



# Measuring Occupational Outcomes of Comprehensive Behavioral Intervention for Tics Through Standardized Assessments

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## Introduction

- Children with tic disorders, including those with Tourette Syndrome, often have behavioral and social difficulties, which may be associated with co-occurring mental, emotional, or behavioral disorders all which impact participation in occupation (Bitsko et al., 2020).
- Comprehensive Behavioral Intervention for Tics (CBIT) is an effective treatment option for reduction of tics for pediatric clients with tic disorders, and it is also known that children and adolescents have the capacity to reliably self-reflect regarding their perceptions of performance and value of everyday activities (Ohl et al., 2015).
- This project aimed to better understand the occupational outcomes of CBIT through self-reported occupational performance and values for clients and their caregivers.
- Pre-post assessment results of the Tic Adapted Child Occupational Self-Assessment (COSA-t) and the Tic Adapted Accommodation and Reactions Scale (TARS) Participants: Clients who completed CBIT protocols at Children’s of Alabama (COA) CBIT Clinic between March and August of 2024 and their caregivers.
- Participants and caregivers were reassessed using the COSA-t and TARS using a HIPAA compliant Zoom platform.

## Methods

- Inclusion criteria for this study included pediatric and adolescent clients between the ages of 7-21 years who completed CBIT at COA CBIT Clinic between March 1, 2024 and September 30, 2024.
- Initially, Dr. Jan Rowe, occupational therapist and Director of the COA CBIT Clinic provided the principal investigator (PI) names, addresses, date of birth (DOB), and telephone numbers of patients who meet inclusion criteria.
- A recruitment flyer was mailed to twenty-three possible participants.
- When a possible participant responded to the flyer, the PI obtained verbal consent to have a link emailed to them to access, read, and complete the proper consent and assent forms using Qualtrics.
- Once the PI had obtained the completed assent and consent forms in Qualtrics for both the client who received Comprehensive Behavioral Intervention for Tics (CBIT) and their guardian/caregiver, the PI reached out to the study participants, either via email or phone, and scheduled a day and time for the 30-minute HIPAA compliant Zoom session to take place.
- The PI completed the Tic Adapted Child Occupational Self-Assessment (COSA-t) with the client who received Comprehensive Behavioral Intervention for Tics (CBIT) and the Tic Accommodations and Reactions Scale (TARS) with the client’s guardian/caregiver.
- These results were compared to the initial Tic Adapted Child Occupational Self-Assessment (COSA-t) and the Tic Accommodations and Reactions Scale (TARS) scores that were obtained during the initial evaluation conducted at Children’s of Alabama CBIT clinic before participating in Comprehensive Behavioral Intervention for Tics (CBIT).
- Both patients and Caregivers/guardians were given a Likert scale of one to ten, with one meaning not confident at all and ten meaning completely confident, for how confident they are that the CBIT experience helped better manage tics and reduced the impact of tics on life overall.

## Results

- A total of two participants and their guardians/caregivers chose to participate in this study.
- All participants and their guardians reported that they did not have anything additional that they would like the PI to know about that was not asked about related to their CBIT experience.
- **Common Themes**  
 Prior to CBIT, participant one reported difficulty falling asleep and staying asleep. However, post CBIT results suggest that the participant:

Continues to have difficulty falling asleep/staying asleep	Finishing what they are doing without getting tired too soon
Reports difficulty with making and keeping new friends	Keep working on something even when it gets hard
Taking care of things at home	Calming themselves down when they are upset or nervous
Keeping their mind on what they are doing	Controlling their body during things they want to do
Sitting still and quiet	Getting chores done

The TARS data collected from this participant’s guardian/caregiver reports a negative change in the reactions/consequence of their tics in areas including:

“Another kid asks questions about his/her tics and he/she has to stop playing a videogame or watching TV from “not at all” to several times in the last week.”  
 “He/she takes a break from homework, he/she goes to bed later than planned a parent or other adult physically comforts him/her, and a parent verbally comforts him/her from “not at all” to “a few times in the last week.”

- Each participant and their caregiver/guardian also completed 7-8 questions related to their confidence levels regarding managing their tics and occupational participation after completion of CBIT. All of these questions were answered using a Likert scale from 1-10, with 1 meaning not all confident and 10 meaning completely confident. Below are answers to some of the questions from both participating and caregivers/guardians:

	Participant One	Participant Two
Question 1: How confident are you that this experience has helped you better manage your tics, overall?	6	10
Question 2: How confident are you that this experience has reduced the negative impact of tics on your life overall?	8	10

Prior to CBIT, participant two reported difficulty with maintaining relationships due to impulsivity. The participant’s post CBIT data demonstrated the participant:

Is no longer having difficulty in that area	Getting chores done
Currently having difficulty with falling asleep/staying asleep	Controlling their body during things they want to do
Keeping their mind on what they are doing	Spelling, and math.
Sitting quietly	

The TARS data collected from this participant’s guardian/caregiver reports a negative change in the reactions/consequence of their tics in areas including:

“The parent tells them to stop ticcing, the parent discusses ways to manage tics with him/her, he/she goes to bed later than planned and an adult other than a relative comforts him/her from “not at all” to “a few times in the last week”.

	Caregiver / Guardian One	Caregiver / Guardian Two
Question 4: How confident are you that this experience has helped your child better manage their tics, overall?	8	10
Question 5: How confident are you that this experience has reduced the negative impact of tics on your child’s life overall?	8	10

## Conclusion

- This research project was novel because post CBIT data have not been collected to date at the COA CBIT Clinic.
- One interesting fact was that both participants in this study reported an increase in the number of activities they were having difficulty with, in comparison to their original assessment data.
- However, differences in the setting, change in the person giving the assessments, and format that the assessments and survey were provided in could have potentially skewed the data reported.
- Further studies will need to be conducted with larger sample sizes to understand the occupational outcomes of CBIT through standardized assessments.

References: Available Upon Request

## Discussion

- **Implications:**
  - Utilizing the COSA-t and TARS as post CBIT assessments provides a standardized tool for gathering meaningful data regarding the clients’ progress days, weeks, and potentially years after the client completes CBIT.
  - This data can assist CBIT providers in collecting and observing the effectiveness of CBIT over time and the client’s retention of these strategies over time.
- **Limitations:**
  - Due to small number of participants, results of this study cannot be generalized to the larger population of children and adolescents who have participated in CBIT.
  - Study participants demonstrated difficulty attending to the assessment tools over a Zoom platform.
- **Future Research:**
  - Further research is needed to understand the effectiveness of CBIT through standardized assessments, especially as it relates to occupational outcomes.
  - This study could be replicated to gain more data with more participants so that themes could more accurately be understood within the collected data.

## Acknowledgement & Contact information

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