

Do Certified Therapy Dogs Improve Behavior and Reduce Anxiety in Children Who Receive Administration of a Local Anesthetic for Dental Procedures? A Randomized Controlled Trial

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BACKGROUND

In 2023, the American Academy of Pediatric Dentistry (AAPD) released guidelines for nonpharmacological behavior guidance for pediatric dental patients. Among the recommendations was animal-assisted therapy (AAT), though the authors note that “There is a need for high quality research to substantiate the effect of AAT during dental treatment”. This study aims to contribute to the growing literature on AAT.

METHODS

This study is a prospective, single-center, parallel-arm randomized controlled trial, conducted in the Pediatric Dental Clinic in the James B. Edwards College of Dental Medicine at the Medical University of South Carolina (MUSC). Participants were randomized into the therapy dog group or the control group on a 1:1 basis. Pediatric dental patients between the ages of 3 and 7 who will undergo a restorative procedure requiring the use of nitrous oxide and the injection of a local anesthetic and meet other eligibility criteria were eligible for the study. Behavior was measured at four time points using the Frankl score, and anxiety was measured at the same four time points using heart rate. We used an independent samples t-test to evaluate the heart rate between the two groups at each time point and the Mann-Whitney test to evaluate the Frankl scores at each time point. The accompanying parent of each participant was surveyed to gauge their interest in the use of therapy dogs in the dental office.



Interim Data Analysis

Table 1: Frankl score, by intervention and time

Intervention	Time	N	Mean	Median	Std Dev	Min	Max
Control	Before Procedure	7	4	4	0	4	4
	Begin Nitrous	7	4	4	0	4	4
	Injection of Local Anesthetic	7	3.1	3	0.9	2	4
	After Stopping Nitrous	7	3.9	4	0.4	3	4
Dog	Before Procedure	8	3.7	4	0.6	2.5	4
	Begin Nitrous	8	4	4	0	4	4
	Injection of Local Anesthetic	8	3.9	4	0.4	3	4
	After Stopping Nitrous	8	4	4	0	4	4

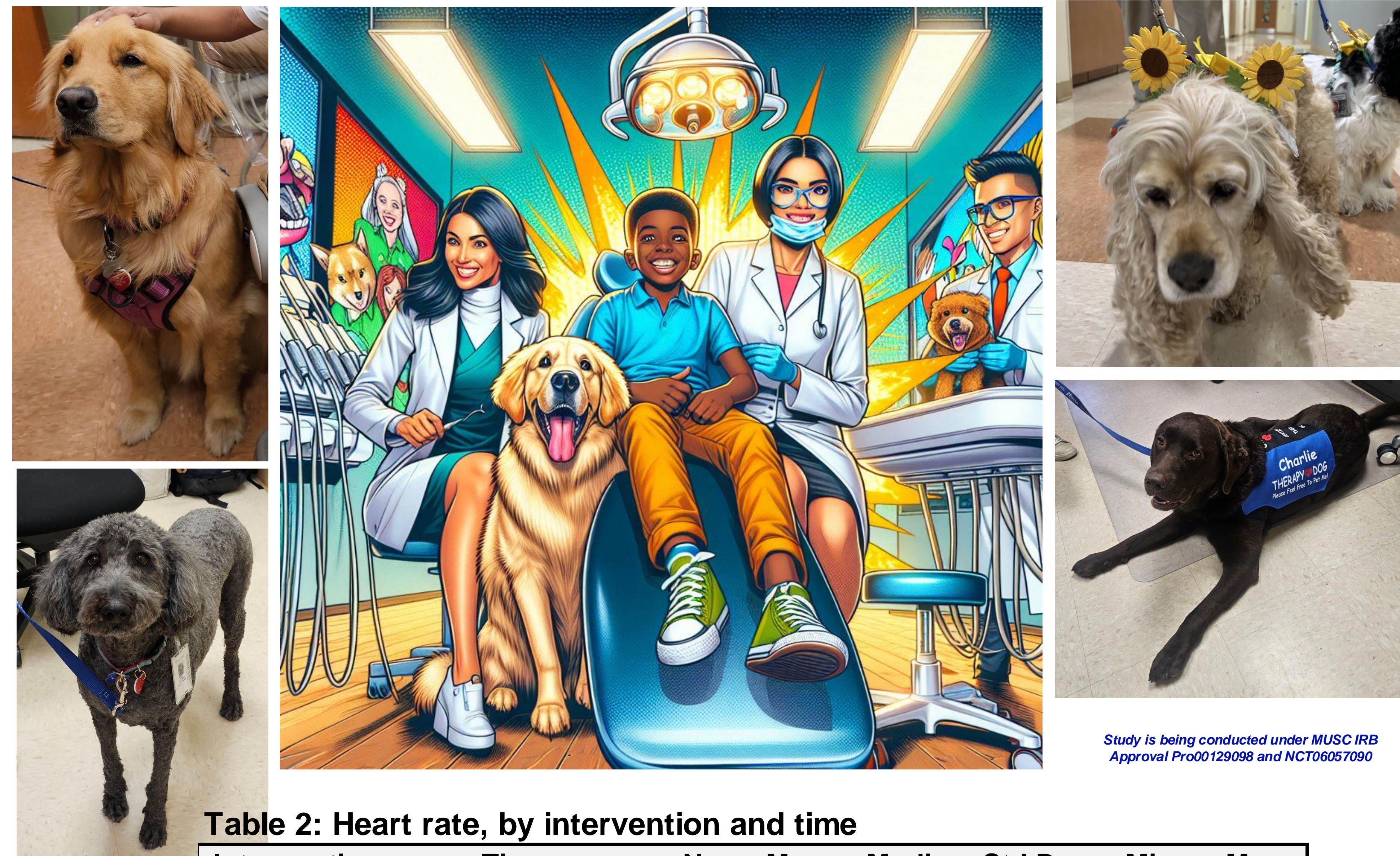


Table 2: Heart rate, by intervention and time

Intervention	Time	N	Mean	Median	Std Dev	Min	Max
Control	Before Procedure	7	91.1	92	16.9	66	118
	Begin Nitrous	7	88.1	83	12	75	103
	Injection of Local Anesthetic	7	99.4	102	18.8	80	135
	After Stopping Nitrous	7	91.6	90	10	82	111
Dog	Before Procedure	8	82.5	80	20.3	59	113
	Begin Nitrous	8	81.4	83	19	56	108
	Injection of Local Anesthetic	8	84.5	80.5	19.1	59	114
	After Stopping Nitrous	8	84.4	78	20.8	61	115

RESULTS

This is an interim analysis, as the study is ongoing. The analysis includes 15 participants; the estimated required sample size for this study is 70 participants. While neither the Frankl score or heart rate show a statistically significant difference, the results are encouraging and suggest that the presence of the therapy dog may result in improved behavior and lower heart rate. Parent responses to the survey are overwhelmingly in favor of the use of therapy dogs.

CONCLUSIONS

As this is an interim analysis, conclusions are still being formulated and determined. We are optimistic that reaching the estimated required sample size will reveal helpful evidence. This evidence could lead to greater efficacy in treating pediatric dental patients. Whether the study produces favorable or unfavorable results we find this study to be of utmost importance in discovering efficacious treatment modalities to progress the comfort experienced in a dental setting.

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