

THE INFLUENCE OF SOCIAL DETERMINANTS ON PEDIATRIC ORAL HEALTH

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Background

- **Dental caries in children** can cause pain, poor sleep, poor nutrition, and poor psychosocial well-being¹
- Need for advanced stage dental treatment (ASDT), in this study, refers to **need for pulp therapy or extraction** of teeth in children
- Social determinants of health (SDOH) are the conditions surrounding an individual's life that can affect their health, functioning, and quality of life² Social Determinants of Healt
- Healthy People 2030 SDOH Domains²
 - Education Access/Quality
 - Healthcare Access/Quality
 - Neighborhood/Built Environment
 - Social/Community Context
 - Economic Stability

Aims

Objective: To evaluate associations between need for ASDT and SDOH/SDOH risk tally scores

- H₀₁: There is no association between children's need for ASDT and SDOH variables
- H₀₂: There is no association between children's need for ASDT and SDOH risk tally scores

Methods

- **Study Type:** Cross-sectional study (**Survey + Chart Review**)
- **Inclusion Criteria:** Legal guardians of 3–16-year-old patients receiving an initial/recall exam at UIC Post-Grad Pediatric Dental Clinic, who can complete a Qualtrics questionnaire in English or Spanish
- Determined **SDOH Risk Tally Scores** (+/- Covid Question) using Protocol for Assessing Patient's Assets, Risks and Experiences (**PRAPARE**) Methodology³

SDOH Questionnaire Response (*context dependent)	Risk Tally Point Valuation
"Never," "*No," "0," "Not Hispanic/Latino," "White/Caucasian," "United States Country of Origin," "Private Insurance"	0
"Rarely," "Often," "All the Time," "*Yes,""1-10," "Hispanic/Latino," "Non-White/Caucasian," "Other Country of Origin," "Public Insurance/Uninsured"	1

Table 1. Stur	dy Chara	ctorictic	c	Table 4	Pearso	on Chi Square	e Tests of Stu	dy ۱	Variables and Nee	ed for ASI
			5				N (%) Need for		N(%) No Need for	
Characteristic Mean (SD)				Variable			ASDT		ASDT	P-Value
Child Age at Time of Surv	/ey	6.6 (2.	5)	Language Pre	eference					0.23
DMFT Score		0.77 (1	.3)	English			49 (54%)		41 (46%)	
dmft score		7.9 (4.	8)	Spanish			3 (33%)		6 (67%)	
DFT score		0.77 (1	.3)	Child's Sex						0.74
dft score		7.1 (4.	5)	Male			27 (51%)		26 (49%)	
Number of Teeth Requiri	ng ASDT	2.1 (3.)	2)	Female			25 (54%)		21 (46%)	
SDOH Risk Tally Score	0 -	7 (2.4)	Child Hispani	ic/Latino Stati	us				0.44
SDOH Risk Tally Score + (ovid-19	72(2	<u>,</u> 5)	Hispanic/L	atino		27 (49%)		28 (51%)	
SDOTT MSK fully Score + K		7.2 (2.	5/	Not Hispar	nic/Latino		25 (57%)		19 (43%)	
				Child's Race						0.79
				White/Cau	ıcasian		22 (51%)		21 (49%)	
				Other			27 (54%)		23 (46%)	
				Access- Child	PCP Status					0.94
				Has PCP			51 (53%)		46 (47%)	
				Does Not I	Have PCP	*0.000	1 (50%)		1 (50%)	0.62
Table 2: Logi	stic Regr	ession C)dds	Private	s Dental Insu	rance	2 (67%)		1 (22%)	0.62
Pation botwo	on Soloci	tod Varia	bloc	Self/Public	/Uninsured		50 (52%)	_	46 (48%)	
Ratios betwee	en select		ables	Transportatio	on- Lack of Tra	ansportation				0.45
and N	leed for <i>i</i>	ASDT		Yes		•	12 (60%)		8 (40%)	
		95% CI	05% CI	No			40 (51%)		39 (49%)	
Variable	Odds	Lower	Upper	Transportatio	on- Other Pre	ssing Needs				0.34
variable	Ratio			Yes			26 (48%)		28 (52%)	
		Bound	Bound	No			26 (58%)		19 (42%)	
Child's Age at Time of	0.68	0.54	0.86	Stress- Avera	ge Daily Stres	S	40 (520()		42 (470/)	0.34
Survey				Yes			48 (53%)		42 (47%)	
Preferred Language	0.51	0.09	3.1	Fconomic Sta	ability- Financ	ial Status	2 (33%)	_	4 (00%)	0.14
Child's Sex	1 02	0 39	27	Unstable			38 (49%)		40 (51%)	0.14
	1.02	0.55	2.7	Stable			14 (67%)		7 (33%)	
Child Hispanic/Latino	1.08	0.39	3	Economic Sta	ability- Troubl	e Paying Bills	, , , , , , , , , , , , , , , , , , ,			0.57
Status			-	Yes			36 (55%)		30 (45%)	
Transportation-Other	2.17	0.75	6.2	No			16 (48%)		17 (52%)	
Pressing Needs				Housing Stab	ility- Consiste	ent Place				0.06
Housing Stability-	0	0	0	Yes			52 (54%)		44 (46%)	
				No		have the store the sec	0 (0%)		3 (100%)	0.70
Housing Stability-	3.39	3.39 0.53	21.8	Housing Stab	ollity- worry a	bout Losing Home				0.78
Structural Problems			Yes			10 (56%)		8 (44%)		
Food Security- Concern	3.36	0.73	15.51	NO Housing Stab	ility Structure	al Brobloms	42 (52%)		39 (48%)	0.07
					mity- Structur		8 (80%)		2 (20%)	0.07
SDOH Risk Tally Score	0.94	0.71	1.25	No			44 (49%)		45 (51%)	
				Food Security	y- Concern ov	er Daily Meals				0.06
				Yes			13 (72%)		5 (28%)	
				No			39 (48%)		42 (52%)	
				Food Security	y- Recent Foo	d Stamps App				0.21
	Yes			33 (58%)		24 (42%)				
				No			19 (45%)		23 (55%)	
				Education- Pa	arental Status				20 (400)	0.45
Table 3: Indene	endent S	amples ⁻	F -Tests	High Schoo	DI Education +		43 (54%)		36 (46%)	
				Covid-19 Nor	ative Effects		9 (45%)		11 (55%)	0.38
and Correlation	on Coetti	cients ar	nong	Yes			15 (60%)		10 (40%)	0.36
SDOH F	Risk Tally	Scores		No			37 (50%)		37 (50%)	
				· · · · · · · · · · · · · · · · · · ·					- \	
Variable		N(%)	Mean (SD)	SE Mean	P-Value	95% CI Lower	95% Cl Upper	С	orrel. Coefficient to AS	DT P-Valu
		(1.3)			0.7		0.77	-	0.02	0.75

Table 1: Stu	dy Chara	acteristic	s	Table 4:	Pearsc	on Chi Square	e Tests of Stu	dy Variable	es and Need	tor ASI
Characteristic Moon (SD)			SD	Variable				or IN(%) IN		P-Value
			50)		ference			F		0.23
Child Age at Time of Sur	vey	0.0 (2.	2)	English			49 (54%)	41	(46%)	0.25
DMFT Score							49 (34%)	41	(670()	
dmft score	nft score 7.9 (4.8)						3 (33%)	6	(67%)	
DFT score 0.77 (1.3)				Child's Sex						0.74
dft score		7.1 (4.	5)	Male			27 (51%)	26	5 (49%)	
Number of Teeth Requir	ing ASDT	2.1 (3.	2)	Female			25 (54%)	21	. (46%)	
SDOH Risk Tally Score		7 (2.4)	Child Hispani	c/Latino Statu	JS				0.44
SDOH Risk Tally Score +	Covid-19	7.2 (2.	5)	Hispanic/L	atino		27 (49%)	28	3 (51%)	
				Not Hispar	nic/Latino		25 (57%)	19	(43%)	
				Child's Race			22 (549/)		1 (400/)	0.79
				Othor	icasian		22 (51%)	21	<u>(49%)</u>	
				Access- Child	PCP Status		27 (54%)	23	(40%)	0.94
				Has PCP			51 (53%)	46	5 (47%)	0.54
				Does Not H	Have PCP		1 (50%)	1	(50%)	
Table 2. Logi	ictic Dog	cossion ()ddc	Access- Child	's Dental Insu	rance				0.62
Table 2: Log	istic Regi	ession C	laas	Private			2 (67%)	1	(33%)	
Ratios betwe	en Selec	ted Varia	ables	Self/Public	/Uninsured		50 (52%)	46	i (48%)	
and	lood for	ACDT		Transportatio	on- Lack of Tra	ansportation				0.45
	veed for	ASUI		Yes			12 (60%)	8	(40%)	
		95% Cl Lower Bound	95% CI	No		- to - N d-	40 (51%)	39	(49%)	0.24
Variable	Udds		Upper	Vos	on- Other Pres	ssing Needs	26 (48%)	20	2 (52%)	0.34
	Ratio			No			26 (58%)	10	A (42%)	
Child's Age at Time of		Dound	Dound	Stress- Avera	ge Daily Stres	s	20 (5870)		/ (+2/0)	0.34
Survey	0.68	0.54	0.86	Yes	<u> </u>	-	48 (53%)	42	2 (47%)	
	0.51	0.09	3.1	No			2 (33%)	4	(66%)	
	0.51	0.05	5.1	Economic Sta	bility- Financ	ial Status				0.14
Child's Sex	1.02	0.39	2.7	Unstable			38 (49%)	40) (51%)	
Child Hispanic/Latino		0.39	3	Stable			14 (67%)	7	(33%)	
Status	1.08			Economic Sta	bility- Troubl	e Paying Bills				0.57
Transportation-Other			6.2	Yes			36 (55%)	30) (45%)	
Pressing Needs	2.17	0.75		NO	ility Consists	ant Diaco	16 (48%)	1/	(52%)	0.06
Housing Stability				inty- consiste		52 (54%)	ΔΔ	1 (46%)	0.06	
Consistent Place	0	0	0	No			0 (0%)	3	(100%)	
Housing Stability-				Housing Stab	ility- Worry a	bout Losing Home				0.78
Structural Problems	3.39	0.53	21.8	Yes		-	10 (56%)	8	(44%)	
Food Security- Concern				No			42 (52%)	39) (48%)	
over Daily Meals	3.36	0.73	15.51	Housing Stab	ility- Structur	al Problems				0.07
SDOH Risk Tally Score	0.94	0.71	1 25	Yes			8 (80%)	2	(20%)	
	0.01	017 1	1.1.0	No			44 (49%)	45	i (51%)	
				Food Security	y- Concern ov	er Daily Meals				0.06
		Yes			13 (72%)	5	(28%)			
				No	Description of the second		39 (48%)	42	<u>· (52%)</u>	0.21
				Vos	y- Recent Foo	a Stamps App	22 (58%)	2/	1 (42%)	0.21
							19 (45%)	24	3 (55%)	
				Education- Pa	arental Status		13 (4370)		, (3378)	0.45
	1			High Schoo	ol Education +		43 (54%)	36	o (46%)	
Table 3: Indep	endent S	amples ⁻	I-lests	No HS/GEE	O Completion		9 (45%)	11	L (55%)	
and Correlation Coofficients among				Covid-19 Neg	ative Effects					0.38
			nong	Yes			15 (60%)	10) (40%)	
SDOH F	≺isk Tally	Scores		No			37 (50%)	37	' (50%)	
	_	-					I	• •		
Variable	N(%)	Mean (SD)	SE Mean	P-Value	95% CI Lower	95% CI Upper	Correl. Coe	efficient to ASDT	P-Valu	

Variable		N(%)	Mean (SD)	SE Mean	P-Value	95% CI Lower	95% CI Upper	Correl. Coefficient to ASDT	P-Value
SDOH Risk Tally Scor	e				0.7	-1.14	0.77	0.03	0.75
Need for ASDT		52 (52.5%)	7.04 (2.4)	0.33					
No Need for ASDT		47 (47.5%)	6.85 (2.4)	0.35					
SDOH Risk Tally Scor	e + Covid-19				0.61	-1.27	0.75	0.04	0.70
Need for ASDT		52 (52.5%)	7.33 (2.6)	0.36					
No Need for ASDT		47 (47.5%	7.06 (2.5)	0.36					



Results

- dental treatment
- face
- increased score range from 0-1 to 0-4)

References

Income Families. J Dent Res. 2022 Oct 1;101(11):1314–20-[Internet]. [cited 2023 Jan 28]. Available from: of Community Health Centers, Inc.; 2016. Available from: Tally-Score-Methodology.pdf

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Conclusion

Findings are **not consistent** with expectations based on existing literature, however literature tends to focus on caries prevalence and not on caries severity Data **did not support** an association between SDOH/ SDOH risk tally scores and need for advanced stage

This study provides **insight into UIC's pediatric** patient population and their social determinant of health statuses, highlighting barriers they currently

Future studies: focus on food security or housing instability (which approached significance in this study), or modification of SDOH risk tally score **methodology** to account for population diversity (ex)

- 1. Wehby GL. Oral Health and Academic Achievement of Children in Low-
- 2. Social Determinants of Health Healthy People 2030 | health.gov
- https://health.gov/healthypeople/priority-areas/social-determinants-health 3. PRAPARE Risk Tally Scoring Methodology [Internet]. National Association
- http://www.nachc.org/wp-content/uploads/2019/01/PRAPARE-SDH-Risk-