

One Step at a Time: Systematic Desensitization Techniques for Young Children

Autism NJ- Sessions A4
Partners in Learning, Inc.

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Systematic Desensitization

- ❖ Involves substituting one behavior, generally muscle relaxation, for the unwanted behavior- the fear and anxiety. The client develops a hierarchy of situations from the least to the most fearful and then learns to relax while imagining these anxiety-producing situations, first the least fearful situation, then the next fearful one, and so on.
- Cooper, Heron, and Heward, 2007

Systematic Desensitization

- Over half of the parents of a child with ASD reported that their child's dental health is in poor condition.
 - Tesini, 2014
- Systematic desensitization involves gradual exposure to the setting or events feared while reinforcing behaviors incompatible with disruption, such as relaxation
 - Wolpe, 1958; 1961

SZ

- 4 years 5 months
- ASD
- Desensitization for
eating different foods

Feeding

- Diet consisted mostly of carbohydrates
 - No fruits or vegetables
- Systematic Desensitization
 - Behavior momentum

Behavior Momentum

- A metaphor to describe a rate of responding and its resistance to change following an alteration in reinforcement conditions. The momentum metaphor has also been used to describe the effects produced by the high-probability request sequence

– Cooper, Heron, and Heward, 2007

Food Card

- Food card
 - 5 spots labeled with a highly preferred symbol on each spot
 - S^D cards with corresponding symbols

Method

- Single subject
- Changing criterion design
- Target Behavior: Independent Consumption
 - Independently picking the food up and putting it into their own mouth, then chewing and swallowing the food completely, without dropping or removing any of the food from their mouth.
- Target non-preferred food (NP): Apples

- Measurement
 - Number of independently consumed pieces divided by the total number of pieces presented multiplied by 100
- Mastery Criteria
 - 3 consecutive sessions of 100% independent consumption
- Regression Criteria
 - Refusing to eat the NP food for 3 consecutive sessions

Baseline Condition

- Instructor gave SZ a slice of apple
- If SZ independently consumed the apple within 5 minutes, the instructor marked a “+”
- If SZ did not independently consume the apple within 5 minutes, the instructor marked a “-” and the apple was removed

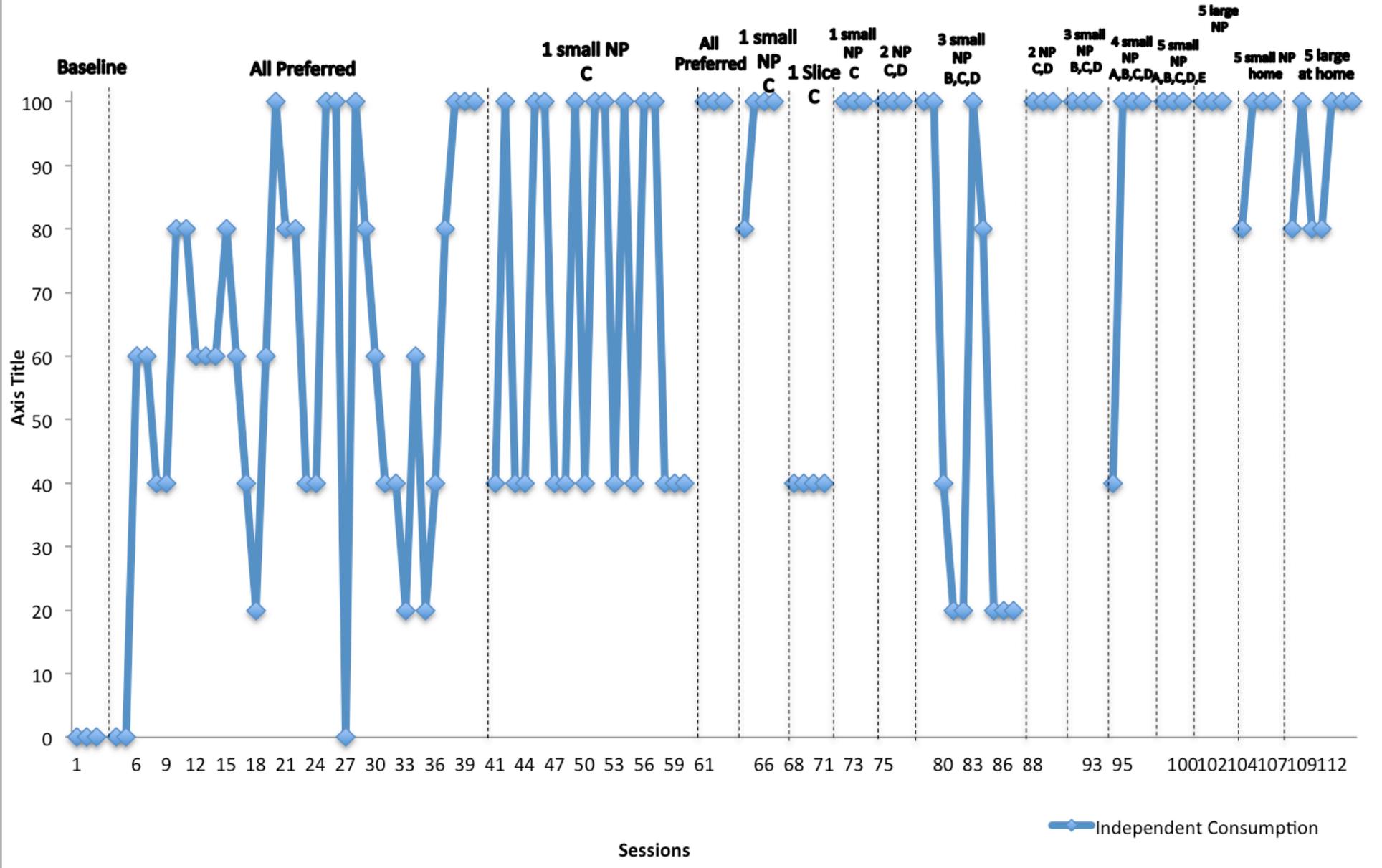
Systematic Desensitization

- Start with all preferred
- Introduce NP food 1 spot at a time
 - Can increase the number of spots with NP food or the size of the NP food first

Treatment Condition

- SZ sat at table with the preferred and/or NP food prearranged on the food card
- When shown the S^D card, SZ eats the food on the corresponding spot.
- If he independently consumes the corresponding food, a “+” is marked
- If he does not independently consume the food and/or reaches for food on a different spot, the instructor blocks SZ, gives the verbal reprimand “no”, & marks a “-”
- Trial is ended when SZ completes card or 5 minutes after the card was started

SZ: Desensitization- Food



MJ

- 3 years 5 months
- ASD
- Desensitization for a dental checkup

Oral Sensitivity

- Parent struggled to brush MJ's teeth on a daily basis
 - High levels of crying & aggression
- Never been to the dentist
- Task analysis of tooth brushing procedure and dental visit procedure

Task Analysis

- The process of breaking a complex skill or series of behaviors into small, teachable units
 - Cooper, Heron, and Heward, 2007

Tooth brushing Tolerance

- 8-step process
- forward chaining
 - A method for teaching behavior chains that begins with the learner being prompted and taught to perform the first behavior in the task analysis; the trainer completes the remaining steps in the chain. When the learner shows competence in performing the first step in the chain, he is then taught to perform the first two behaviors in the chain, with the trainer completing the chain. This process continues until the learner completes the entire chain independently.
 - Cooper, Heron, and Heward, 2007
- Done in home setting with parent

- 1.Step up on stool
- 2.Hold toothbrush*
- 3.Brush top front teeth*
- 4.Brush bottom front teeth*
- 5.Brush back left*
- 6.Brush back right*
- 7.Drink sip of water- instructor models spitting out excess water, but spitting is not a target
- 8.Rinse toothbrush*

* with assistance from parent

Dental Prep

- 13-step process
- Forward chaining
- Practiced in home & school environment
- Visual schedule on iPad
- Used real dental equipment

- 1.Sit in reclined position
- 2.Therapist puts bib on child's chest
- 3.Child opens mouth
- 4.Therapist touches open mouth
- 5.Therapist puts finger in mouth
- 6.Therapist counts teeth with finger
- 7.Therapist puts mirror in mouth
- 8.Therapist touches teeth with finger while mirror is in mouth
- 9.Therapist counts teeth with tool
- 10.Child keeps mouth open for 15 sec
- 11.Child keeps mouth open for 30 sec
- 12.Child keeps mouth open for 45 sec
- 13.Child keeps mouth open for 1 minute

Method

- Single Subject
- Changing criterion design
- Target Behavior: Independence
 - Completing the directions of an adult with no more than 1 verbal reminder without extra prompting from the adult and without the presence of crying, aggression, flopping, and/or stereotypical behavior

- **Measurement:**

- Number of steps completed independently divided by total number of steps being completed multiplied by 100

- **Mastery Criteria:**

- 3 consecutive session that average 90% or higher

or

- Child spontaneously (without prompting) begins to do a higher level behavior than what is required by the current target
 - e.g. Target is brushing top front teeth, but child begins to brush top and bottom front teeth instead. Move to new target that requires brushing top and bottom teeth.

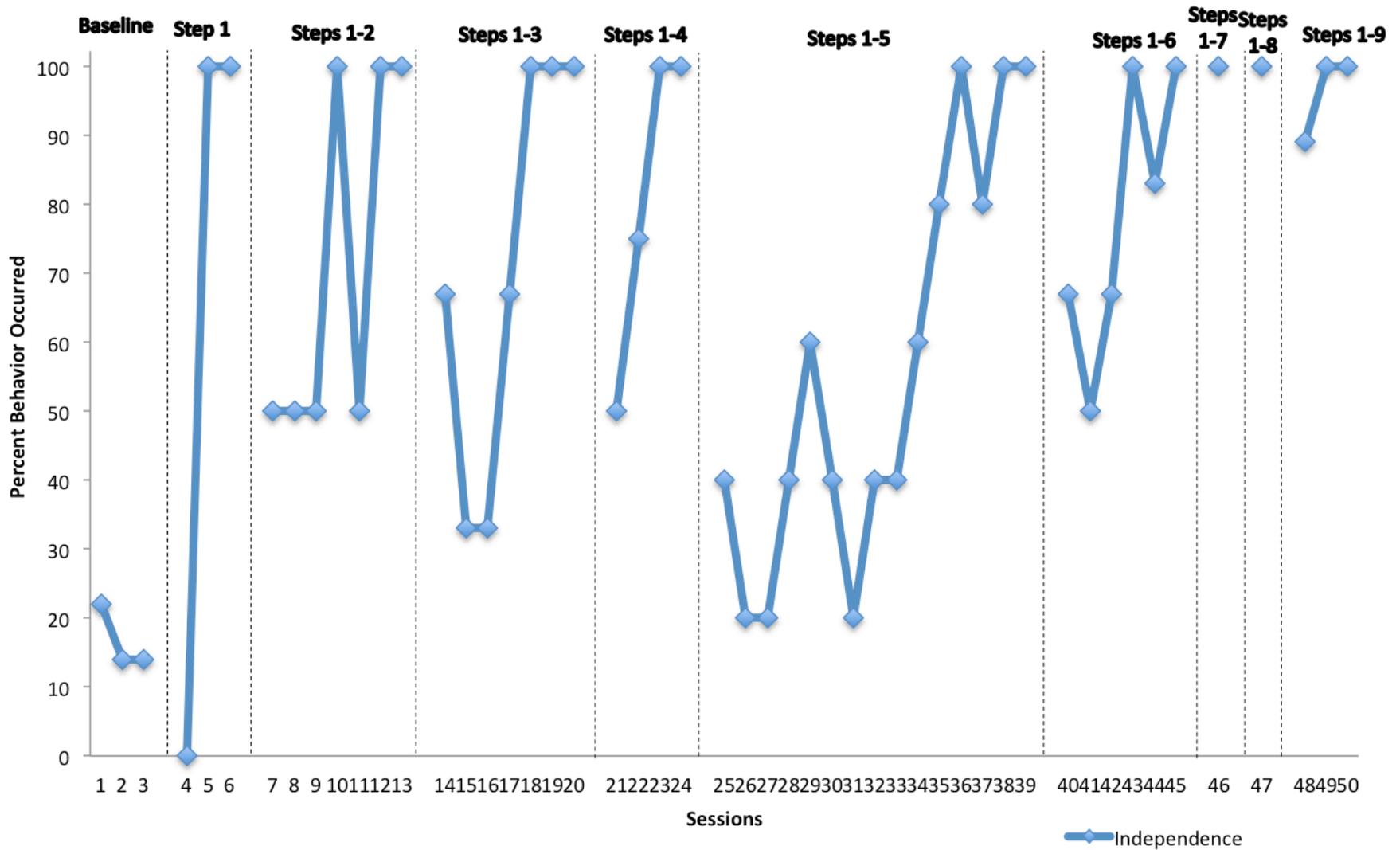
Tooth brushing: Baseline

- Parent gave S^D “Time to brush your teeth.”
- Instructor put a “+” next to the corresponding step if completed independently
 - No reinforcement was provided
- If MJ did not complete a step independently, the instructor marked a “-” next to the corresponding step, the demand was removed, and the next step was presented

Tooth brushing: Treatment

- Child picks highly preferred activity/toy/edible
- Parent gave S^D
- Therapist marks a “+” next to each step completed independently
- Therapist marks a “-” next to each step that independence does not occur
 - Parent gives verbal reprimand “no” and reminds MJ what he is working for, then presents that same demand again
 - MJ only gains access to the highly preferred object when target step is completed independently
- Forward chaining ends once the target step is completed

MJ: Desensitization- Toothbrushing with Mom



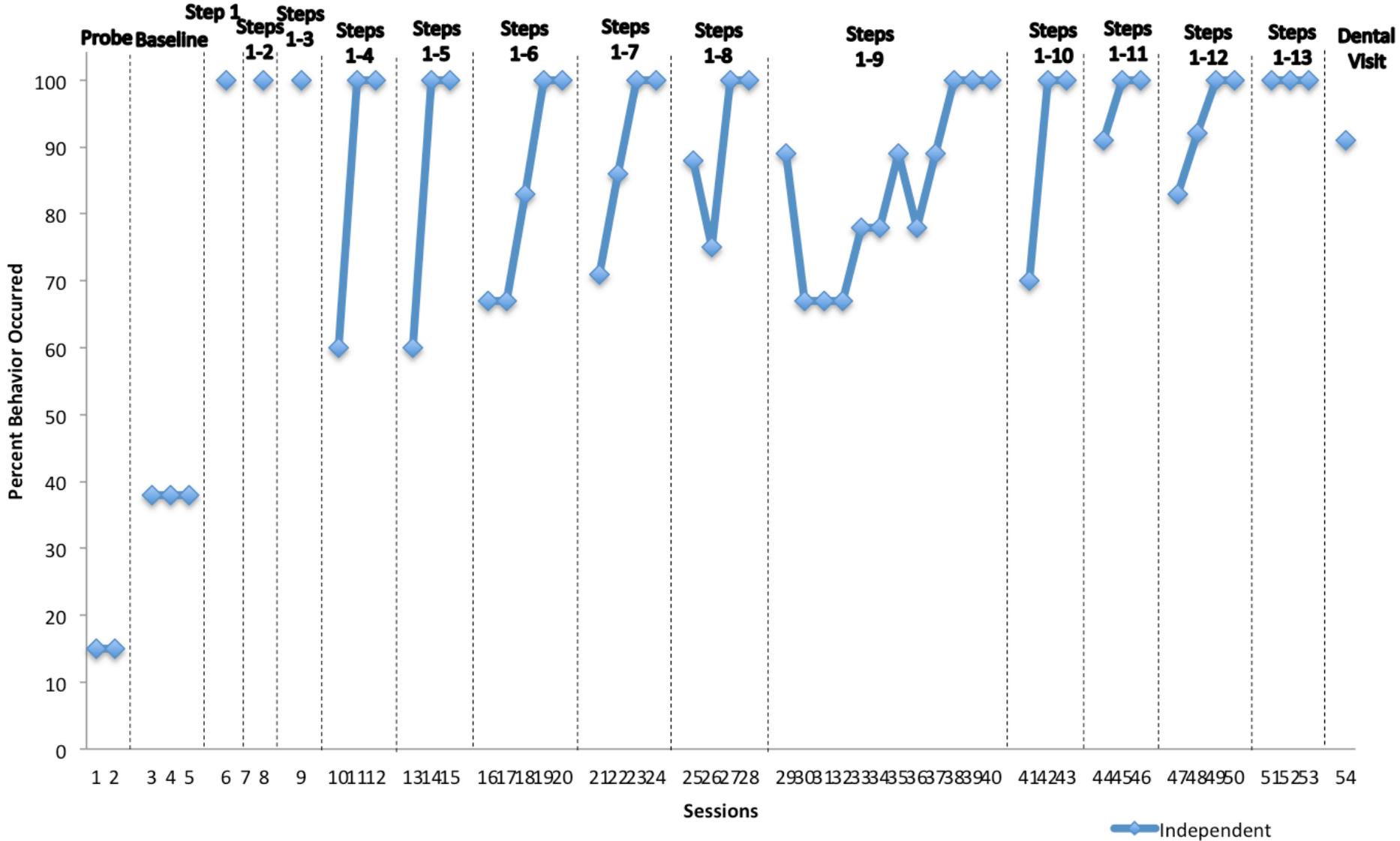
Dental Prep: Baseline

- Therapist gave S^D “I’m going to check your teeth.”
- Instructor put a “+” next to the corresponding step if completed independently
 - No reinforcement was provided
- If MJ did not complete a step independently, the instructor marked a “-” next to the corresponding step, the demand was removed, and the next step was presented

Dental Prep: Treatment

- Child picks highly preferred activity/toy/edible
- Therapist gave S^D
- MJ checks visual schedule prior to each step
- Therapist marks a “+” next to each step completed independently
- Therapist marks a “-” next to each step that independence does not occur
 - Therapist gives verbal reprimand “no” and reminds MJ what he is working for, then presents that same demand again
 - MJ only gains access to the highly preferred object when target step is completed independently
- Forward chaining ends once the target step is completed
- MJ marks each step as complete on the visual schedule

MJ: Desensitization- Dental Prep



Parent Survey

- Social Validity
 - Refers to the extent that target behaviors are appropriate, intervention procedures are acceptable, and important and significant changes in target and collateral behaviors are produced.
 - Cooper, Heron, and Heward, 2007
- Parent survey given before and after dental visit
 - Adapted from Dikshit, Limbu, and Bhattarai, 2014
- Pre-survey consisted of 4 multiple choice questions
- Post-survey consisted of 5 multiple choice questions

MJ: Parent Survey

**E: Anxious w/
signs of distress**

D: Anxious

C: Tense

B: A little uneasy

A: Relaxed

■ Pre-Visit Survey
■ Post-Visit Survey

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Question 1

Question 2

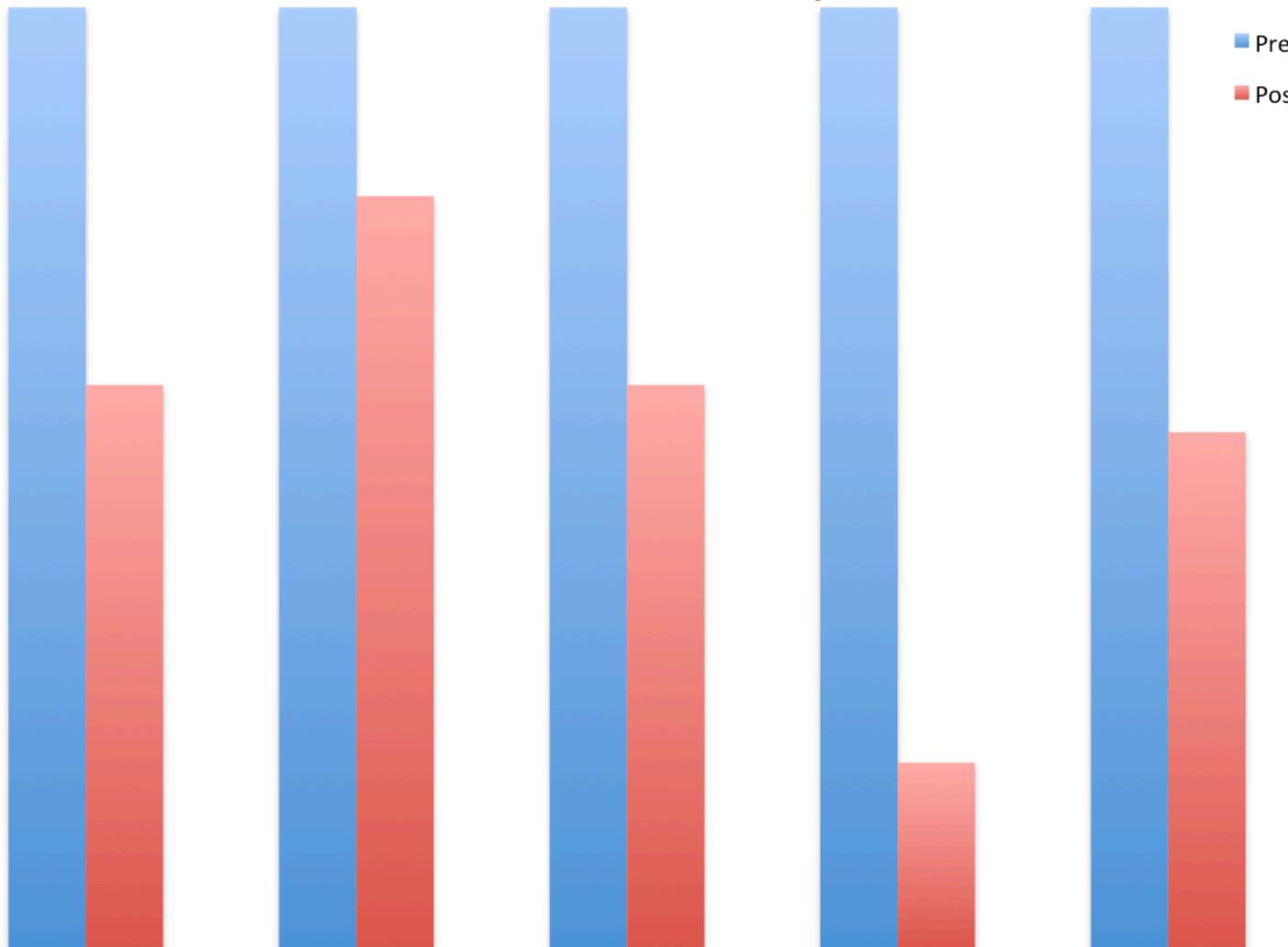
Question 3

Question 4

Mean Score

Questions

**Question: Do you think practicing the dental prep desensitization prior to the appointment was helpful in increasing independence?
Parent Answer: Yes**



W.A.

- 4 years 6 months
- ASD
- Desensitization for a dental checkup, haircutting, and blood work

Treatment Plan

- iPad
 - Pictures/audible schedule
 - Timer
 - 5 point token economy
- Picture cues
 - Peer & classroom

Dental Visits

- WA is able to brush his teeth independently
- Increase is interfering behaviors when doing a novel task or in a novel environment
- Dentist could not look in mouth during first visit

Dental Prep

- 13-step process
- Forward chaining
- Practiced in school environment
- Visual schedule on iPad with Video Self-Modeling (VSM)
 - Observational learning in which individuals observe themselves performing a behavior successfully on video then imitating that targeted behavior in a real life setting
- Used real dental equipment

Method

- Single Subject
- Changing criterion design
- Target Behavior: Independence
 - Completing the directions of an adult with no more than 1 verbal reminder without extra prompting from the adult and without the presence of crying, aggression, flopping, and/or stereotypical behavior

- Measurement:
 - Number of steps completed independently divided by total number of steps being completed multiplied by 100
- Mastery Criteria:
 - 3 consecutive session that average 90% or higher
 - or
 - Child spontaneously (without prompting) begins to do a higher level behavior than what is required by the current target
 - e.g. Target is brushing top front teeth, but child begins to brush top and bottom front teeth instead. Move to new target that requires brushing top and bottom teeth.

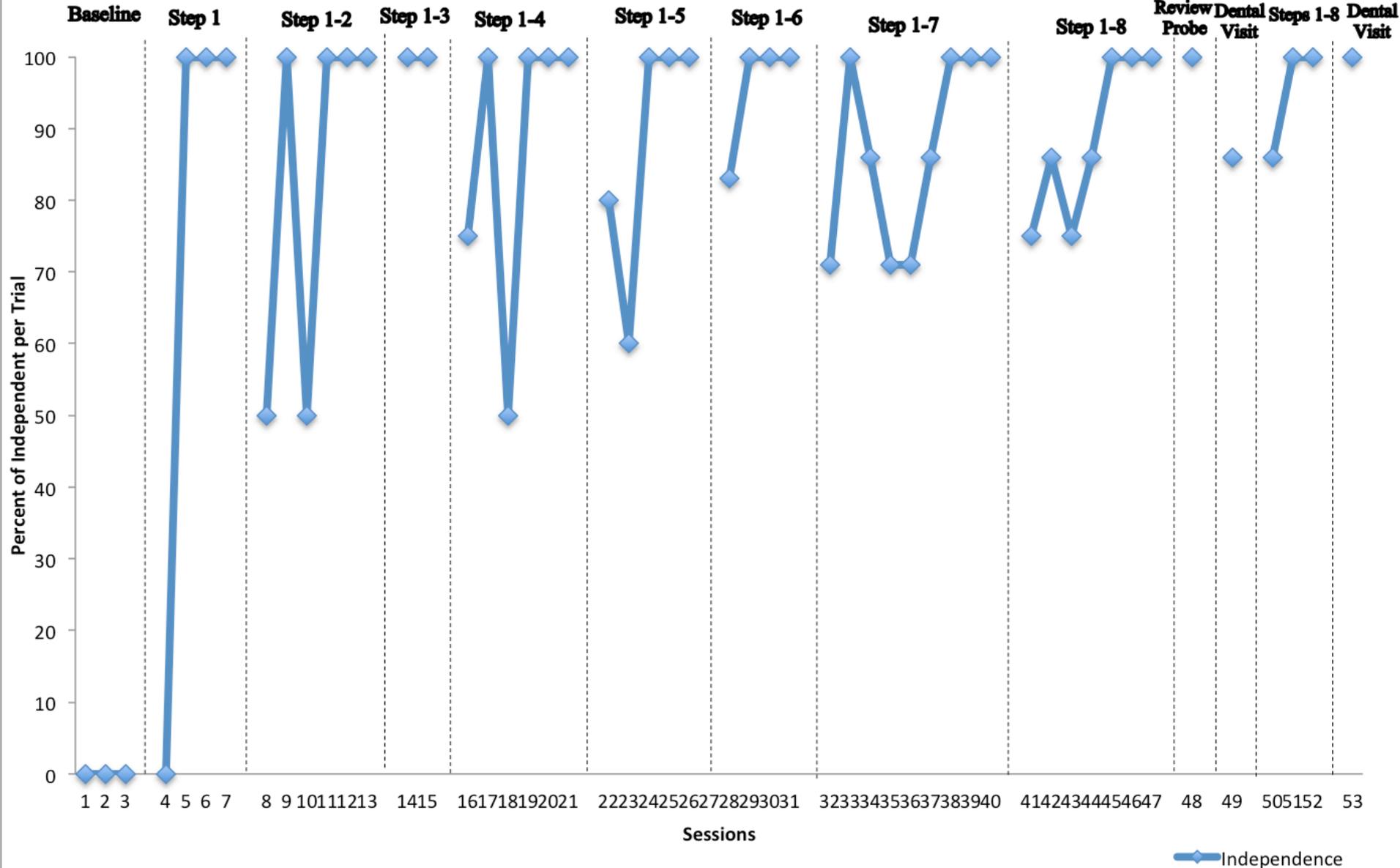
Dental Prep: Baseline

- Therapist gave S^D “I’m going to check your teeth.”
- Instructor put a “+” next to the corresponding step if completed independently
 - No reinforcement was provided
- If WA did not complete a step independently, the instructor marked a “-” next to the corresponding step, the demand was removed, and the next step was presented

Dental Prep: Treatment

- Child picks highly preferred activity/toy/edible
- Therapist gave S^D
- WA checks visual schedule prior to each step & watches VSM
- Therapist marks a “+” next to each step completed independently
- Therapist marks a “-” next to each step that independence does not occur
 - Therapist gives verbal reprimand “no” and reminds WA what he is working for, then presents that same demand again
 - WA only gains access to the highly preferred object when target step is completed independently
- Forward chaining ends once the target step is completed
- WA marks each step as complete on the visual schedule

WA: Desensitization- Dental Prep



Haircutting

- Demonstrates increase interfering behaviors during haircuts as in the first dental visit
- Task analysis: 13-step process
- Forward chaining
- Practiced in school environment
- Visual schedule on iPad with VSM
- Used real haircutting materials
 - Simulated cutting hair, cover secured on buzzers

1. Instructor puts drape over child
2. child sits calmly in chair
3. Instructor sprays hair with water
4. Instructor combs child's hair
5. Instructor places scissors near child's head & pretends to cut hair for 20 seconds
6. Instructor turns on clippers
7. Instructor places buzzers near child's head
8. Instructor moves buzzers on child's head for 5 sec
9. 15 sec
10. 30 sec
11. 45 sec
12. 1 min

Method

- Single Subject
- Changing criterion design
- Target Behavior: Independence
 - Completing the directions of an adult with no more than 1 verbal reminder without extra prompting from the adult and without the presence of crying, aggression, flopping, and/or stereotypical behavior

- Measurement:

- Number of steps completed independently divided by total number of steps being completed multiplied by 100

- Mastery Criteria:

- 3 consecutive session that average 90% or higher

or

- Child spontaneously (without prompting) begins to do a higher level behavior than what is required by the current target

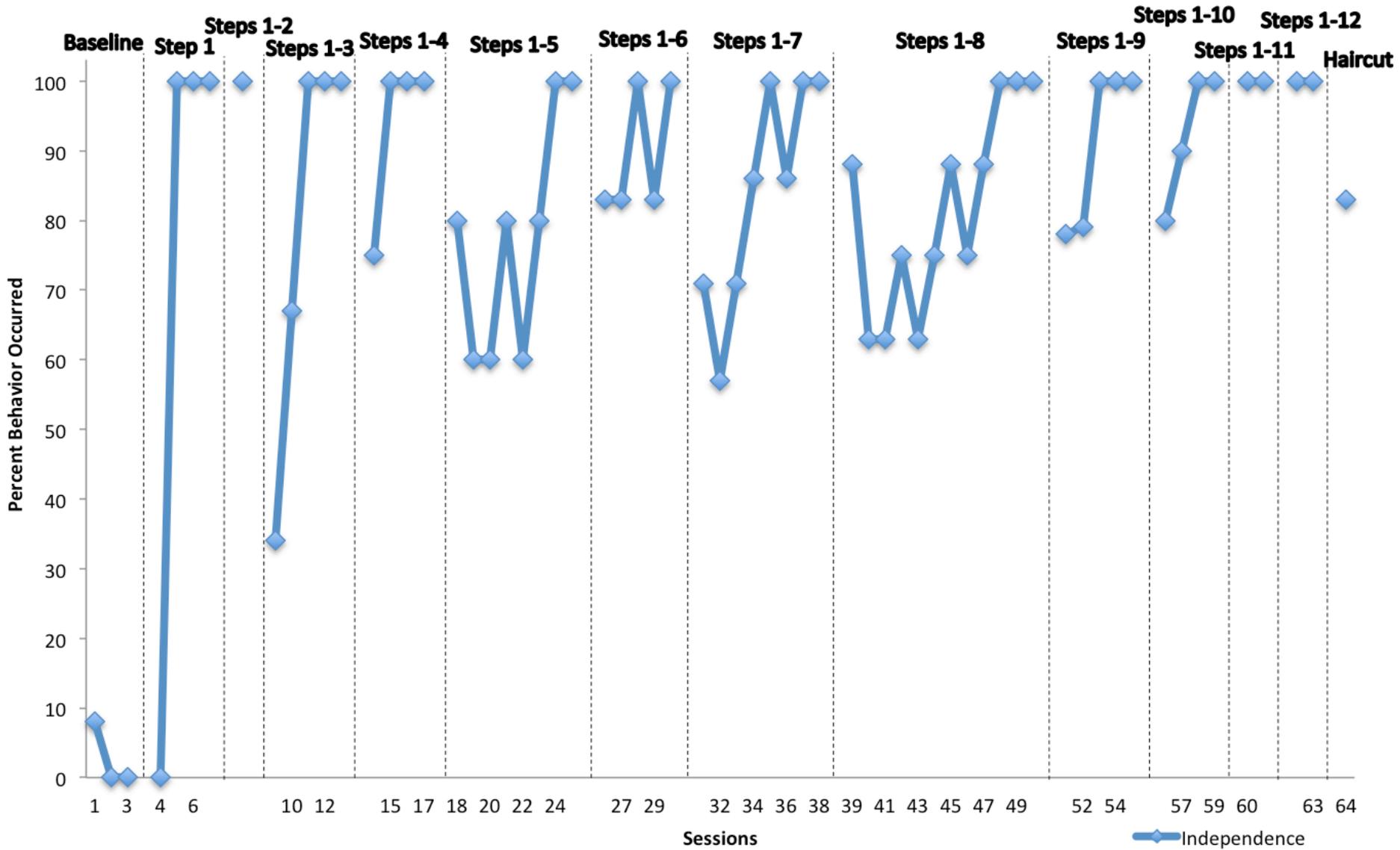
Baseline Condition

- Therapist gave S^D “It’s time for your haircut.”
- Instructor put a “+” next to the corresponding step if completed independently
 - No reinforcement was provided
- If WA did not complete a step independently, the instructor marked a “-” next to the corresponding step, the demand was removed, and the next step was presented

Treatment Condition

- Child picks highly preferred activity/toy/edible
- Therapist gave S^D
- WA checks visual schedule prior to each step & watches VSM
- Therapist marks a “+” next to each step completed independently
- Therapist marks a “-” next to each step that independence does not occur
 - Therapist gives verbal reprimand “no” and reminds WA what he is working for, then presents that same demand again
 - WA only gains access to the highly preferred object when target step is completed independently
- Forward chaining ends once the target step is completed
- WA marks each step as complete on the visual schedule

WA: Desensitization- Haircutting



WA: Parent Survey

Pre-Visit Survey
Post-Visit Survey

**E: Anxious w/
signs of distress**

D: Anxious

C: Tense

B: A little uneasy

A: Relaxed

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Question 1

Question 2

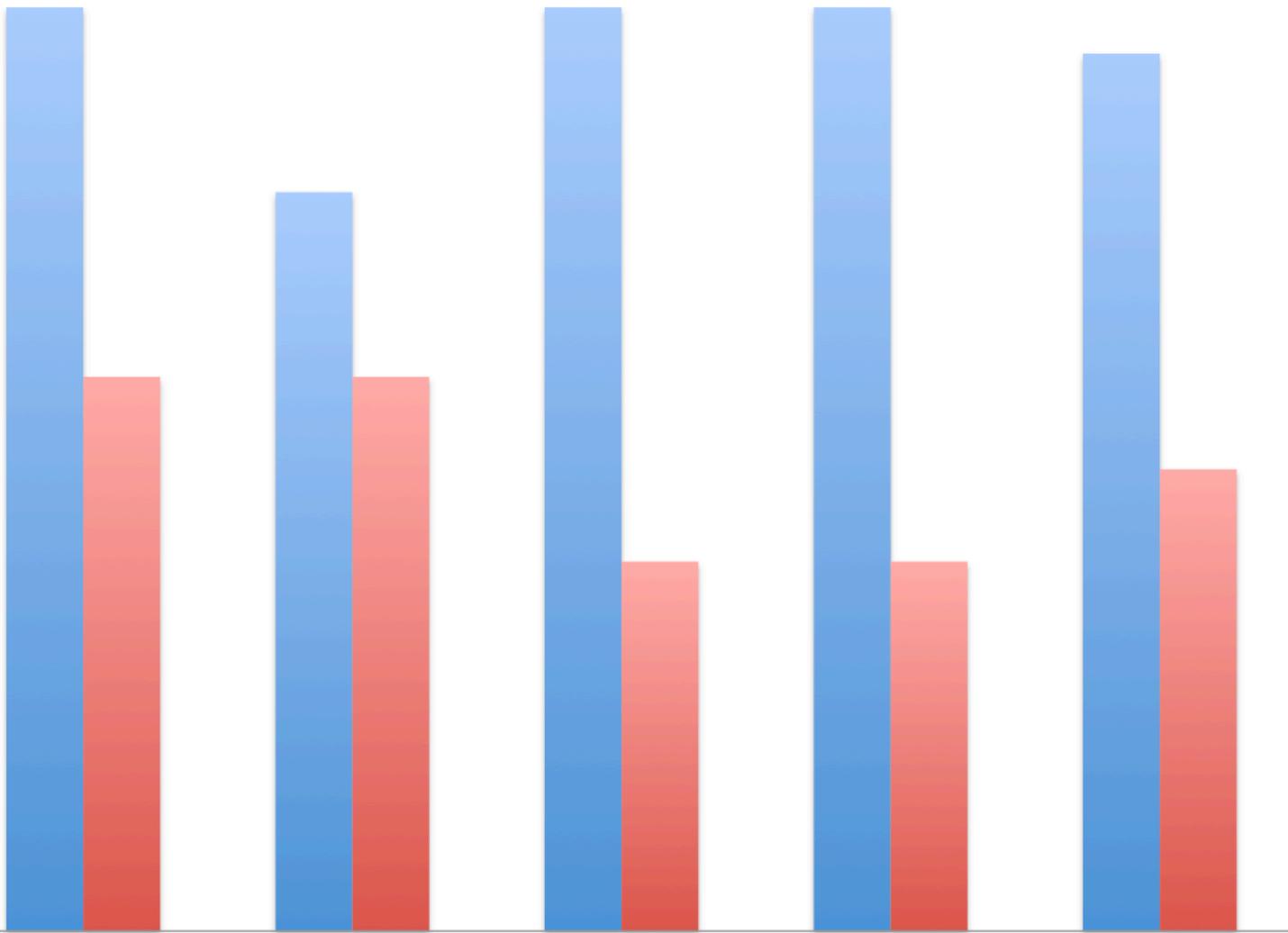
Question 3

Question 4

Mean Score

Questions

Parent Rating



Needle Tolerance

- History of increased interfering behaviors during visits that involve shots.
- Task analysis: 10-step process
- Forward chaining
- Practiced in school environment
- Visual schedule on iPad
- Used real band aids, rubber gloves, & rubber band
 - Toy needle from doctor kit

1. Child extends hand with palm up
2. Instructor puts band around upper arm
3. Instructor holds child's arm just below inner elbow
4. Child places needed on child's arm at inner elbow
5. Hold for 5 sec
6. Hold for 10 sec
7. Hold for 15 sec
8. Hold for 30 sec
9. Instructor places gauze & medical tape on inner elbow
10. Child folds arm at elbow

Method

- Single Subject
- Changing criterion design
- Target Behavior: Independence
 - Completing the directions of an adult with no more than 1 verbal reminder without extra prompting from the adult and without the presence of crying, aggression, flopping, and/or stereotypical behavior

- Measurement:
 - Number of steps completed independently divided by total number of steps being completed multiplied by 100
- Mastery Criteria:
 - 3 consecutive session that average 90% or higher

or

 - Child spontaneously (without prompting) begins to do a higher level behavior than what is required by the current target

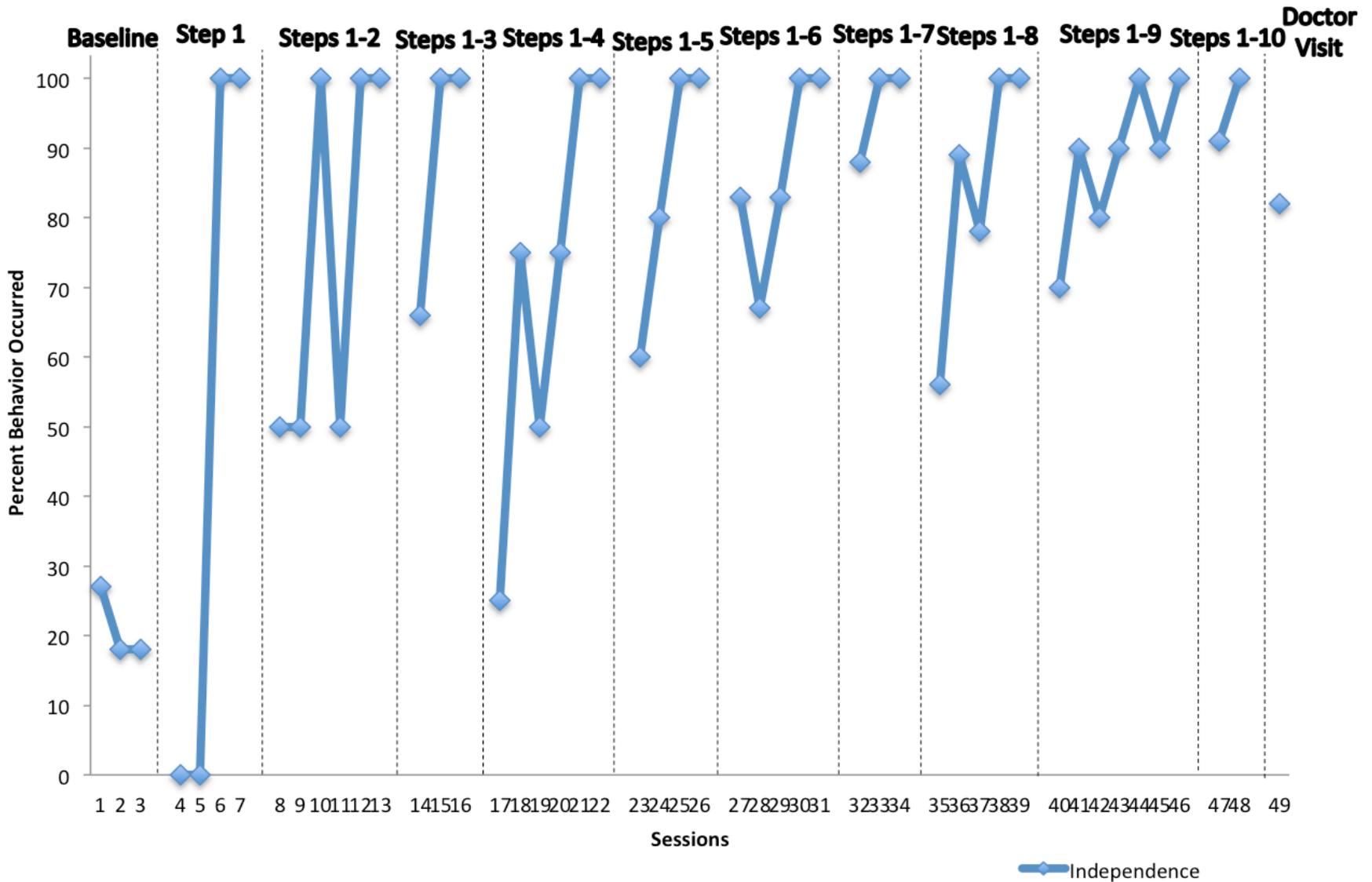
Baseline Condition

- Therapist gave S^D “Can I have your hand.”
- Instructor put a “+” next to the corresponding step if completed independently
 - No reinforcement was provided
- If WA did not complete a step independently, the instructor marked a “-” next to the corresponding step, the demand was removed, and the next step was presented

Treatment Condition

- Child picks highly preferred activity/toy/edible
- Therapist gave S^D
- WA checks visual schedule prior to each step
- Therapist marks a “+” next to each step completed independently
- Therapist marks a “-” next to each step that independence does not occur
 - Therapist gives verbal reprimand “no” and reminds WA what he is working for, then presents that same demand again
 - WA only gains access to the highly preferred object when target step is completed independently
- Forward chaining ends once the target step is completed
- WA marks each step as complete on the visual schedule

WA: Desensitization- Blood Work



WA: Parent Survey

Pre-Visit Survey
Post-Visit Survey

**E: Anxious w/
signs of distress**

D: Anxious

C: Tense

B: A little uneasy

A: Relaxed

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Question 1

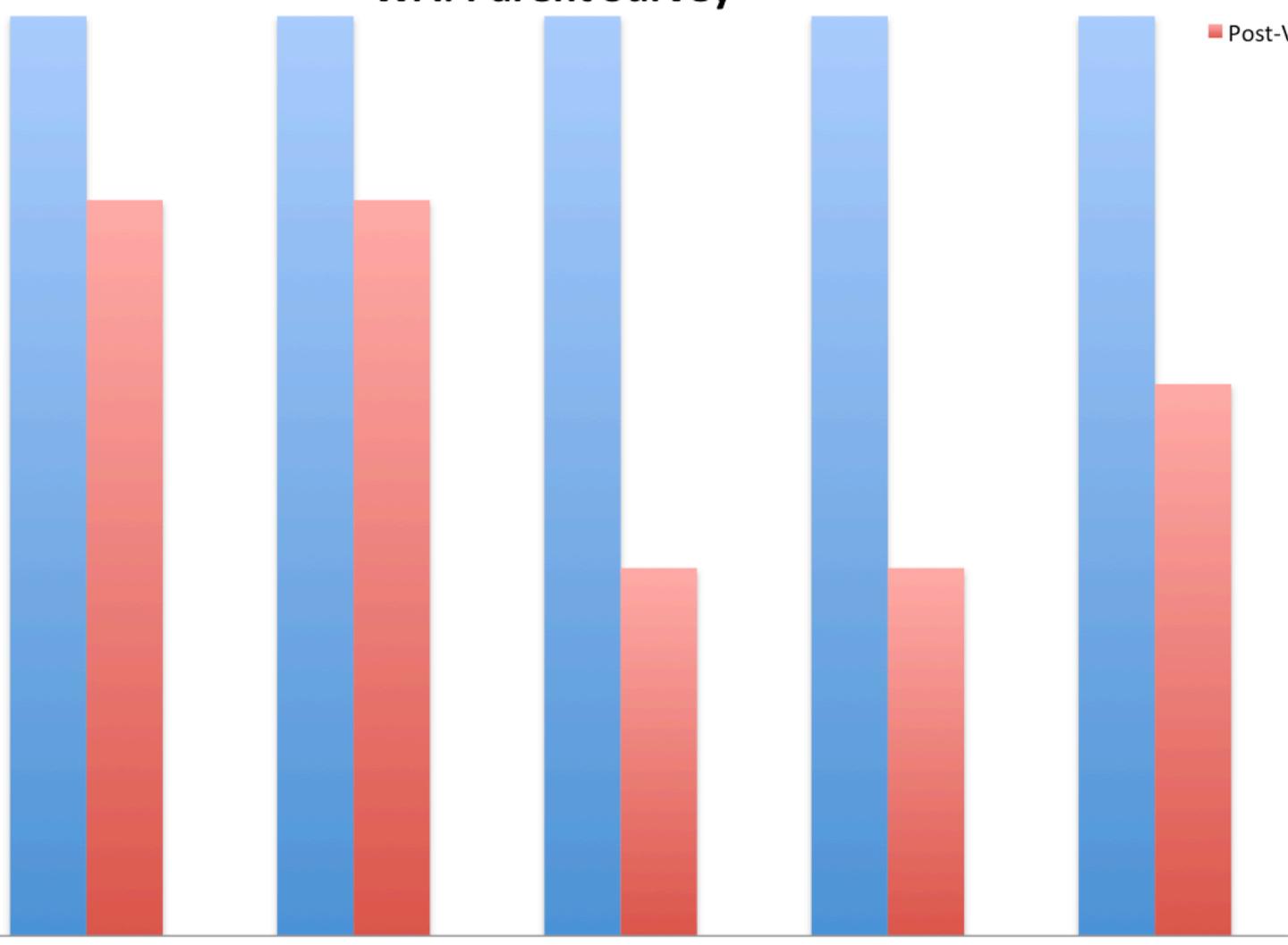
Question 2

Question 3
Questions

Question 4

Mean Score

**Question: Do you think practicing the blood work desensitization prior to the appointment was helpful in increasing independence?
Parent Answer: Yes**



LM

- 4 years 9 months
- ASD
- Desensitization for shopping in the community

Treatment Plan

- iPad
 - Pictures/audible schedule
 - Timer
 - 3 point token economy
- Picture cues
 - Peer & classroom

Shopping in the community

- LM demonstrated elevated levels of crying, flopping, stereotypical behavior, and bolting
- Replacing inappropriate behaviors with an appropriate shopping behaviors
 - Walking next to cart, putting items in cart, put items on conveyer belt
- Practiced in the home environment with parent
- 2 Visual schedule on iPad with VSM
- Seamless VSM video showing LM appropriate behaviors in the store

Method

- Single Subject
- Return to baseline design
- Target Behaviors:
 - Crying: Crying or whining with or without tears, not related to sickness or injury. Instances of crying end when tears and/or whining cease to occur for 5 seconds
 - Bolting: Running or walking away from the guardian, beyond 3 feet, without being told to do so
 - Stereotypical: Any repetitive and/or non-contextual verbal and/or physical behavior requiring redirection. Instances of stereotypical end when behavior ceases to occur for 5 seconds
 - Prompt: Additional support given after 15 seconds of a demand
- Measurement:
 - Number of times target behaviors occurred/total minutes per session x 100

Baseline Condition

- Parent gave S^D "Let's go shopping."
- Instructor notes when shopping session starts when ends
 - Converts time into minutes at end of session
- Every time a target behavior occurs, the therapist makes a tally mark in the corresponding section
- No reprimands were given and a demand was removed if it invoked a target behavior
- No reinforcement was provided for complying to a demand

Treatment Condition: Phase 1

- Child picks highly preferred edible
- Parent or therapist gave S^D
- Instructor notes when practice shopping session starts and when ends
 - Converts time into minutes at end of session
- Every time a target behavior occurs, the therapist makes a tally mark in the corresponding section
- LM checks visual schedule prior to each step & watches VSM
- LM gains immediate access to highly preferred edible if he imitates the action demonstrated in the VSM within 5 seconds of viewing

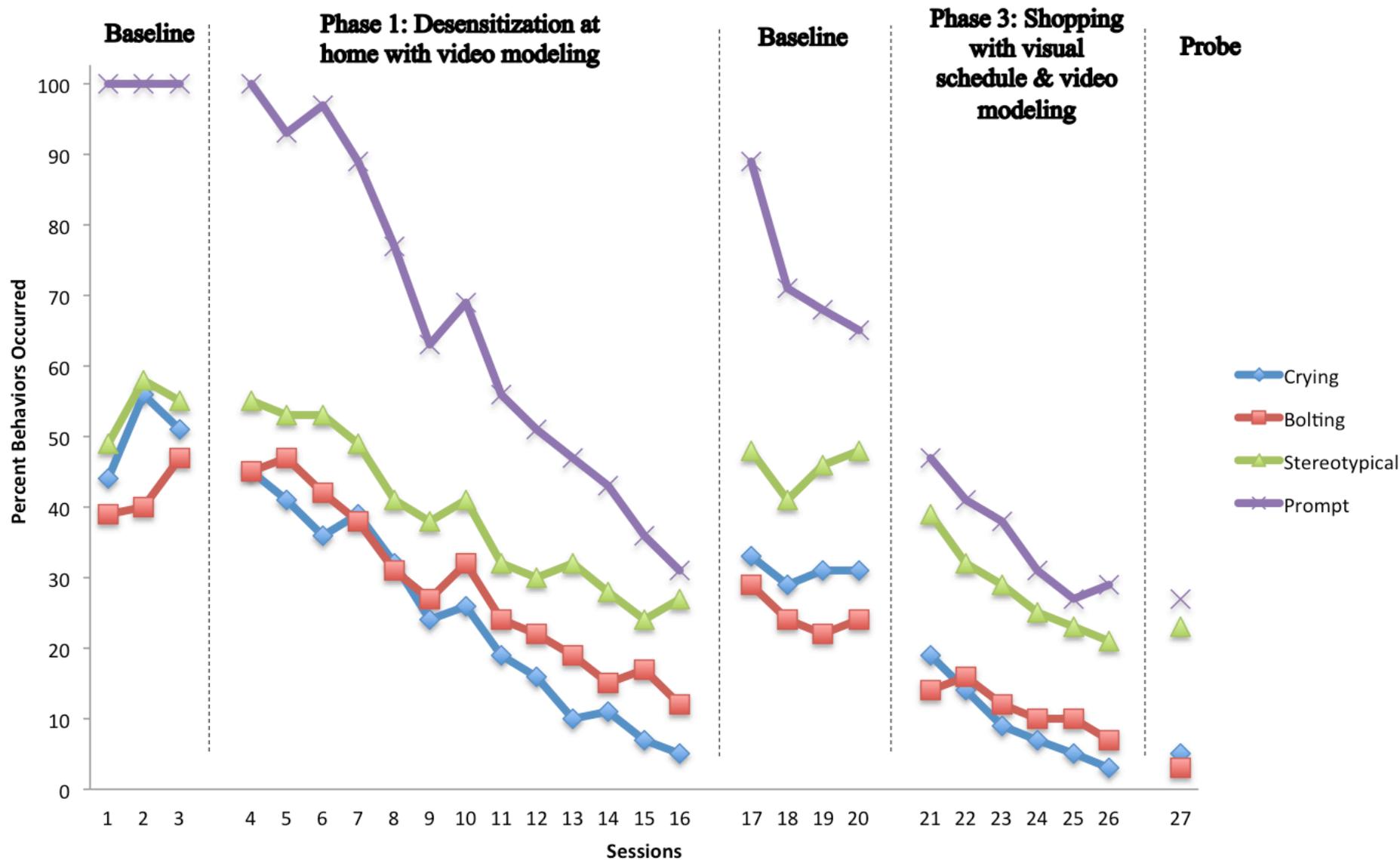
Treatment Condition: Phase 2

- Treatment condition protocol remains the same
- LM views seamless VSM of shopping trip before leaving the house
- Treatment implemented in community setting

Probe Condition

- Community training with parent ended due to the start of the new school year
- Probe was conducted 1 month after treatment ended
- Target behaviors remained at decreased levels

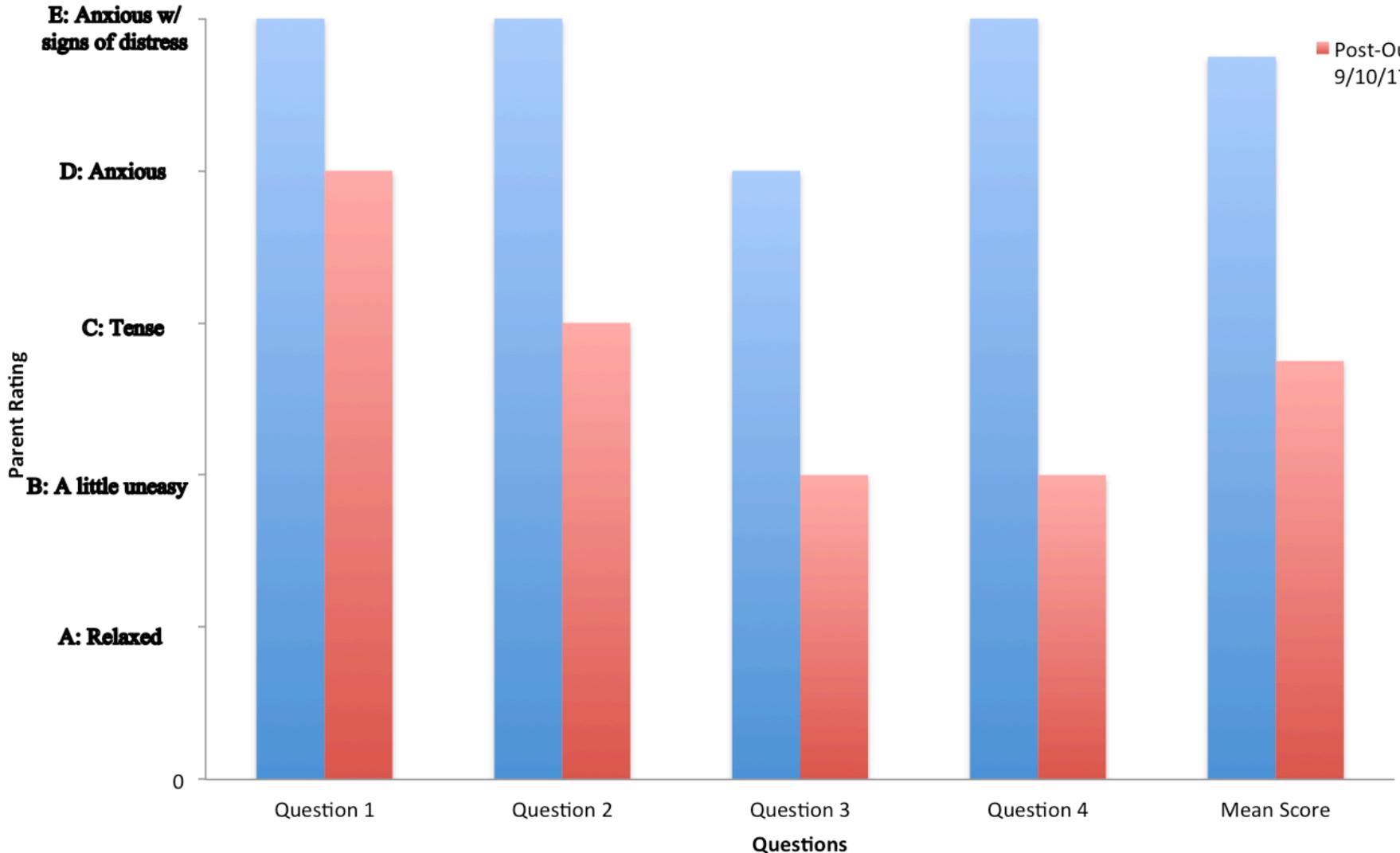
LM: Desensitization- Shopping



LM: Parent Survey

Pre-Outing Survey
7/19/17

Post-Outing Survey
9/10/17



Question: Do you think practicing the community desensitization prior to the outing was helpful in increasing independence?
Parent Answer: Yes

References

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