Correlation of Oral Health Literacy and Oral Health Behaviors in Children aged 13-17 years old: A Pilot Study

Keisha Brady, DDS, MSPH, MPH, Ryan Elliot, Nicole Martes-Fernandez, Jodine Seide, Niquia McKenzie, Mickayla Jasmin, Mirissa Price, DMD, Chau-Kaung Chen, Ph.D, Tiffany Wilson, DDS
Department of Pediatric Dentistry, School of Dentistry, Meharry Medical College, Nashville TN, 37208

Introduction

- Health literacy[1] is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.
- The READ-30 is a oral health measuring tool that assess an individuals knowledge of oral health literacy by scoring their recognition of 30 common dental terms from 0 to 30.
- This study aims to assess the oral health literacy (OHL) of adolescents aged 13-17 and examine how OHL correlates with oral health behaviors by using Rapid Estimate of Adult Literacy Dentistry (READ-30).

Hypothesis

- Low oral health literacy levels in children leads to poor oral health outcomes.

Methods

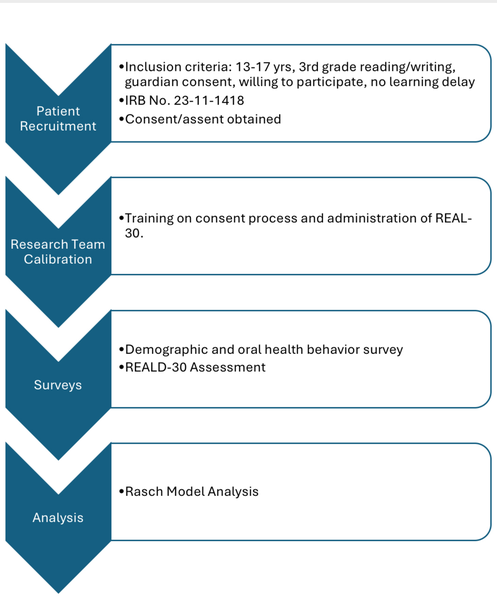

Figure 1: Flow chart of research study design.

Results

Category	Survery Question	Response Options	N
Demographics	Age (Years)	13	7 (12.5%)
		15	9 (16.1%)
		15	11 (19.6%)
		16	16 (28.6%)
		17	13 (23.2%)
	Ethnicity Orgin (Race)	Black	31 (55.3%)
		White	8 (14.3%)
		Hispanic	17 (30.3%)
		Asian	2 (<1%)
		Other	0
	Grade Level	7th	3 (5.4%)
		8th	7 (12.5%)
		9th	11 (19.6%)
		10th	12 (21.4%)
		11th	16 (28.6%)
		12th	7 (12.5%)
	Gender	Male	23 (41%)
		Female	33 (59%)

*1 participant chose Black and Hispanic and 1 participant chose White and Hispanic.

Table 1: Demographics characteristics of study participants.

Category	Survery Question	Response	N=
Oral Health Behaviors	How often do you brush your teeth per week (twice per day,	7 Days	31
		6 Days	2
		5 Days	6
		4 Days	5
		3 Days	1
		2 Days	1
		1 Days	6
		0 Days	4
	How often do you floss per week?	7 Days	3
		6 Days	3
		5 Days	2
		4 Days	1
		3 Days	6
		2 Days	4
		1 Days	10
		0 Days	27
Oral Health History	Has anyone in your immediate family had tooth decay or lost a tooth due to decay in the past year?	Yes	26
		No	30
	Do you experience tooth pain or bleeding gums when eating or brushing?	Yes	24
		No	32
Dietary Habits	How many times daily do you eat/drink carbohydrates (sugar/starch) between meals?	0 Times	4
		1 Times	10
		2 Times	15
		3 Times	10
		4 Times	6
		5 Times	3
		6 Times	2
		7 Times	6

Table 2: Oral health behavior results from study participants.

Results (Cont'd)

1. Sugar	Correct: 55 (98.3%) Incorrect:1 (1.7%)	**11. Abscess**	Correct: 39 (69.6%) Incorrect: 17 (30.4%)	**21. Periodontal**	Correct: 34 (60.7%) Incorrect: 22 (39.3%)
2. Smoking	Correct: 53 (94.6%) Incorrect: 3 (5.4%)	**12. Extraction**	Correct: 46 (82.1%) Incorrect: 10 (17.9%)	**22. Sealent**	Correct: 48 (85.7%) Incorrect: 8 (14.3%)
3. Floss	Correct: 55 (98.3%) Incorrect: 1 (1.7%)	**13. Denture**	Correct: 45 (80.4%) Incorrect: 11 (19.6%)	**23. Hypoplasia**	Correct: 22 (39.3%) Incorrect: 34 (60.7%)
4. Brush	Correct: 54 (96.4%) Incorrect: 2 (3.6%)	**14. Enamel**	Correct: 45 (80.4%) Incorrect: 11 (19.6%)	**24. Halitosis**	Correct: 31 (55.4%) Incorrect: 25 (44.6%)
5. Pulp	Correct: 46 (82.1%) Incorrect: 10 (17.9%)	**15. Dentition**	Correct: 34 (60.7%) Incorrect: 22 (39.3%)	**25. Analgesia**	Correct: 14 (25%) Incorrect: 42 (75%)
6. Fluroide	Correct: 44 (78.6%) Incorrect: 12 (21.4%)	**16. Plaque**	Correct: 39 (69.6%) Incorrect: 17 (30.4%)	**26. Cellulitis**	Correct: 16 (28.6%) Incorrect: 40 (71.4%)
7. Genetics	Correct: 49 (87.5%) Incorrect: 7 (12.5%)	**17. Gingiva**	Correct: 18 (32.1%) Incorrect: 38 (67.9%)	**27. Fistula**	Correct: 34 (60.7%) Incorrect: 22 (39.3%)
8. Braces	Correct: 44 (78.6%) Incorrect: 12 (21.4%)	**18. Malocclus**	Correct: 29 (51.8%) Incorrect: 27 (48.2%)	**28. Temporomandil**	Correct: 30 (53.6%) Incorrect: 26 (46.4%)
9. Restoration	Correct: 45 (80.4%) Incorrect: 11 (19.6%)	**19. Incipient**	Correct: 26 (46.4%) Incorrect: 30 (53.6%)	**29. Hyperemia**	Correct: 25 (44.6%) Incorrect: 31 (55.4%)
10. Bruxism	Correct: 23 (41.1%) Incorrect: 33 (58.9%)	**20. Caries**	Correct: 45 (80.4%) Incorrect: 11 (19.6%)	**30. Apicoectomy**	Correct: 8 (14.3%) Incorrect: 48 (85.7%)

Table 3: READ-30 responses from study participants.

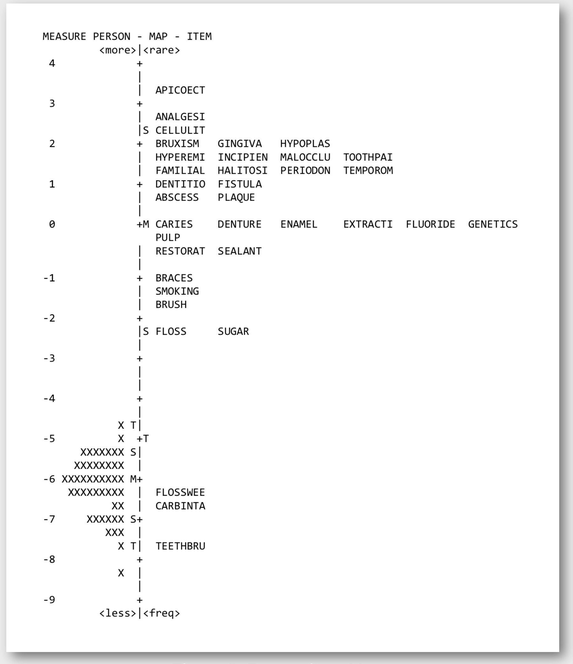

Figure 2: Person-item Map.

Discussion

- This study explored oral health literacy and behaviors among a diverse adolescent population, analyzing demographic factors, questionnaire responses, and the reliability of the REALD-30 assessment tool.
- Rasch model was used to evaluate the dental health knowledge assessment instrument, and focused on functionality, measurement precision, and differential item functioning across language, gender, and racial groups.

Key Findings

- The READ-30 explained 69.4% of total variance with an item reliability of 0.98.
- Differential Item Functioning (DIF): flossing showed differences by language and race and bruxism and braces varied by gender.
- TEETHBRUSH, FLOSSING, and CARBAMIDE did not align well with the study which suggests inconsistent interpretation.

Limitations

- Small sample size, language barriers, self-reported data, and demographic questionnaire.

Conclusion

- The findings reveal differences in oral health literacy based on race, gender, and language. To improve understanding and health outcomes, educational interventions should be culturally and linguistically tailored. Future studies should focus on refining assessment tools and implementing targeted strategies to bridge these gaps.

Acknowledgements

1. Pediatric Residency Program at the School of Dentistry, Meharry Medical College

Abstract/References