



# Increasing Comfort with Sensory Processing Difficulties in Pre-Hospital Setting: Pre-Post Study of Education and Sensory Tools in EMS Providers



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## Abstract

- **Purpose of Study:** The purpose of this study was to evaluate if an educational session and distribution of sensory tools would improve provider comfort with patients who have sensory processing difficulties.
- **Methods Used:**
  - Pre-education questionnaires were administered to assess frequency and comfort level in taking care of these patients.
  - Educational session related to sensory processing difficulties and education on sensory tools.
  - Post-education questionnaires administered 3 months post educational session to assess the use of sensory tools and their comfort in patient care.
- **Summary of results**
  - Pre-Education
    - Total of 177/225 (78.6%).
    - 159 (89.8%) of the EMS providers transported patients with sensory processing difficulties.
    - Pre-education median comfort level was 7.5 (range: 1-10).
  - Post-Survey
    - 135/177 (76.3%) EMS providers received educational training.
    - 37 (27.4%) used the sensory tools within the prior 3 months.
    - Post-education median comfort level was 8 (range: 3-10).
- **Conclusions:** Sensory training can be an effective method for EMS providers to increase comfort in taking care of patients with sensory difficulties.

## Materials



## Methodology

- EMS providers from two agencies in Alabama Gulf EMS System
- Pre-intervention paper questionnaire administered.
- Sensory training program to all prehospital providers.
- Sensory tool boxes available for use by EMS providers and patients in ambulances.
- After 3 months, post-education questionnaires were administered to providers.
- Question about comfort level of caring for patients with sensory difficulties included in both questionnaires.

## Results

Pre- education questionnaire (N=177)	
1. EMS personnel familiar with the term Sensory processing disorder, n (%)	110 (62.1%)
2. EMS personnel transported/cared for a patient with autism, hearing impaired, blind, and deaf, ADD/ADHD, n (%)	159 (89.85)
3. Number of patients transported in the last 7 work days, Median (range)	0 (0-10)
4. Comfort level* of caring for a patient with autism, hearing impaired, blind, and deaf, ADD/ADHD or other sensory processing disorder, Median (range)	7.5 (1-10) **
Post- education questionnaire (N= 135)	
1. EMS personnel received the sensory friendly initiative education, n (%)	135 (100%)
2. EMS personnel using the tools in the sensory friendly bag within the last 3 months, n (%)	37(27.4%)
3. Number of patients in whom EMS personnel used the tools in last 3 months, Median (range)	1 (1-20)
4. Comfort level* of caring for a patient with autism, hearing impaired, blind, and deaf, ADD/ADHD or other sensory processing disorder, Median (range)	8.0 (3-10)**

\*Likert scale of 1 to 10: 1 is not comfortable at all and 10 is extremely comfortable

\*\* Median comfort levels were statistically significantly different between pre and post education groups (p=0.006)

## Conclusions

- Sensory training and tools significantly increased the comfort level of prehospital personnel in taking care of patients with sensory processing difficulties. Increased median comfort level from 7.5 (range: 1-10) to 8.0 (range: 3-10) on a 10-point Likert scale (p = 0.006).
- We were able to show that a brief educational training session can show benefit in comfort level over time in patients with sensory processing difficulties.
- The number of EMS personnel reporting use of the sensory tools during the 3 months of the study was 27.4%.
- This percentage was lower than we anticipated. Reasons for this may be:
  - the patients did not need the tools and the simple communication techniques that were taught during the training were adequate to impart the desired effect.
  - EMS personnel may not have been familiar enough with how to utilize the tools in order to use them on a consistent basis. This could indicate a potential area for increased education.
  - the personnel could have simply forgotten that the tools were available.
- Responses (n = 33) from patients, parents, or providers who utilized the tools during transport. These comments do provide encouragement that the tools aided in the comfort for the patient and provider. Many were positive in nature and included comments such as "tools made a great impact on special needs child" and "please keep these items on trucks."
- This was the first such effort that we are aware of in the prehospital setting. The increased comfort level at the 3-month interval is encouraging for future work on a larger scale. Those efforts will be able to further evaluate the strength of the benefit over time.

## Introduction

- Sensory processing difficulties have become more recognized and understood over the last decade.
- Somatosensory interventions can be effective non-pharmacologic methods to reduce anxiety, aggression, and self-injury in these patient populations.
- Specific interventions include: Auditory (head phones/music), visual (photos/video), tactile (deep pressure/brushing/cold; weight blanket or vest), olfactory (markers, scratch and sniff stickers), and vestibular (rocking chair).
- Interfacing with patients with sensory processing difficulties can prove to be challenging to any health care provider, but in acute care settings, emergency departments, and for first responders, this can be even more difficult.<sup>1-3</sup>
- The purpose of this study was to evaluate if an educational session and placement of sensory tools could improve the comfort of EMS providers with the transport of patients in the prehospital setting with self-described sensory processing difficulties.

<sup>1</sup>McGonigle JJ, Venkat A, Beresford C, et al. "Management of agitation in individuals with autism spectrum disorder in the emergency department." Child Adolesc Psychiatry Clin N Am 2014;23:83-95.

<sup>2</sup>Scarpinato N, Bradley J, Kurbun K, Bateman X, Holtzer B, Ely B. "Caring for the child with autism spectrum disorder in the acute care setting." J for Specialist Ped Nurs 2010;15(3):244-254.

<sup>3</sup>van Olsjevik L. "How to appropriately and safely approach, assess and manage autistic patients." J Emerg Med Ser 2004;29(6):56-61.

