

# *Sound Pillow® Sleep System*



## *On the Spectrum: The Report*

# The Participants

Participating individuals had a variety of diagnosis.

## Including:

- Pervasive Development Disorder-Not Otherwise Specified (PDD-NOS)
  - Attention Deficit Hyperactivity Disorder (ADHD)
    - Obsessive Compulsive Disorder (OCD)
    - Oppositional Defiant Disorder (ODD)
    - Autism Spectrum Disorders (ASD)
      - Aspergers Syndrome
      - Neurofibromatosis
        - Bi-Polar
        - Anxiety

# Participants' Overview & Experiences

*P.E.R.* = Participant's Experience Rating

**Scale: 1-Very Poor, 2-Poor, 3-Satisfactory, 4-Good, 5-Excellent**

1. Male, Age 28, Aspergers Syndrome: *P.E.R.* 4.00

- **Sleep Issue:** Falling asleep.
- **Experience:** Time to fall asleep reduced from 30 - 15 min.
- **Participant Reports:** "I feel less groggy when I wake up."

2. Male, Age 7, Autism, Anxiety, ADHD, ODD, OCD, Bi-Polar: *P.E.R.* 4.67

- **Sleep Issues:** Requiring 3 - 4 hours to fall asleep, then slept only 2 hours.
- **Experience:** Time to fall asleep reduced to 30 - 45 min. and routinely sleeps 6 - 8 hours.
- **Mother Reports:** "Son consistently slept for last 3 months (since receiving system)."

3. Male, Age 6, ADHD, Neurofibromatosis : *P.E.R.* 4.50

- **Sleep Issues:** Falling asleep due to over activity / stimulation and woke-up every couple hours.
- **Experience:** Time to fall asleep reduced from 20 - 60 mins. to 10 - 15 mins. and now sleeps most of the night.
- **Mother Reports:** "[Son] wasn't as tired, less cranky."

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4. Male, Age 16, Aspergers Syndrome: *P.E.R.* 4.83

- **Sleep Issue:** High anxiety and constant thoughts, not able to relax.
- **Experience:** Time to fall asleep reduced from 15 - 30 min. to 5 - 10 mins. sleeps an additional 1 - 2 hours nightly.
- **Participant Reports:** "...the soothing sounds have helped me fall asleep faster and remain asleep throughout the night."

5. Male, Age 5 1/2, Autism Spectrum Disorders (ASD): *P.E.R.* 4.33

- **Sleep Issues:** Struggled to fall asleep, routinely awakes in middle of night.
- **Experience:** Time to fall asleep reduced from 30 min. - 1-hour to 15 min., routinely sleeps 6 - 7 hours.
- **Parent Reports:** "We are excited to have found something to help our child with quality of sleep."

6. Male, Age 18, Aspergers Syndrome: *P.E.R.* 4.00

- **Sleep Issues:** Days and Nights mixed up, doesn't seem to go into deep sleep, racing thoughts.
- **Experience:** Time to fall asleep reduced from 2-hours to 30 min.
- **Parent Reports:** "...it has proven to both participant and parent the pillow is a success!"

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## 7. Female, Age 12, Aspergers Syndrome: *P.E.R.* 4.33

- **Sleep Issue:** Tossing/Turning, sleep talking/yelling, doesn't wake up rested.
- **Experience:** Significantly less tossing/turning & sleep talking/yelling, awakens refreshed.
- **Mother Reports:** "My daughter says she is waking up feeling considerably more refreshed."

## 8. Male, Age 14, Autism: *P.E.R.* 4.17

- **Sleep Issues:** Can't go to sleep, needs mom to lay with him.
- **Experience:** Time to fall asleep reduced from 2-hours to 30 min. Increased sleep time from 6 hours to 10 hours.
- **Parent Reports:** "[Son] is more pleasant."

## 9. Female, Age 14, ADHD, Mood Disorder, Social Anxiety Aspergers: *P.E.R.* 4.33

- **Sleep Issues:** Unable to fall asleep, was very anxious.
- **Experience:** Time to fall asleep reduced from 1 - 2 hours to a few minutes. Increased sleeping time from 5 - 8 hours to 10 - 12 hours.
- **Mother Reports:** "[Daughter] Liked Forest & Rain."

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10. Male, Age 14, Autism: *P.E.R.* 5.00

- **Sleep Issue:** Won't sleep without melatonin and falls a sleep around midnight
- **Experience:** Time to fall asleep reduced from 3.5 hours to 10 mins.
- **Mother Reports:** "He is more calm and happy."

11. Female, Age 36, Aspergers: *P.E.R.* 2.83

- **Sleep Issues:** Wakes up every 3-hours.
- **Experience:** Sleeps through the night.
- **Participant Reports:** "I think I slept better because external stressors were already reducing..."

12. Male, Age 9, Aspergers Syndrome, ADHD: *P.E.R.* 4.67

- **Sleep Issue:** Took 1 - 1.5 hours to fall asleep, woke up a couple times a night.
- **Experience:** Reduced time to fall a sleep from over an hour to an hour.
- **Participant Reports:** "Overall a great pillow with great qualities."

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13. Male, Age 14, Aspergers: *P.E.R.* 2.33

- **Sleep Issues:** Difficulty falling a sleep

- **Experience:** No Change.

- **Mother Reports:** "He prefers his memory foam pillow."

14. Female, Age 15, Aspergers: *P.E.R.* 3.67

- **Sleep Issues:** Takes hours to fall a sleep.

- **Experience:** Reduced time to fall a sleep to 1/2 hour - 1-hour.

- **Mother Reports:** "The pillow helps her sleep better...making life easier for all involved."

15. Male, Age 13, ADHD, Anxiety: *P.E.R.* 4.33

- **Sleep Issue:** Very difficult time falling & staying a sleep, tossing/turning.

- **Experience:** Time to fall asleep reduced from 1 - 2 hours to 30 min. average.

- **Mother Reports:** "[Son] less irritable, not as tired throughout the day."

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16. Male, Age 17, ADHD, ODD, Autism: *P.E.R.* 4.50

- **Sleep Issues:** Difficulty falling a sleep & sleeping through night.
- **Experience:** Reduced time to fall asleep by 3 - 4 hours. Increased number of sleeping hours by 5 - 8 hours
- **Mother Reports:** "[Son] happier, more easy going with fewer meltdowns."

17. Female, Age 17, PDD-NOS: *P.E.R.* 4.00

- **Sleep Issues:** Very hard time falling a sleep, staying a sleep, tossing/turning throughout night.
- **Experience:** Reduced time to fall a sleep from 2 - 3 hours to 15 - 20 min. Increased sleeping hours from 1 - 3 hours to 8 hours.
- **Participant Reports:** "The music was very relaxing for her...helped wind down from the day."

18. Male, Age 6, Aspergers, High Functioning Autism: *P.E.R.* 3.83

- **Sleep Issue:** A lot of trouble going to sleep, wakes up easily.
- **Experience:** Reduced time to fall a sleep from 30 - 60 min. to 15 - 30 min. Increased time sleeping from 6 - 7 hours to 8 - 10
- **Mother Reports:** "[Son] less anxious, more happy and energetic, more confident

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19. Male, Age 3 1/2, Autism, Global Developmental Delay Speech Sound Disorder: *P.E.R.* 4.50

- **Sleep Issues:** Usually takes 2-hours to fall a sleep, bangs head on bed or pillow.
- **Experience:** Reduced time to fall a sleep from 30 mins. - 3 hours to 15 mins. - 1-hour.  
Increased time sleeping from 2 - 4 hours to 8 - 12 hours.
- **Mother Reports:** "[Son] not as loud, doesn't have bags under his eyes & calmer...  
Stopped head banging...getting more hours & more restful sleep..."

20. Male, Age 13, Autism ADHD, Dyspraxia: *P.E.R.* 4.50

- **Sleep Issue:** Doesn't sleep well, takes Clonidine to sleep.
- **Experience:** Reduced time to fall a sleep from 1 hour to 10 - 15 min. and sleeps all night.
- **Mother Reports:** "[Son] woke up more pleasant and said '*that pillow is the best thing for me.*' He sleeps with it every night."

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21. Male, Age 10, Aspergers Syndrome, Anxiety Disorder: *P.E.R.* 4.50

- **Sleep Issues:** Up all night, unable to turn off brain, sleeps few hours, nightmares.
- **Experience:** Reduced time to fall asleep from 4-hours to 45 mins. Increased time sleeping from 1 - 2 hours to 6-hours and reduced nightmares.
- **Mother Reports:** "[Son] more rested and less irritable, helped empty out all the negative thoughts."

22. Male, Age 14, Aspergers: *P.E.R.* 4.17

- **Sleep Issues:** Using fan to block out noise/make white noise
- **Experience:** Prior to pillow [system] needed fan to sleep no matter what the season.
- **Mother Reports:** "I believe it has helped him with [his] anxiety."

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23. Male, Age 10, Velo Cardio Facial Syndrome (VCF), ADHD, Autism: *P.E.R.* 4.33

- **Sleep Issue:** Refuses to sleep in own bed, frequent nightmares, loud sleep talking, fights sleep, kicks & swings arms in sleep, never slept more than 2-hours.
- **Experience:** Reduced time to fall asleep from 1-hour or more to 5 mins. Increased sleep time from 2-hours to 7-hours average (sleep medication free).
- **Mother Reports:** "...our family also receives a deeper, longer, more restful sleep. AND our son is sleeping in his own bed without any trouble. The whole family benefits."

24. Male, Age 9, Severe Autism - Non-Verbal: *P.E.R.* 5.00

- **Sleep Issues:** Routinely wakes up at 1:30am - 2:00am, screaming, lack of sleep taking physical toll on appearance. Lack of sleep getting worse.
- **Experience:** Reduced time to fall a sleep from 30 min. - 2 hours to 15 mins. Increased sleep time from about 4-hours to 9 - 10 hours.
- **Mother Reports:** "Our night time is peaceful, once again."

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# The Process

## Participants Received: Sound Pillow Sleep System:

- Sound Pillow: pillow with set of stereo speakers buried inside
- MP3 Player Pre-Loaded with 18 One-Hour tracks of proprietary Binaural Music, Nature Sounds, Binaural Music layered with Nature Sounds.

As well as White Noise, Pink Noise, Blue Noise files.

Participants slept with the system for 2 - 3 weeks.

Questionnaires were then completed by the parent or participant.

The parent or participant provided the user's: diagnosis, sex, age and sleep habits, prior to and during the use of the system.

Nature sounds and music created especially for the Sound Pillow Sleep System  
by Dr. Harry Henshaw. Ed.D. and R. Scott Armbruster.

# The Process

Respondents rated the system on a ranking scale of 1 - 5:

**1-Very Poor, 2-Poor, 3-Satisfactory, 4-Good, 5-Excellent**

**The Sleep System was rated on the following:**

Comfort

Sound Quality

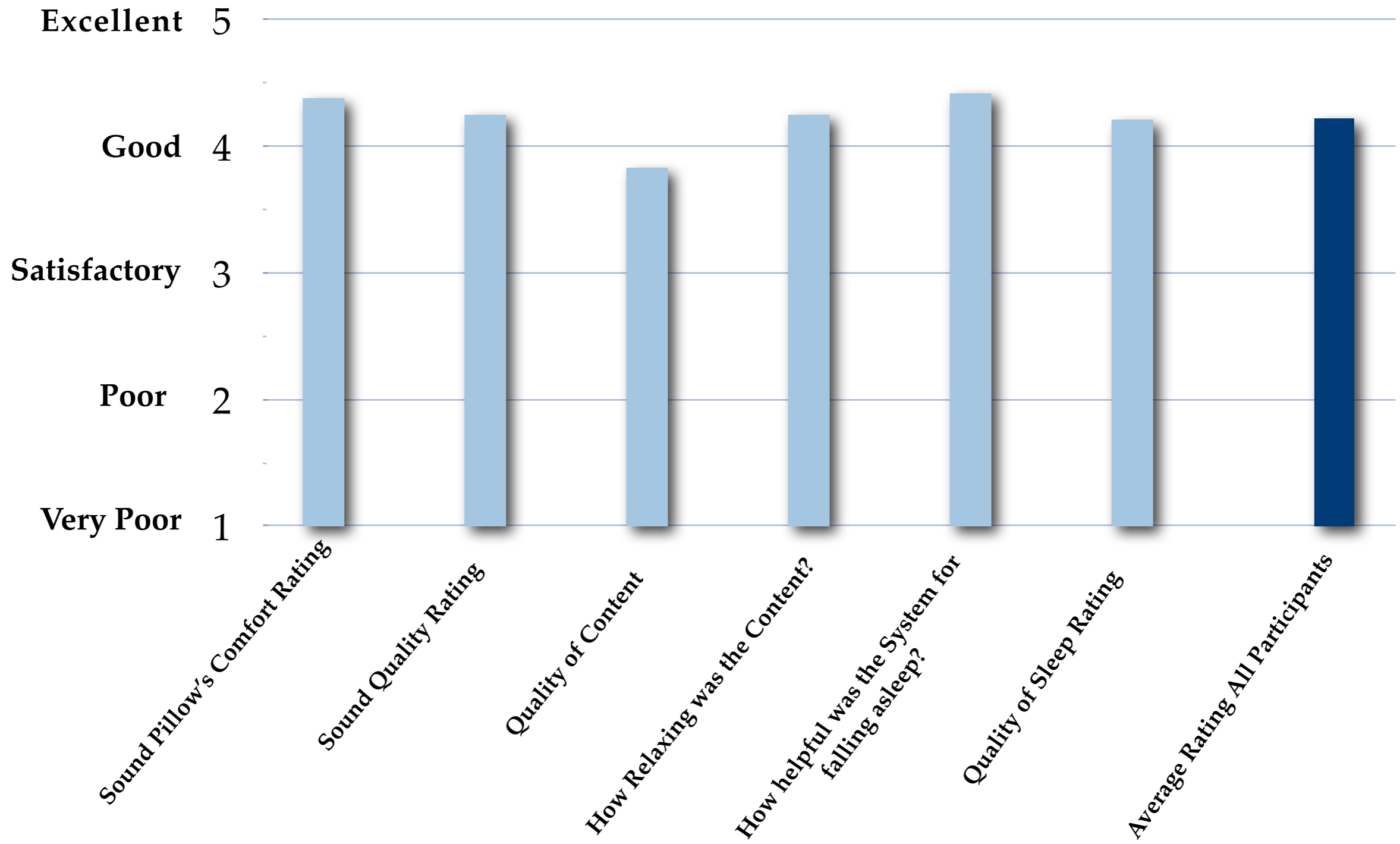
Relaxation Factor

How helpful System is for falling asleep

Quality of the Content/Sound Tracks

Participant's Quality of Sleep while using System

# Participant's Aggregate Personal Experience Ratings (P.E.R.)

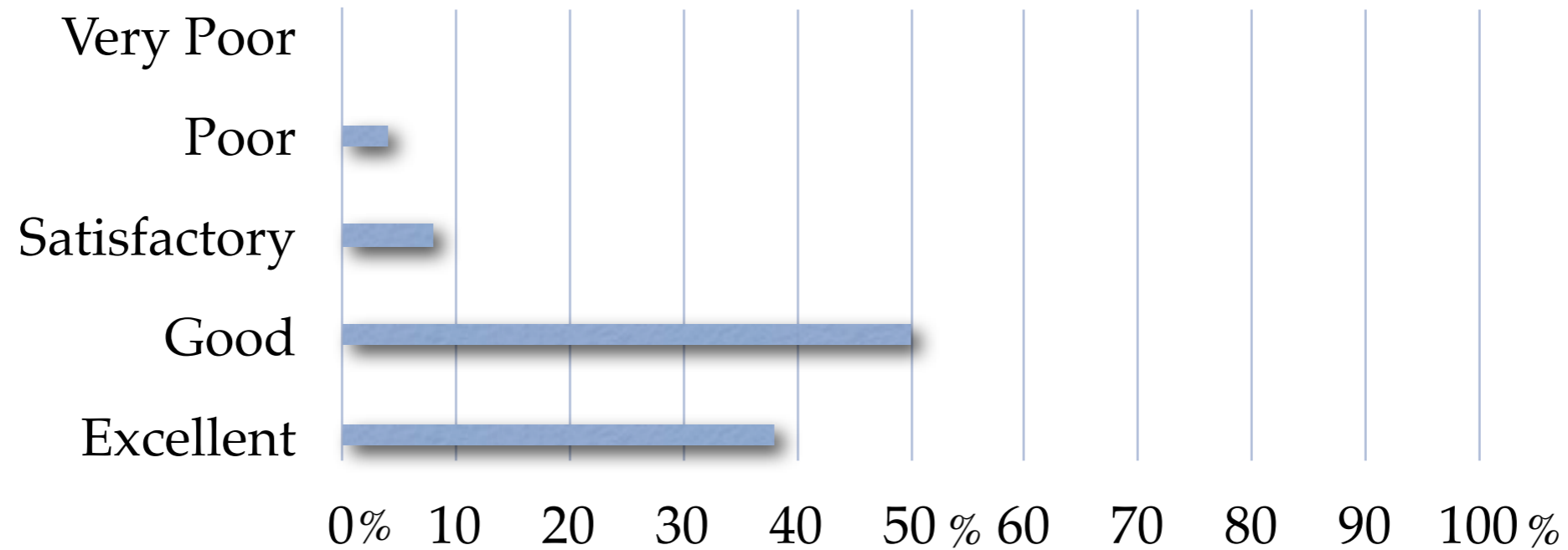


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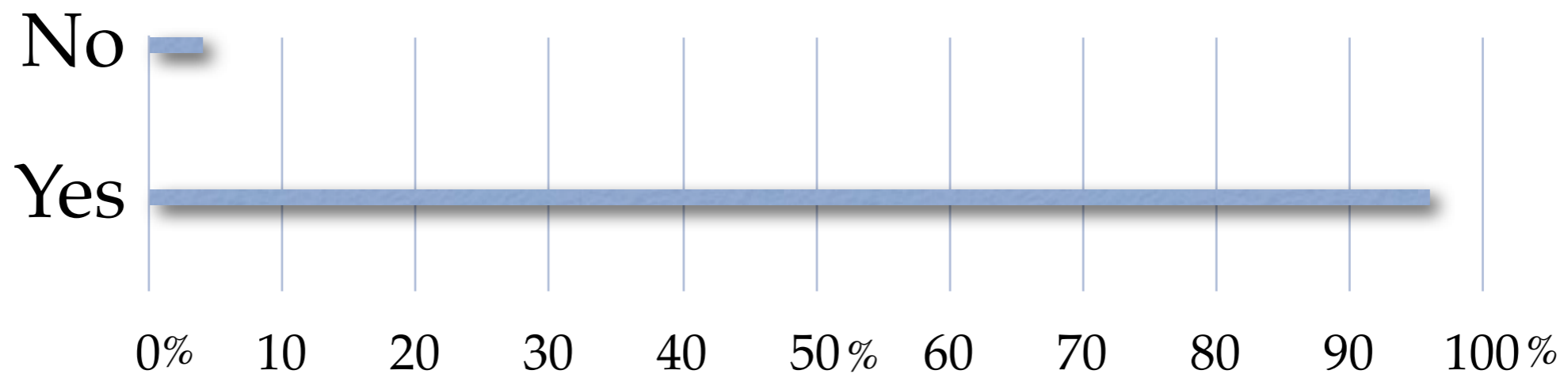


# Participant's Aggregate *Quality of Sleep* & Recommendation Ratings

## Quality of Sleep Ratings



## Would you recommend the Sleep System to others facing similar challenges?



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# While using the System:

77% - Slept longer - generally 2 - 5 hours (or more)

88% - Fell asleep faster, generally 50% - 80% faster

84% - Rated the Relaxation Factor as Good or Excellent

88% - Rated the Quality of Sleep as Good or Excellent

92% - Believe the system helped the participant sleep

96% - Would recommend the system to others facing similar challenges.

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# Reviewers' Comments

Completed questionnaires available at  
[www.SoundPillow.com/Spectrum-Questionnaires](http://www.SoundPillow.com/Spectrum-Questionnaires)

*"It helped me relax and fall asleep."* - Participant #1

*"We've tried sound machines, running water, fans and weighted blankets. None of them worked. With the sleep system, my son has slept through the night, overall, for the past 3-months."*  
- Respondent #2

*"[Son] wasn't as tired, less cranky."* - Respondent #3

*"...very comfortable...soothing sounds have definitely helped me fall asleep much faster and remain asleep throughout the night."*  
- Participant #4

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Completed questionnaires and comments available at  
[www.SoundPillow.com](http://www.SoundPillow.com)

*"Best sleep he's had in a long time." - Respondent #16*

*"[Son] happier, more easy going with fewer meltdowns." - Respondent #17*

*"She was a lot happier...not as irritable. She could focus a lot better...not as much anxiety ." - Respondent #18*

*"It make[s] him feel special and calm." - Respondent #17*

*"...more than once, my son laid his head on the pillow, a smile appeared, and he seemed to settle immediately, falling asleep within 5 minutes." - Respondent #25*

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# Why (we think) this Happened

The Sound Pillow Sleep System is a comfortable-soothing sound conditioner creating an environment conducive for providing and promoting relaxation and sleep.

Sleep system's nature sounds are real and the music evolves slowly with no pronounced punctuations of sound or tempo changes.

Sound Pillow's sound quality is extremely good. Thus the reproduction of nature sounds & music is pleasing and comforting.

The hypnotic sounds relax the body, slows cardiovascular and respiratory systems and calms the mind. Allowing for a deep state of relaxation and the promotion of slow wave sleep (SWS).

**Even though the responses were overwhelmingly positive, individual experiences will vary and do not imply similar experiences for anyone.**

# Our Need for Sleep is Indisputable

*“...there is a well-established connection between lack of sleep and mental and physical health.”* <sup>(1)</sup>

*“Sleep problems are very common, reportedly as high as 80% in children with ASD [Autism Spectrum Disorder].”* <sup>(2)</sup>

*“Disordered sleep is frequently associated with behavior problems...”* <sup>(3)</sup>

*“The most common sleep problems in children with ASD are difficulty falling asleep and repeated awakenings during the night.”* <sup>(2)</sup>

*“Sleep problems in ASD are correlated with increased maternal stress and parental sleep disruption.”* <sup>(3)</sup>

1) *Coping with Excessive Sleepiness* - Dr. R. Robert Auger, M.D. - Mayo Center for Sleep Medicine - WebMD

2) *Sleep and Autism Spectrum Disorder (ASD)* - by Carin Lamm, M.D. - Autism Speaks.org

3) *Sleep Problems in Children with Autism* - by P. Gail Williams M.D. - University of Louisville



# On the Spectrum

For those On the Spectrum, finding relaxation and sleep, can be a battle.

A battle having negative impacts on the entire household.

When we learned of just how pervasive and serious these issues are, for so many families, we asked ourselves...

*What would happen if, they tried the Sound Pillow Sleep System?*

With the assistance of Aspergers101.org founder Jennifer Allen, Sound Pillow announced it was looking for 20 families to help answer the question.

The following report was compiled from the responses of **Twenty-Four** participating families / individuals that live  
On the Spectrum.

# Thank You!

Thank you to all of the individuals and families, for taking the time to participate in our quest to help answer the question  
*“What would happen if...?”*

A very special thanks to  
Aspergers101.org, and its founder  
Jennifer Allen, for helping us get started  
in the right direction.

# Contact Information

Sound Pillow<sup>(R)</sup> Sleep System

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Nature sounds and music copy write Dr. Harry Henshaw, Ed.D. and R. Scott Armbruster

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