



Investigation of Therapy Clothing Products for Children with Autism Spectrum Disorders

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Significance of Research. Autism Spectrum Disorders (ASD) is a developmental disorder with a wide range of symptoms including difficulty with communication and social interaction, repetitive behaviors, and deficits in sensory perception. Individuals with Autism Spectrum Disorders (ASD) are particularly sensitive to the surrounding environment. The sensory issues may include: oversensitivity to loud noises and touching. Typical behaviors due to overstimulation are: withdrawing to avoid the overwhelming sensation, temper tantrums, screaming, and running away. The sensory systems of individuals with ASD may become overloaded since they have difficulty filtering stimuli from the environment, and become overwhelmed. Oversensitivity to loud noises and touching may cause the child to withdraw to avoid the overwhelming sensation. Several studies (Tseng et al, 2011) reveal that the sensory processing dysfunction is related to the emotional and behavioral problems in children with autism. Weighted vests are used to help on task behavior such as inattentiveness. A weighted vest can provide the child with a sensory input that is believed, to alleviate sensory difficulties. However, many issues arise with clothing products. The problem is, in certain situations, the child's body may be calm, but the inability to communicate is still persisting. It is argued that a weighted vest would provide deep pressure stimulation that has a calming effect and a helpful organization of the central nervous system (VandenBerg, 2001). Researchers (Stephenson & Carter, 2008) report inconclusive evidence to neither support nor reject the use of a weighted vest being beneficial in reducing problem behaviors, and positive results of wearing the weighted vests have not yet been demonstrated. Overall, there is not much information about any therapy clothing for children with ASD. Thus, this study aims to investigate current therapy clothing for children with ASD, and raise an insight of the needs of clothing design that might alleviate sensory issues.

Methodology. Total 23 types of therapy clothing products (e.g. a weighted vest, tops, and pants) were found by looking at existing companies through search engines. For the analysis process, we used descriptive statistics and a database that links the idea of design elements to the characteristics of ASD. The following factors were analyzed: size, fit, fabrics, tactile, and color.

Findings. In results, limitations of commercially available therapy clothing products have been identified. 1) Size indicators and fit problems exist in therapy clothing, including weighted vests. Considering the special use of weighted vest for children with ASD, clothing fit might be a critical factor. However, the size information was inadequate for children's clothing. Suppliers provided weighted vests, using a general size indicator (e.g. S, M, L) for children ages from infants to child XL. We found that none of the companies differentiate between boys and girls in sizing. Of the suppliers, 25% do not provide a standard sizing chart. The rest (75%) provide some size information (only chest girth and arm length), but the information is inconsistent.

Sizing varies from product to product. Parents of children would be unable to figure out the right sizes. The lack of standard size charts resulted in the consumer's confusion when ordering a product.

2) Colors of the current therapy clothing products are questionable for children with ASD. For example, color has been found to be an important factor that causes a visual stress for children in several studies. The occurrence of autism and visual stress in mainly dramatic symptoms can be characterized by fragmentary perception. According to Paron-Wildes (2005), 85% of the children with ASD could see colors with greater intensity than typical children, and they are stimulated in color rich environments. Often, children depend on the visual senses to tell them what is happening since they often cannot decode verbal cues. However, current sensory clothing does not have many color options. Available colors are only black, blue, or red.

3) Fabrics/fiber contents are another important factor that might simulate or alleviate senses. This may lead to irritation of the skin because of the fibers and the sound the fabric makes. However, children do not have many choices of the fabrics for their clothing. Of the therapy clothing products, 69.57% were made of synthetic fibers, 30.43% were cotton, and the remainder were wool. In the synthetic category, 12.50% were nylon/spandex and 6.25% Neoprene. Only 4.35% of the companies provided latex free. Although listing the fiber contents would be beneficial to the consumer in case of a child having allergy or sensory issues, 56.62% of the clothing did not have any specific information about the synthetic materials.

4) In addition, there is concern about therapy clothing design relating to sensory issues. A certain sensory experience might help emotional and social development. For example, tactile, smell, or sound can be a cue for children with ASD. Although we found some tops are designed considering sensory elements, there is a lack of information concerning ways clothing may effectively help for children.

Conclusions and Implications. Children with Autism Spectrum Disorders display a variety of symptoms although most demonstrate sensory processing deficits. However, current therapy clothing products are not designed for a variation of symptoms and there is insufficient evidence to support the use of therapy clothing. Further studies should be done for developing prototype sensory clothing that can help increase attentiveness and reduce sensory issues for most types of ASD.

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