# RECHArge: better REst for CHildren with Autism

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SHINE SCIENCE CENTER

UNIVERSITY of SOUTH FLORIDA College of Nursing

MCCRAE SLEEP RESEARCH LAB

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  - Contracted Research
  - Ownership Interest

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School of Medicine
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MiZZou
Sleep Research Lab

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

SHINE SCIENCE CENTER

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# 50-80%

## of autistic children experience chronic sleep problems[1]

**Sleep difficulties affect**:

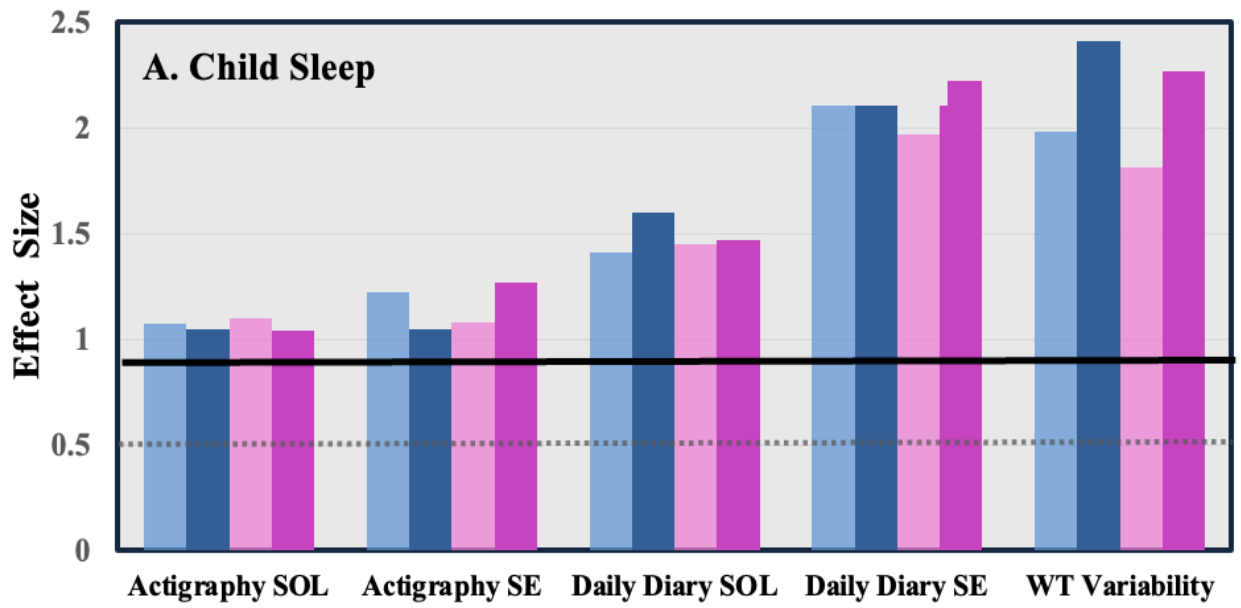
- Decreased QoL[2]
- Increased stereotypic & challenging[3]

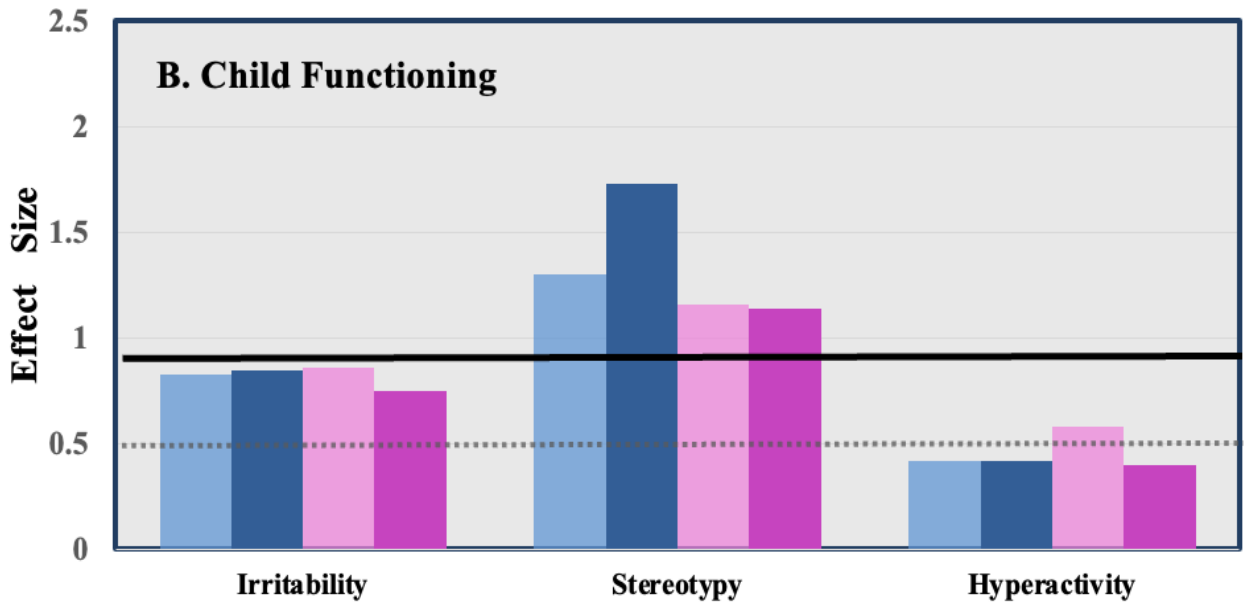
- Parental sleep disruption[4]
- Parental stress[5]

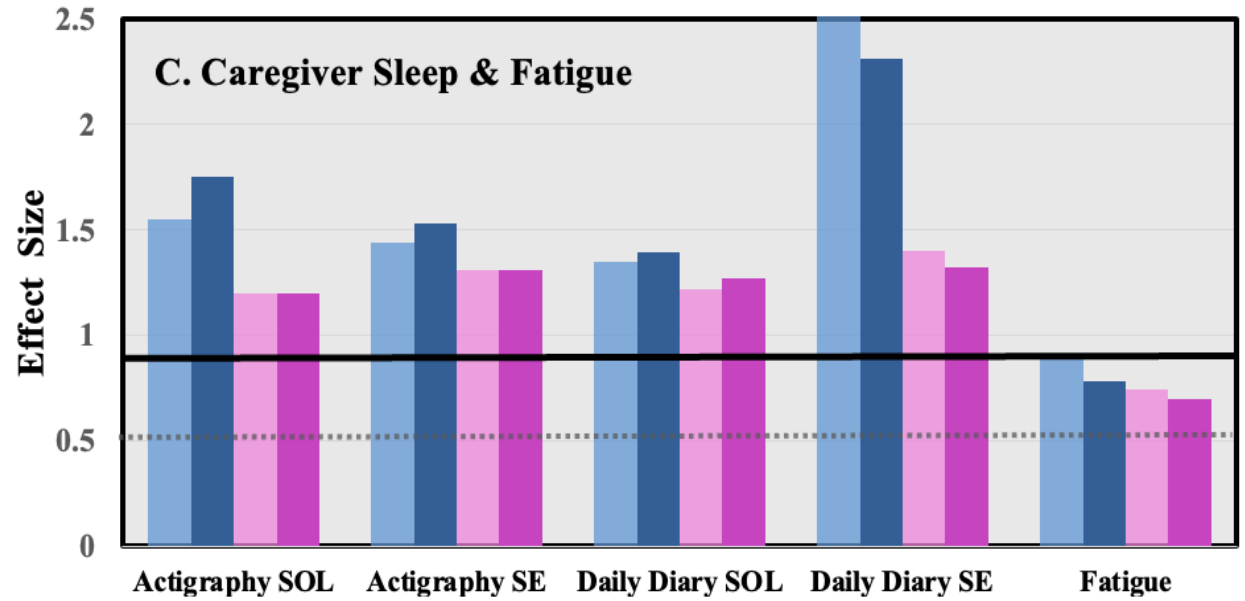
## CBT-I holds promise for Tx of insomnia & consequences[6]

- Sparse in typically developing
- None in autistic children

*Figure 3. In-person (n =17) and telehealth (n =15) CBT-I pilots produced robust and sustained improvements in sleep and related functioning among autistic children and their caregivers.*





Effect Size .20 = small .....50 = moderate ——80 = large

# RECHArge

## Better REst for CHildren with Autism


Goals: To investigate the efficacy of Cognitive Behavioral Treatment for Childhood Insomnia in school-aged children with ASD and their parents

| | |
|---|---|
| Aim 1 | • Effects of Remote & In-person Behavioral Sleep Treatment on *primary* child outcomes |
| Aim 2 | • Remote & In-person Behavioral Sleep Treatment on *secondary* child & parent outcomes |
| Aim 3 | • Examine mediating impact of improvements in *primary* child outcomes on *secondary* child and parent outcomes |

# Eligibility

## Inclusion

- 6-12 years old
- Verbal IQ >= 70
- Participation of child's parent or legal guardian
- Parent/guardian ability to read and understand English at the 5th grade level
- Child diagnosed with ASD
- Child diagnosed with insomnia:
  - Complaints of difficulties falling asleep (>30 minutes), staying asleep, or early morning awakening by child
  - Daytime dysfunction (mood, cognitive, social, academic) due to insomnia

## Exclusion

- **Untreated** medical comorbidity, including
- Other sleep disorders (e.g., apnea, psychotic disorders, suicidal ideation/intent, [frequent] parasomnias)
- Psychotropic or other medications that alter sleep
- **Exceptions** of stimulants, sleep medications, and/or melatonin
- Must be **stabilized** on medication for 3+ months

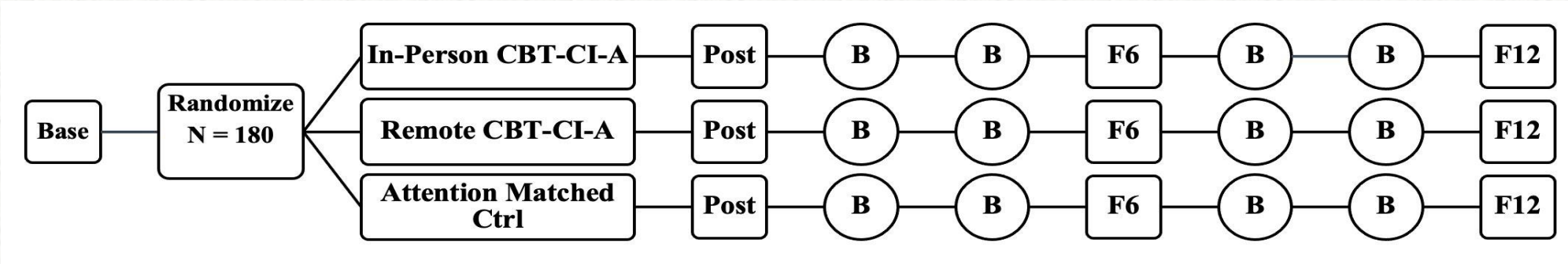
# Methods

## Randomization

- Blocking by child age (<9 yrs , >9 yrs)
- Blinding
  - Therapists and supervisors
    - Outcome assessments & credibility questionnaires
  - Participants
    - Tx improvement expectancy
  - Outcome assessor
    - Tx condition

## Compensation

- $100 at baseline
- $100 at posttreatment
- $100 F6
- $125 at F12
- treatment at no cost



# Measures

## Parent

- Sleep Diaries: SOL, TST, WASO, SE
- Daytime functioning
- Arousal
- Caregiver stress

## Child

- Sleep:
  - Sleep Diaries: SOL, TST, WASO, SE
  - Bed/Wake time Regulation
- Arousal: HRV
- Daytime behavior
- QoL

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# Treatment Protocol

## In-Person/Remote CBT-CI-A

| **Anchored Sessions** – All families receive these basic sleep and parenting skills techniques | |
|---|---|
| **Session 1** | Sleep Hygiene, Sleep Prescription, Sleep Education |
| **Session 2** | Cue Control, Bedtime Routine, Sleep Scheduling |
| Tailored Sessions – Administered based on need | |
| **Session 3** | Techniques selected from those shown below* |
| **Session 4** | Techniques selected from those shown below* |
| ***Interventionist & caregiver/youth collaborate to select from these techniques to <u>tailor</u> treatment to the most pressing concerns.** PM Limit Setting, Cognitive Tx Basics, Relaxation, Parent Fading from Room, Circadian Management, AM Routine, Relaxation, Nighttime Fears | |

## Attention Matched Control

| **Anchored Sessions** – All families receive basic sleep education | |
|---|---|
| **Session 1** | Sleep Development/Impact, Sleep Education |
| **Session 2** | Sleep Architecture, Light & Dark Cycle |
| Tailored Sessions – Administered based on interest | |
| **Session 3** | Education selected from those shown below* |
| **Session 4** | Education selected from those shown below* |
| ***Interventionist & caregiver/youth collaborate to select from these education sessions to <u>tailor</u> treatment to the most pressing interest.** Dreams & Nightmares, Stress, Mood & Feelings, Self-Esteem, Physical Activity, Nutrition, Parasomnias | |

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# Participant Demographic and Clinical Characteristics

| Characteristic | teleSHARE (n=13) | teleCBT-I (n=16) | CBT-I (n=16) | Overall (N=38) |
|---|---|---|---|---|
| Child age (years), mean ± SD | 8.3 ± 2.0 | 8.4 ± 1.7 | 9.7 ± 2.1 | 8.9 ± 2.0 |
| School grade, mean ± SD | 4.7 ± 2.1 | 5.2 ± 1.9 | 6.4 ± 1.9 | 5.5 ± 2.0 |
| Parent age (years), mean ± SD | 33.4 ± 4.8 | 37.1 ± 4.6 | 38.2 ± 2.6† | 36.5 ± 4.4 |
| Parent education, mean ± SD | 4.0 ± 0.8 | 4.5 ± 1.2 | 5.0 ± 1.0 | 4.6 ± 1.1 |
| **Child race, n (%)** | | | | |
| White | 9 | 13 | 10 | 32 (84.2%) |
| Black/African American | 2 | 1 | 1 | 4 (10.5%) |
| Asian | 1 | 0 | 1 | 2 (5.3%) |
| American Indian/ Alaska Native | 2 | 0 | 1 | 3 (7.9%) |
| Biracial | 0 | 0 | 2 | 2 (5.3%) |
| Not reported | | | | 6 (15.8%) |

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# Participant Race and Ethnicity

| Race | Child n (%) | Parent n (%) |
|---|---|---|
| White | 32 (84.2%) | 15 (39.5%) |
| Black/African American | 4 (10.5%) | 3 (7.9%) |
| Asian | 2 (5.3%) | 2 (5.3%) |
| American Indian/Alaska Native | 3 (7.9%) | 1 (2.6%) |
| Biracial | 2 (5.3%) | — |
| Other | 0 | 0 |
| Not reported | 6 (15.8%) | 23 (60.5%) |

| Ethnicity | Child n (%) | Parent n (%) |
|---|---|---|
| Hispanic/Latino | 8 (18.2%) | 18 (40.9%) |
| Not Hispanic/Latino | 29 (65.9%) | 20 (45.5%) |
| Not reported | 6 (13.6%) | 6 (13.6%) |
| Unknown | 1 (2.3%) | — |

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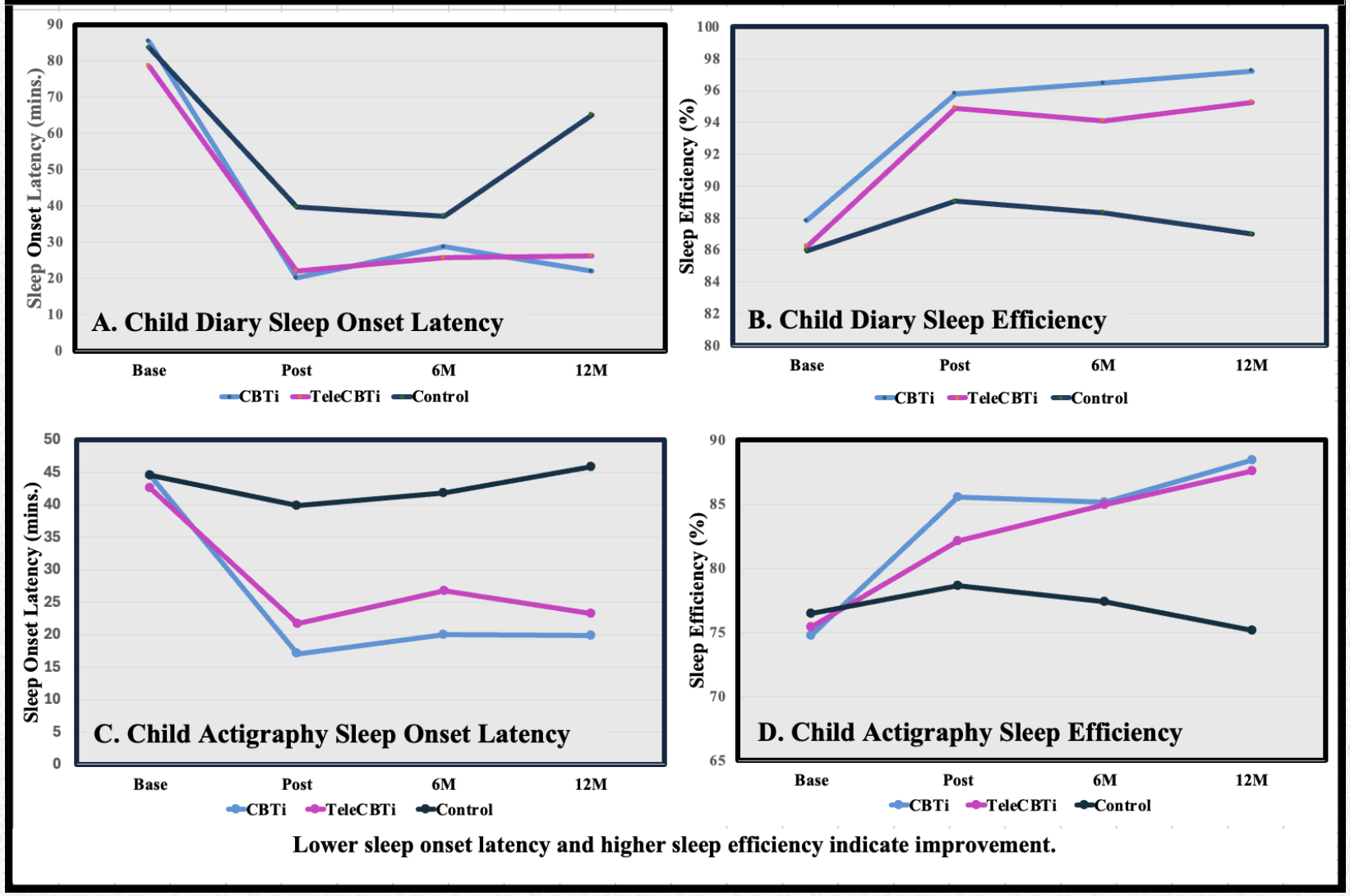
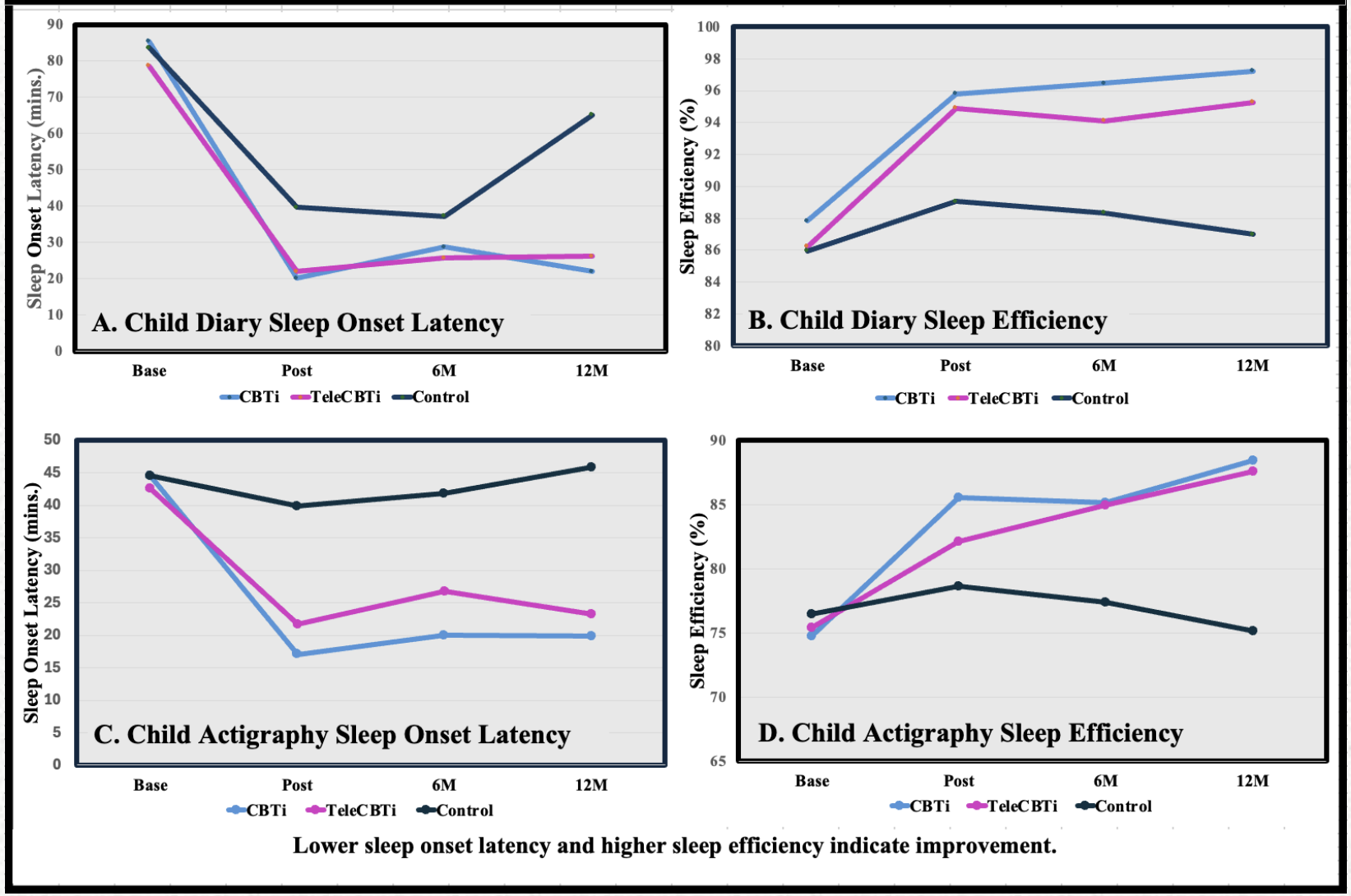
# Child Sleep

*Figure 1. In-person (n =16) and telehealth (n =16) CBT-I produced sustained improvements in sleep releative to the telehealth sleep hygiene and related education control (n = 13) .*



# Child Behavior

*Figure 1. In-person (n =16) and telehealth (n =16) CBT-I produced sustained improvements in sleep releative to the telehealth sleep hygiene and related education control (n = 13) .*

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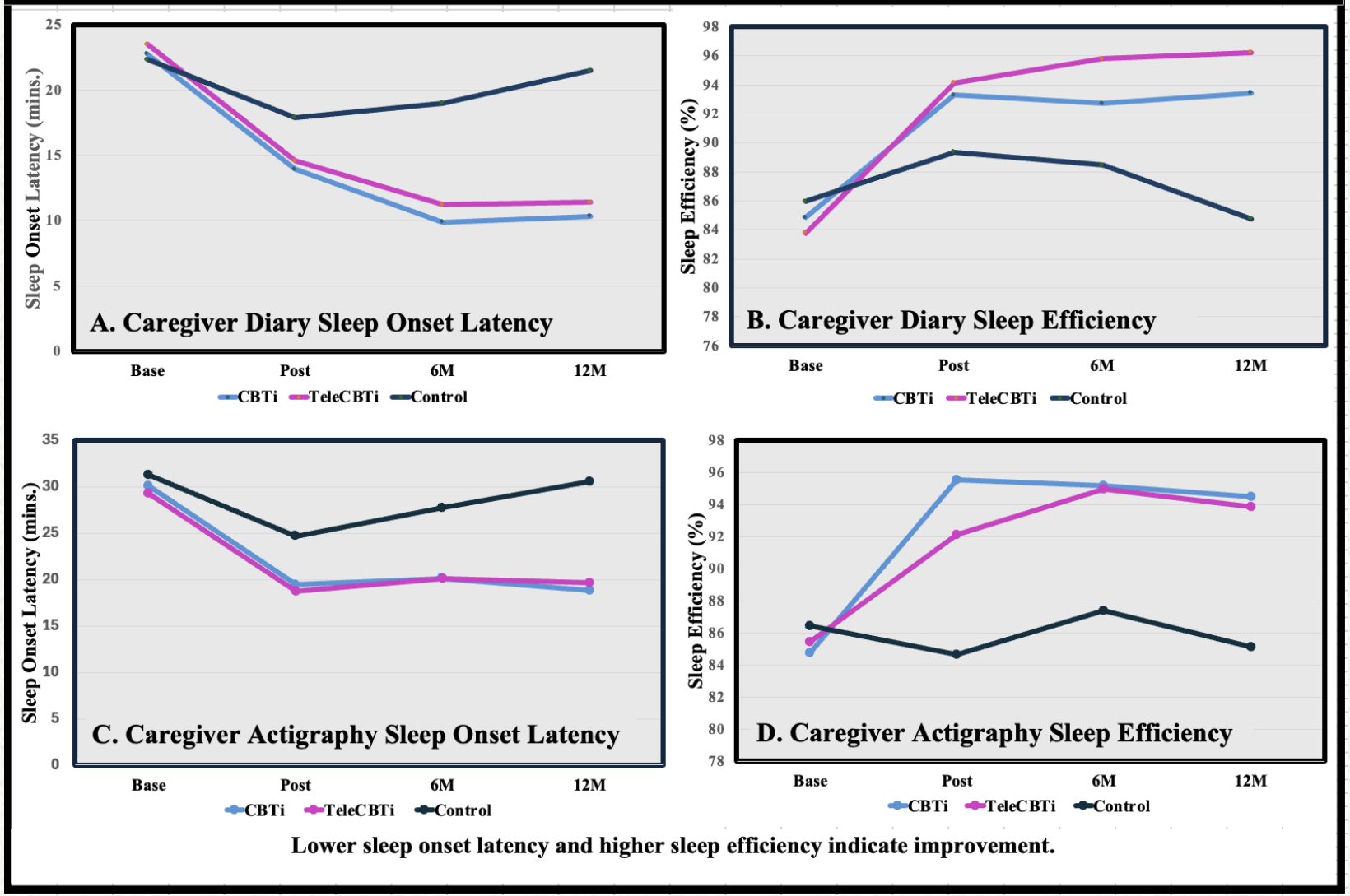
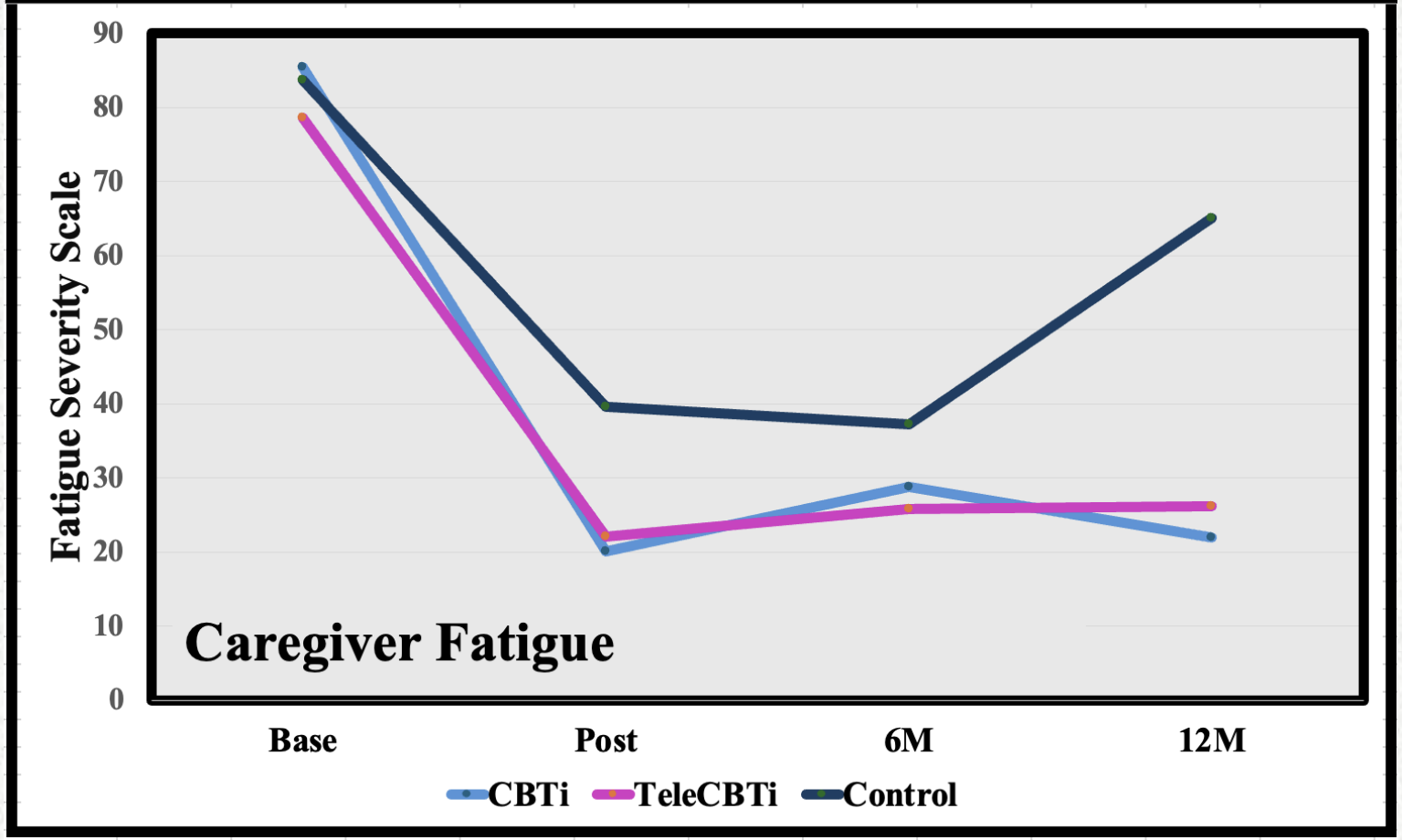
# Parent Sleep

*Figure 3. In-person (n =16) and telehealth (n =16) CBT-I produced sustained improvements in daytime functioning releative to the telehealth sleep hygiene and related education control (n = 13) .*



# Parent Fatigue

***Figure 4. In-person (n =16) and telehealth (n =16) CBT-I produced sustained improvements in caregiver fatigue releative to the telehealth sleep hygiene and related education control (n = 13) .***



# Limitations and Future Directions

- Generalizability
  - Highly educated sample may be more resilient to insomnia-related cognitive dysfunction (e.g., potential ceiling effect)
  - Primarily white sample
- Paper-and-pencil sleep diaries
  - Participants provided 'attestation' of daily completion of each diary
  - No 'electronic' time stamp
- Longer treatment (and/or)
- Daily home-based cognitive assessment
  - better capture cognitive changes?
  - day-to-day/night-to-night variability
    - Insomnia
    - Cognitive performance
- Electronic sleep diaries
- Increased sample diversity

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# LAMBI: Leveraging Arousal Management and Better Insomnia

- *Digital* moderated
- Autistic children and caregiver dyads
- CBT-CI-A vs Sleep Health Education
- Feasibility and Acceptability
- Child sleep, arousal, downstream child/caregiver outcomes
- Fitbits

Thank you

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