and health literacy

Limitations

1. Convenience sample
2. Reliance on parental report of child oral health
3. Parents with more dental experience may have higher scores on OH-LIP
4. Head Start is mandated to assist parents with obtaining dental screenings, therefore parents may have more oral health knowledge which may limit generalizability
5. S-TOFHLA only used for 26 subjects

Thank You!

Committee:

Dr. Colleen Huebner

Dr. Penelope J. Leggott

Dr. Wendy Mouradian

Thanks also:

Head Start Region X

Skagit/Islands Head Start

Dr. Lloyd Mancil



This project was supported in part by Project #T76 MC 00011 from the Maternal and Child Health Bureau (Title V, Social Security Act), Health Resources and Services Administration, US Department of Health and Human Services.

**Oral Health Literacy is more
than the ability to read!**

