



Introduction

Dental anxiety affects a large portion of the pediatric dental patient population. Dental fear can lead to avoidance of dental treatment, which may cause problems to become more severe. Dental anxiety can negatively affect how the patient cooperates and what the dentist can achieve during the visit. Pediatric dentists work to alleviate the anxiety a child feels through behavior management to ensure a successful operative visit. Weighted blankets have been shown to reduce anxiety in patients of all ages. Deep pressure stimulation helps the body move from a fight-or-flight response found in the sympathetic nervous system to a rest-and-digest state found in the parasympathetic nervous system.(1) With this transition, the body releases feelings of stress and anxiety and moves to a more relaxed state of calm and peace.(2) Weighted blankets were used on patients during operative procedures. The pressure of the blanket provides a better experience for those patients who are anxious during dental procedures. Dental anxiety can be measured through use of the Venham Picture Test (VPT) and heart rate variability. There is little to no research on the use of weighted blankets during dental procedures, especially in the pediatric population. Knowing the evidence supports weighted blankets for reduction in anxiety, research in this area could prove to be beneficial.



Weighted blanket image from Dentalcalm.com. A 5 pound, cleansable blanket was used. (3)

Study Objectives

The aim of this study is to provide dentists with another behavior management modality. Weighted blankets are non-invasive and require little to no cooperation from patient. The goal is to demonstrate that weighted blankets provide patients with feelings of decreased anxiety and more pleasant experiences during operative procedures.

Methods

Subjects

Twenty seven healthy children (two visits each one using weighted blanket and one without) between 5 and 12 years of age met the inclusion/exclusion criteria and took part in the study.

Patient Selection

Inclusion Criteria: 27 healthy children with treatment plans including any of the following operative procedures: composite restorations, stainless steel crowns, and pulpotomies.

Exclusion Criteria: Exclusion criteria: children younger than 5 and older than 12. Patients who don't meet ASA I criteria will also be excluded. This includes patients with asthma, heart issues, circulatory issues, skin allergies, and epilepsy.

Control group: Operative procedures completed without weighted blanket

Data Collection

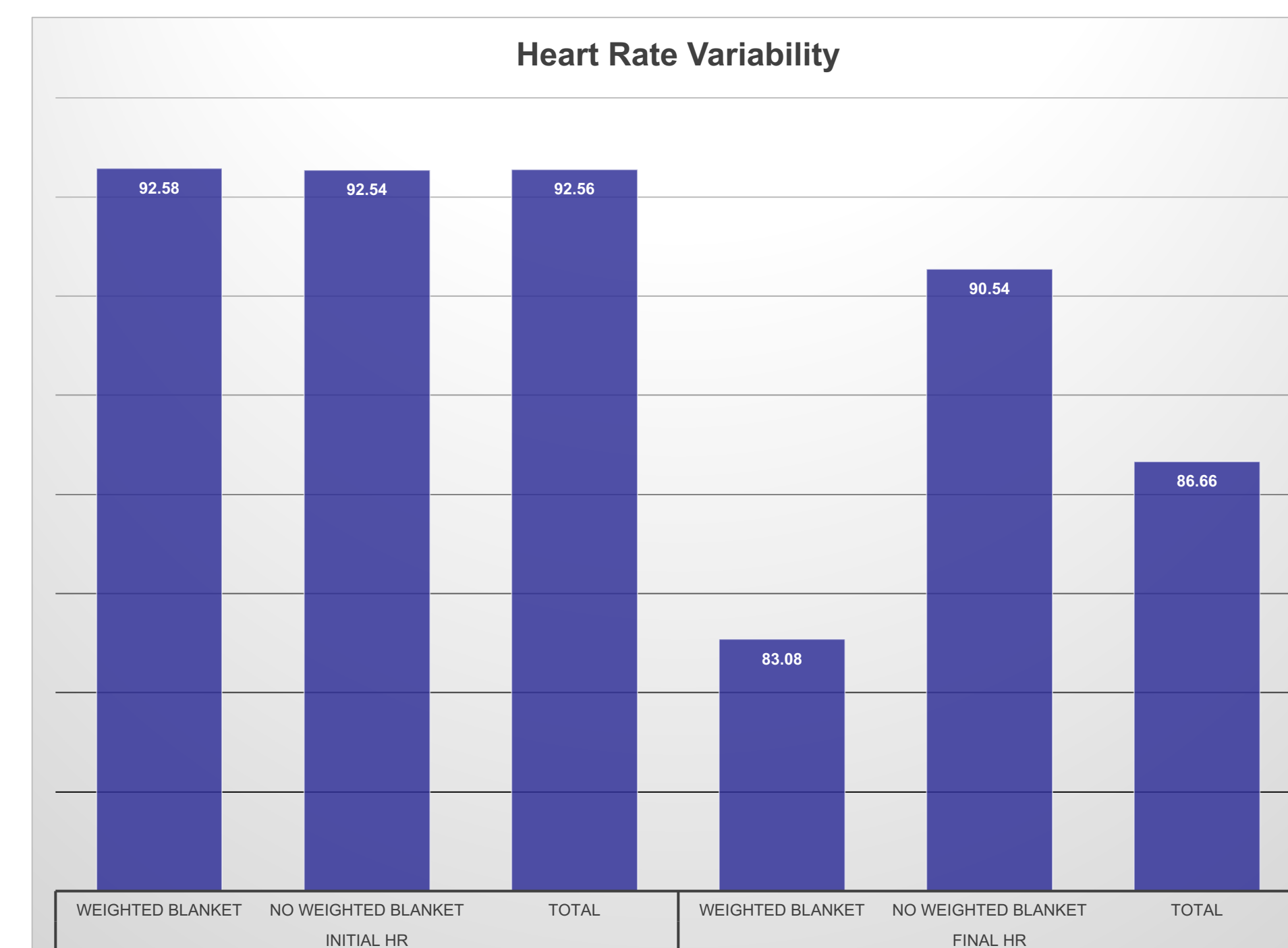
Patients age 5-12 who are healthy and require operative dental treatment were included in this study. Dental treatment included class I restorations, class II restorations, pulpotomies and stainless steel crowns. Patients had at least two teeth requiring operative procedures. The operative procedures were the same for each individual patient, for example, two class II or two pulpotomy/stainless steel crown procedures. Each patient was assigned a number. One operative visit was performed with weighted blanket and one visit was performed without. A coin was flipped to determine which visit was completed with use of blanket. Heads indicated blanket use and tails indicated no blanket. All treatment was conducted in the same manner: tell-show-do, use of 20% topical benzocaine, delivery of local anesthetic, bite block, and isolation. No nitrous oxide was used. The child was shown the Venham Picture Test before and after treatment. The patient's heart rate was monitored and recorded at 5 minute intervals throughout treatment. The Venham Picture Test is scored out of 8, with higher scores indicating more anxiety. Weighted blankets were selected to be no more than 10% of patient's body weight. The weighted blanket was wiped with Cavi wipes after each use and left in the operatory as it was fogged. A hypochlorous acid fogging solution was used.

Statistical Analyses

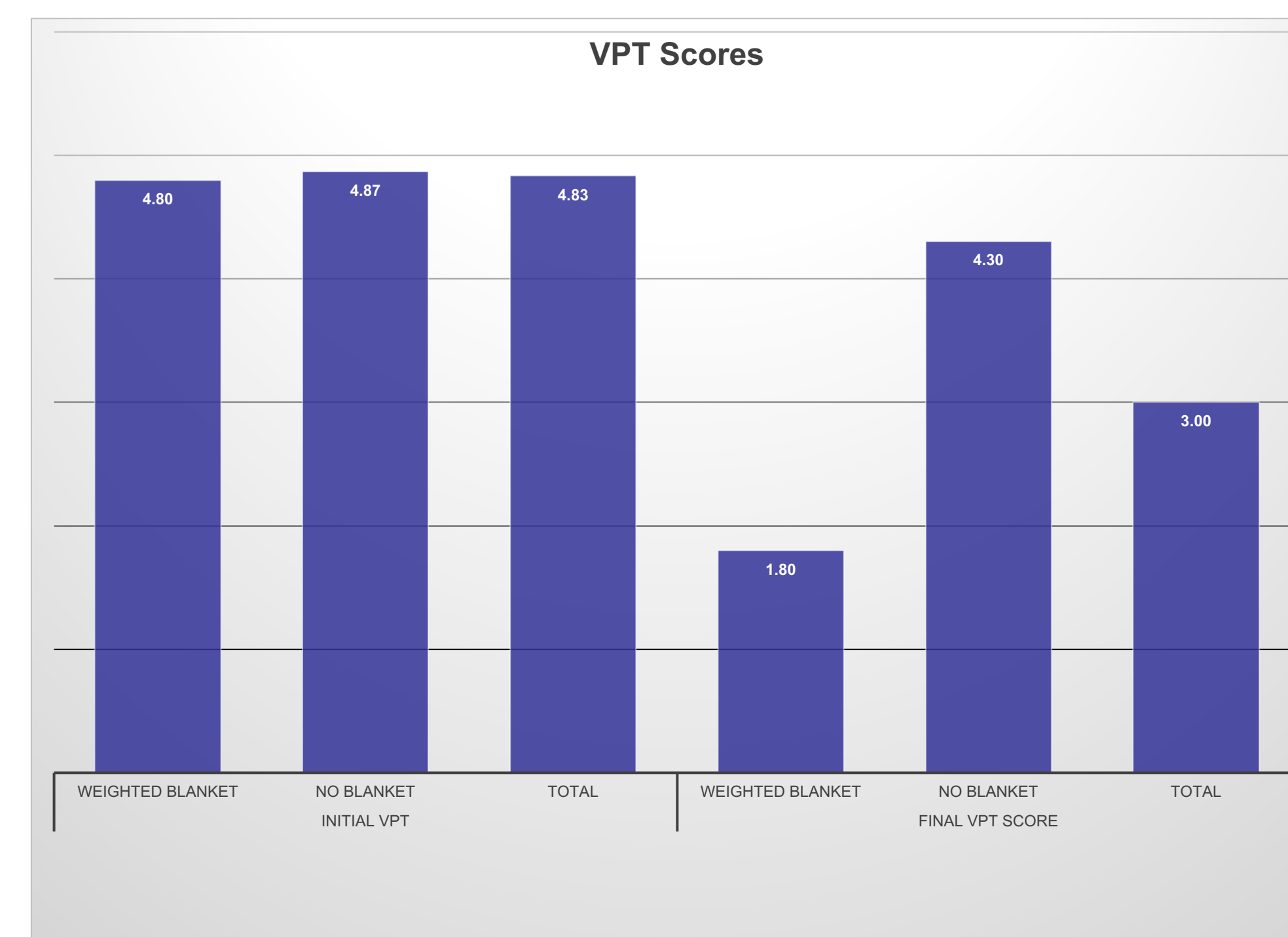
The data collected was analyzed using t tests for two samples of data at 95% confidence interval. Data was collected from heart rate monitor readings and Venham anxiety scale. The data was compared and analyzed between the two treatment visits.

Results

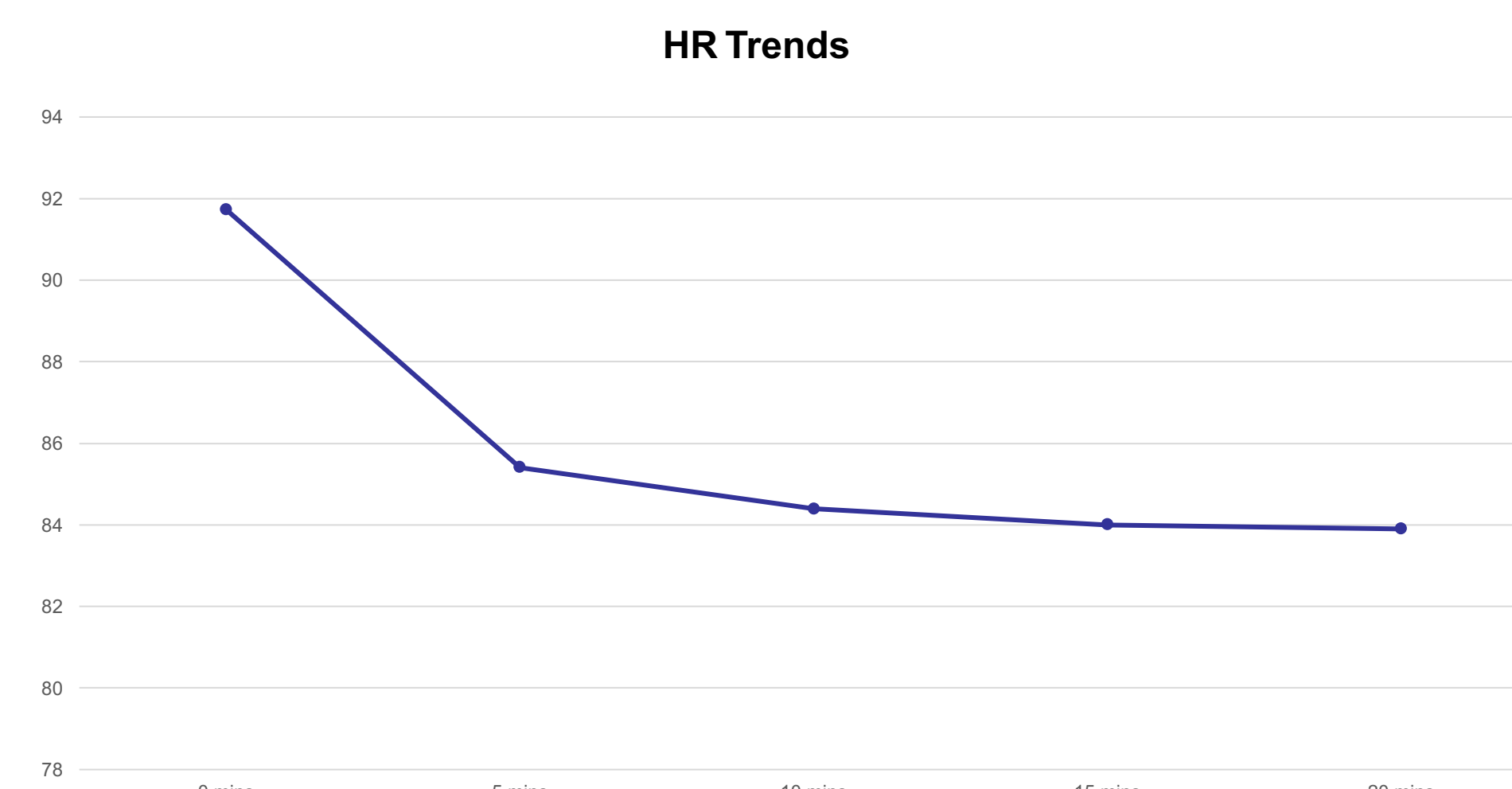
1. Heart Rate Variability



2. VPT Scores



3. Heart Rate Trends During 20 min procedure with Weighted Blanket



Discussion

- Weighted blanket use during operative procedures demonstrated a significant reduction in heart rate throughout the procedure. (Fig. 1) The operative visit with the weighted blanket provided a less stressful experience.
- The difference in heart rates between the weighted blanket visit and the control visit was statistically significant with $p < 0.05$. The mean average of heart rates during the weighted blanket visit was 83.08 beats per minute compared to 90.54.
- The measured heart rate lowered in value after placement of the weighted blanket and continued to decrease or remain the same throughout the procedure. (Fig. 3)
- The heart rates during the procedures that had no weighted blanket remained higher and patients did not demonstrate relief from anxiety.
- Patients also demonstrated statically significant lower anxiety scores at the end of each visit compared to the initial assessment. The final anxiety scores using the Venham Picture Test were lower for the weighted blanket visit. (Fig.2)

Conclusions

- Weighted blankets are an effective behavior management modality. Patients demonstrated a positive operative visit with the weighted blanket and had decreased levels of anxiety. It would be beneficial to continue research in this area over a longer period of time with more subjects. Weighted blankets are a cost effective and widely accepted behavior management modality for pediatric patients undergoing dental procedures.

Study Limitations

- The limitations to this study include small sample size, short duration of research, and the need for two visits per patient. Patients who did not return for second visit were not included in the study.

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