

# Identifying Dental Needs of Adolescent Patients with SHCN vs. Healthy Adolescent Patients

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## ABSTRACT

**Purpose:** To identify the dental needs of adolescent patients with Special Healthcare Needs (SHCN) and compare them to the dental needs of healthy adolescent patients.

**Methods:** Pediatric patients between age 12-18 that were seen for exam from 2011-2022 at the UT Graduate Pediatric program were included in the study. Information was gathered from Electronic Patient Record. The following information was collected: demographic information, medical history, dental needs, need for specialty referral, history of dental trauma, and need for advanced behavior guidance techniques.

**Results:** Data was collected from 1002 records. Adolescent patients with SHCN had higher DMFT, DMFT ratio, and needed more stainless steel crowns and anterior strip crowns when compared to their healthy counterparts (P=0.0006). Patients with Mental SHCN needed more 2 surface restorations when compared to the control group and other SHCN groups (P<0.001). Patients in the SHCN group and all subgroups needed papoose and treatment under GA more often than the healthy control group (p<0.0001). Patients with behavioral SHCN experienced dental trauma more often than the healthy control group (p=0.007). Patients in the SHCN group and SHCN subgroups needed anterior endodontic treatment more often than patients in the control group (p=0.02). Patients in the control group needed advanced orthodontic treatment more often than patients in the special SHCN group and all SHCN subgroups (p<0.001).

**Conclusions:** Patients with SHCN have higher DMFT, more extensive restorative needs, more often need specialty dental care, and need advanced behavior guidance (papoose and treatment under GA) when compared to their healthy counterparts.

## BACKGROUND

- According to the AAPD, the specialty of pediatric dentistry involves caring for patients from childhood through adolescence and for patients with SHCN.<sup>1</sup>
- SHCN are associated with unmet dental needs, but limited studies are present on the dental needs of adolescent patients with SHCN.<sup>2</sup>
- 2018 National Children's Health Survey found that patients with SHCN have a higher prevalence of toothache. They also utilized dental services more often while having greater unmet dental needs.<sup>3</sup>
- Adolescent patients with SHCN face difficulties in transitioning to adult dental providers.<sup>4</sup>
- General dentists cite various barriers to caring for patients with SHCN including patient's behavior, level of disability, level of disease, provider's level of training, office staff training, and financial barriers.<sup>5</sup>

*We hypothesize that adolescent patients with SHCN have more complex dental needs and more often need advanced behavior guidance techniques to complete their dental treatment.*

## METHODS

- This study was approved by the UTHealth Houston Institutional Review Board.
- Patients aged 12-18 seen in the UT Grad Pediatric Dentistry Clinic for dental exam were identified.
- 1002 charts were selected, and the following information was obtained:
  - Age, gender, medical history, number of teeth, DMFT
  - Patients were classified by presence or absence of SHCN, physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment
  - Dental needs were recorded including need for specialty referral, history of dental trauma, and need for advanced behavior guidance including papoose and need for dental treatment under general anesthesia
- Data was collected in Microsoft Excel and analyzed using R statistical software (R Core Team 2020).
- Statistical analysis completed. P-values <0.05 considered significant.

## RESULTS

Table 1. Dental needs of overall cohort compared to healthy controls and separated by type of SHCN

Variable	DMFT ratio	DMFT	1 Surface Restoration	2 Surface Restoration	3 Surface Restoration	SSC	Anterior Strip Crown
Control *	0.15 ± 0.15	4.07 ± 4.05	1.78 ± 2.09	1.20 ± 1.87	0.24 ± 0.95	0.08 ± 0.48	0.05 ± 0.24
SHCN Group	0.21 ± 0.25	5.53 ± 6.05	1.74 ± 2.24	1.27 ± 2.08	0.30 ± 0.89	0.45 ± 1.70	0.20 ± 0.68
p value	<0.001	<0.001	0.76	0.56	0.31	<0.001	<0.001
Physical SHCN	0.20 ± 0.27	5.10 ± 6.23	1.65 ± 2.43	0.90 ± 1.65	0.25 ± 0.80	0.54 ± 1.91	0.19 ± 0.65
p value	<0.001	0.006	0.45	0.03	0.88	<0.001	<0.001
Developmental SHCN	0.21 ± 0.25	5.49 ± 6.13	1.66 ± 2.16	1.22 ± 2.06	0.29 ± 0.91	0.51 ± 1.83	0.19 ± 0.68
p value	<0.001	<0.001	0.39	0.83	0.43	<0.001	<0.001
Mental SHCN	0.26 ± 0.26	6.98 ± 6.94	1.84 ± 1.99	2.13 ± 2.86	0.48 ± 1.18	0.58 ± 2.11	0.23 ± 0.68
p value	<0.001	<0.001	0.83	<0.001	0.06	<0.001	<0.001
Sensory SHCN	0.27 ± 0.31	6.89 ± 7.16	1.60 ± 2.16	1.32 ± 2.06	0.39 ± 1.10	0.89 ± 2.77	0.23 ± 0.78
p value	<0.001	<0.001	0.42	0.53	0.16	<0.001	<0.001
Behavioral SHCN	0.23 ± 0.26	5.89 ± 6.45	1.74 ± 2.22	1.40 ± 2.26	0.34 ± 1.01	0.57 ± 1.95	0.22 ± 0.73
p value	<0.001	<0.001	0.78	0.17	0.17	<0.001	<0.001
Cognitive SHCN	0.22 ± 0.27	5.53 ± 6.44	1.58 ± 2.31	1.06 ± 1.90	0.30 ± 0.95	0.72 ± 2.23	0.22 ± 0.74
p value	<0.001	<0.001	<0.001	0.37	0.43	<0.001	<0.001
Emotional SHCN	0.25 ± 0.26	6.82 ± 7.00	1.86 ± 1.79	1.96 ± 2.74	0.47 ± 1.15	0.61 ± 2.23	0.30 ± 0.76
p value	<0.001	<0.001	0.79	0.005	0.09	<0.001	<0.001

\* For all variables, (mean ± SD) shown

Table 2. Advanced dental needs by dental specialty and advanced behavior guidance techniques of overall cohort compared to healthy controls and separated by type of SHCN

Variable	Advanced OMFS	Anterior Endo	Posterior Endo	Advanced Prosth	Advanced Perio	Advanced Ortho	Trauma	Referral to AEGD/GPR	Papoose	Referral for GA
Control *	142, 28.3%	13, 2.6%	36, 7.2%	15, 3.0%	8, 1.6%	232, 46.2%	29, 5.8%	7, 1.4%	0, 0%	0, 0%
SHCN Group	213, 42.7%	36, 7.2%	34, 6.8%	24, 4.8%	28, 5.6%	137, 27.5%	53, 10.6%	35, 7.0%	68, 13.6%	108, 21.6%
p value	<0.001	0.001	0.92	0.18	0.001	<0.001	0.007	<0.001	<0.001	<0.001
Physical SHCN	105, 41.7%	16, 6.3%	11, 4.4%	12, 4.8%	19, 7.5%	67, 26.6%	23, 9.1%	13, 5.2%	37, 14.7%	67, 26.6%
p value	<0.001	0.02	0.18	0.30	<0.001	<0.001	0.12	0.005	<0.001	<0.001
Developmental SHCN	183, 43.4%	30, 7.1%	27, 6.4%	17, 4.0%	26, 6.2%	105, 24.9%	43, 10.2%	30, 7.1%	67, 15.9%	102, 24.2%
p value	<0.001	0.002	0.74	0.50	<0.001	<0.001	0.01	<0.001	<0.001	<0.001
Mental SHCN	29, 45.3%	6, 9.4%	4, 6.3%	5, 7.8%	4, 6.3%	11, 17.2%	8, 12.5%	6, 9.4%	4, 6.3%	12, 18.8%
p value	0.01	0.01	1	0.11	0.04	<0.001	0.08	<0.001	<0.001	<0.001
Sensory SHCN	48, 45.7%	9, 8.6%	6, 5.7%	5, 4.8%	7, 6.7%	15, 14.3%	10, 9.5%	8, 7.6%	31, 29.5%	45, 42.9%
p value	<0.001	0.01	0.75	0.53	0.007	<0.001	0.23	<0.001	<0.001	<0.001
Behavioral SHCN	118, 38.1%	27, 8.7%	14, 4.5%	11, 3.5%	17, 5.5%	57, 18.4%	35, 11.3%	23, 7.4	62, 20.0%	96, 31.0%
p value	0.005	0.002	0.17	0.81	0.004	<0.001	0.007	<0.001	<0.001	<0.001
Cognitive SHCN	90, 40.7%	22, 10.0%	8, 3.6%	6, 2.27%	15, 6.8%	25, 11.3%	23, 10.4%	17, 7.7%	63, 28.5%	92, 41.6%
p value	0.001	<0.001	0.10	1.00	<0.001	<0.001	0.04	<0.001	<0.001	<0.001
Emotional SHCN	26, 45.6%	6, 10.5%	4, 7.0%	5, 8.8%	4, 7.0%	13, 22.8%	6, 10.5%	7, 12.3%	5, 8.8%	11, 19.3%
p value	0.011	0.006	1.00	0.06	0.03	0.001	0.27	<0.001	<0.001	<0.001

\* For all variables, (n/N) shown

Figure 1. Breakdown of SHCN observed in the cohort

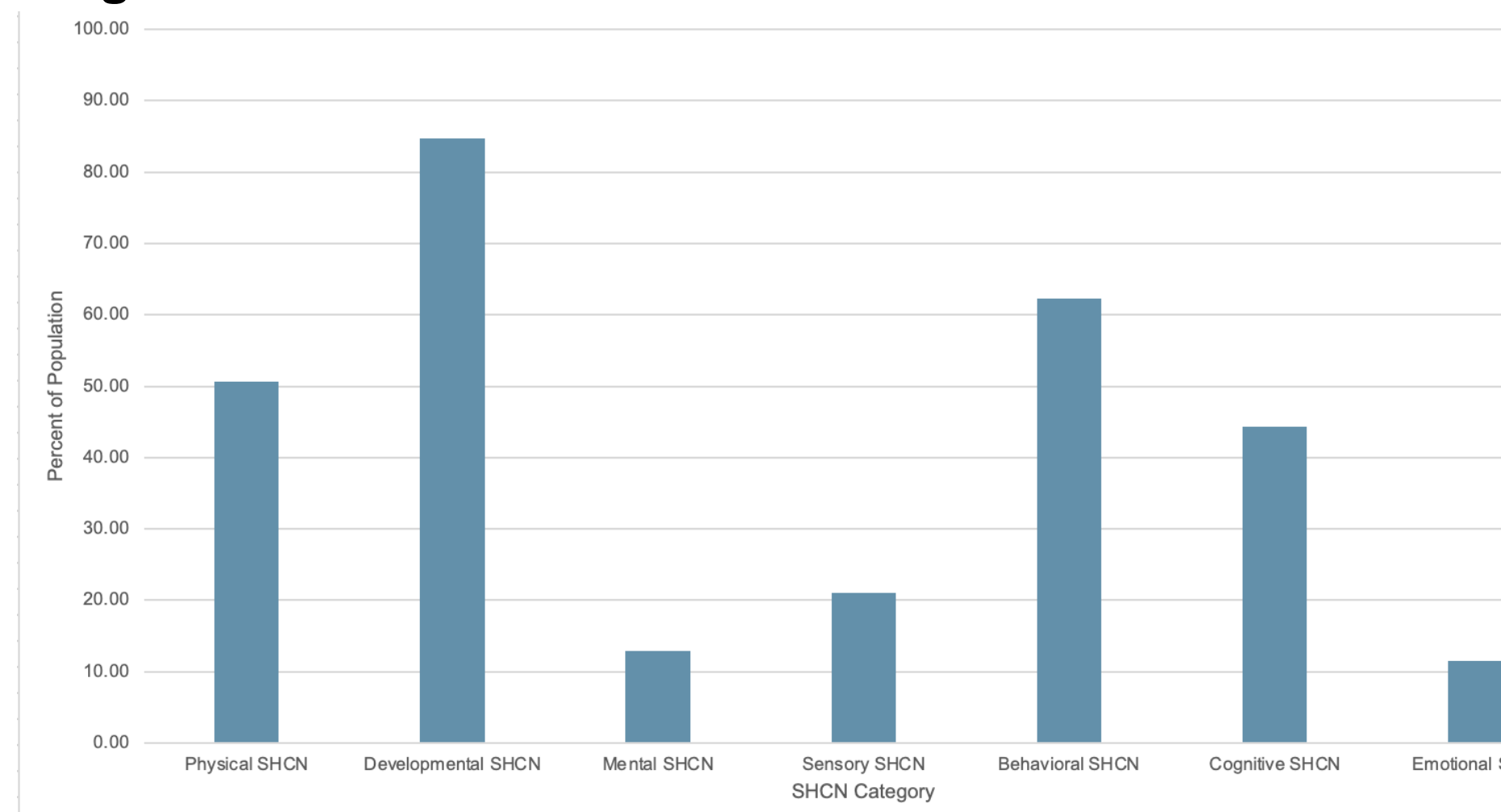
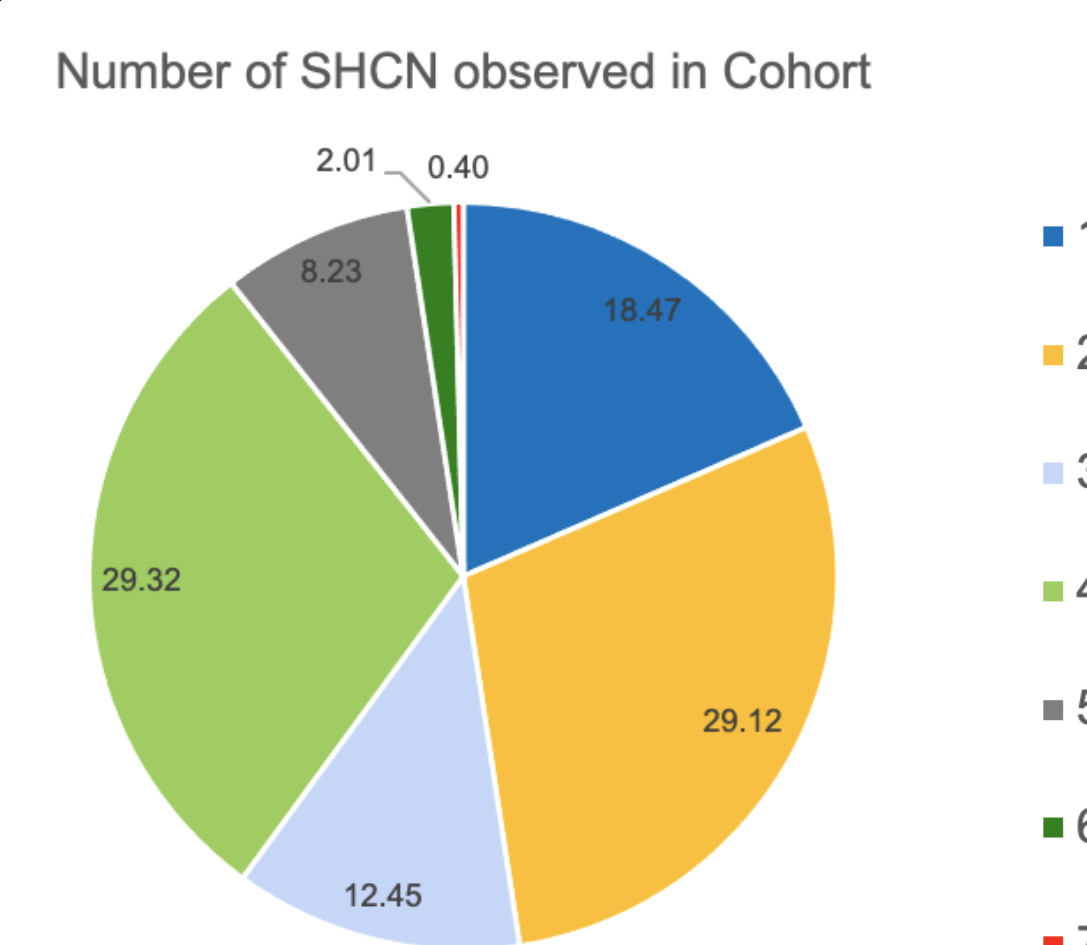


Figure 2. Number of SHCN observed in Cohort



## CONCLUSIONS

- Patients with SHCN have greater DMFT score and restorative needs, more often need advanced dental care, and advanced behavior guidance to complete their treatment when compared to the healthy control group.**
- Limitations:** Patients seen by a variety of residents. Data available for review depends on accuracy and detail of patient charts.
- Further research** should study the transition of this patient population to adult dental care including measuring success of establishing of dental home with an adult dental provider and obstacles faced as part of the transition.

## ACKNOWLEDGEMENTS

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