

Challenges of the Urban Environment and Their Impact on the Quality of Life of Children with Autism Spectrum Disorder

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Abstract The urban environment plays a critical role in shaping the quality of life for children with Autism Spectrum Disorder (ASD). While urban planning often addresses physical disabilities, the specific needs of children with ASD are frequently overlooked. Children with ASD are particularly sensitive to sensory stimuli, making thoughtful urban design essential for reducing stressors and improving their overall well-being. This article explores how urban environments impact children with ASD, highlighting challenges such as noise and sensory overload, intense visual stimuli, lack of safe spaces, limited access to inclusive play and educational spaces, and the importance of personal zones. Additionally, the article discusses the positive aspects and opportunities presented by green spaces, acoustic comfort, and inclusive design, offering recommendations for urban planning that accommodates the needs of children with ASD. The study emphasizes the necessity of sensory-friendly spaces, noise reduction, and inclusive recreational and transport systems to enhance social integration and improve the quality of life for children with ASD. Effective urban planning that incorporates these factors can foster a supportive, inclusive, and accommodating environment for children with ASD.

Key Words: Urban environment, Autism Spectrum Disorder (ASD), sensory overload, noise reduction, visual stimuli, inclusive design, green spaces, urban planning, sensory-friendly spaces, play spaces, educational spaces, personal zones, spatial organization, social integration, environmental design.

Introduction

In contemporary society, the urban environment plays a pivotal role in shaping the quality of life for individuals. While

significant attention is often given to addressing the physical needs of people with disabilities in the design and construction of buildings and infrastructure - such as providing ramps for accessibility, audible signals at traffic lights, Braille on elevator buttons, and accessible restrooms - the specific needs of children with Autism Spectrum Disorder (ASD) are frequently overlooked. These children exhibit heightened sensitivity to sensory stimuli, which makes thoughtful urban planning essential to mitigate potential stressors and enhance their overall well-being. Urban spaces, if not carefully designed, may inadvertently present challenges that hinder the development and daily functioning of children with ASD.

This article examines the various ways in which the urban environment influences the lives of children with ASD, identifies existing challenges, and offers recommendations for improving urban planning to better accommodate their needs.

Main Part / Main Body Challenges of the Urban Environment for Children with ASD

Noise and Sensory Overload

Urban environments are frequently marked by elevated noise levels, including those generated by traffic, construction activities, crowded public spaces, and pervasive advertising sounds. For children with ASD, such auditory stimuli can lead to sensory overload, exacerbating stress and discomfort. The heightened sensitivity to sound commonly experienced by individuals with ASD makes them particularly vulnerable to the negative effects of urban noise, potentially resulting in anxiety, behavioral disruptions, and challenges in processing and responding to their surroundings. This sensory overload can

significantly impact their ability to engage in daily activities and limit their participation in community life.

Intense Visual Stimulation

Urban environments often feature intense visual stimuli, including bright lighting, dynamic advertisements, and vibrant, contrasting colors. For children with ASD, such stimuli can become overwhelming, leading to difficulties with spatial orientation and concentration. The heightened sensitivity to visual input that characterizes many individuals with ASD may cause challenges in processing these sensory cues, resulting in distractions or disorientation. This sensory overload can interfere with their ability to navigate and interact with their surroundings, further impacting their overall quality of life and participation in urban spaces.

Lack of Safe and Quiet Areas

Children with Autism Spectrum Disorder (ASD) often require a safe, structured, and predictable environment to support their emotional regulation and daily functioning. The dynamic and unpredictable nature of urban spaces—characterized by noise, crowds, and constant change—can exacerbate anxiety and stress in these children. The absence of designated safe and quiet areas within urban environments can significantly hinder their ability to process and respond to stimuli in a calm and controlled manner. Without such spaces, children with ASD may face increased difficulty in communication, social interaction, and overall participation in everyday activities, further impacting their quality of life.

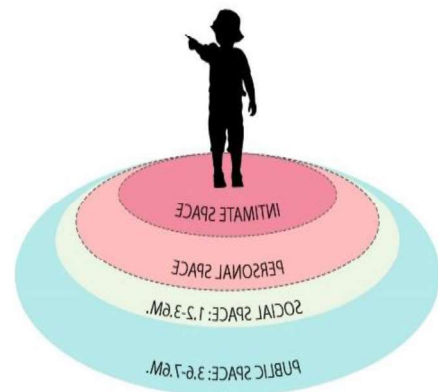
Limited Access to Play and Educational Spaces

Playgrounds and public spaces are frequently designed without considering the specific needs of children on the autism spectrum, which can pose significant barriers to their socialization and active recreation. The lack of inclusive design in these spaces often limits opportunities for children with ASD to engage in meaningful play, interact with peers, and develop essential social and cognitive skills. Inadequate access to such spaces can hinder their ability to participate in recreational activities that are crucial for their development, thereby restricting their overall

engagement with their environment and limiting their quality of life.

Personal Zones

According to the 2016 publication *Designing for Autism Spectrum Disorders (USA)*, individuals experience several distinct spatial zones in relation to their proximity to others. The closest zone is the intimate zone, followed by the personal space, which typically ranges from approximately 1.2 meters to 3.6 meters. Beyond this lies the social zone, which extends from about 3.6 meters to 7.6 meters. Finally, the public zone encompasses distances greater than 7.6 meters. These spatial zones play a crucial role in how individuals with ASD perceive and interact with their environment, as they may have heightened sensitivity to the invasion of personal space, making the design of spaces that respect these boundaries particularly important.



Personal space is an individualized concept, varying from person to person. However, children with Autism ASD, particularly those with heightened tactile sensitivity, may require additional space around them to feel comfortable. Conversely, children with diminished proprioceptive sensitivity may struggle to perceive the location of their body in space, leading them to avoid engaging in physical play and preferring to observe others instead. Furthermore, children with ASD often experience difficulty in interpreting social distances, which can result in challenges during social interactions and communication. In light of these considerations, it is essential that the environments in which children with ASD live, including their homes, educational

institutions, therapy centers, and recreational spaces, be designed with greater attention to their spatial needs. These spaces should be free from unnecessary barriers or clutter, ensuring that children have ample room to navigate and interact comfortably. Urban planning should prioritize the inclusion of open, natural environments and well-lit spaces, as well as the integration of isolated green areas and quiet zones, to foster a supportive and accommodating environment for children with ASD.

Positive Aspects and Opportunities

Green Areas and Natural Environments
Research has demonstrated that exposure to natural environments and green spaces can significantly reduce stress and enhance concentration. Integrating more parks and green areas into urban settings can provide children with ASD with calm, restorative environments that support their emotional well-being and cognitive development. The presence of such spaces fosters a sense of tranquility and connection to nature, which is particularly beneficial for children who experience sensory overload in more urbanized settings.

Acoustic Comfort and Low Noise Levels
Effective urban zoning and the careful selection of building materials can play a pivotal role in reducing noise levels within cities. By strategically planning these elements, it is possible to create quieter environments that promote acoustic comfort. For children with ASD, who are often highly sensitive to auditory stimuli, a reduction in environmental noise can significantly contribute to a calmer, more supportive atmosphere. This approach not only benefits children on the autism spectrum but also enhances the overall livability of urban spaces.

Inclusive Play and Educational Spaces

In the context of urban planning, the design and development of playgrounds and educational spaces tailored to the specific needs of children with ASD are essential for fostering their social development and enhancing their daily living skills. By creating inclusive environments that consider the sensory, cognitive, and social needs of children with ASD, urban spaces can provide

opportunities for meaningful engagement, interaction, and skill-building, thereby promoting their overall development and integration into the community.

Recommendations for Urban Planning

Sensory-Friendly Urban Spaces: Urban infrastructure should incorporate sensory-friendly zones, including sensory gardens and quiet relaxation areas, to provide environments that cater to the sensory sensitivities of children with ASD. These spaces can help mitigate sensory overload and offer refuge for children who may find typical urban settings overwhelming.

Noise Reduction: Implementing noise control measures in public spaces is essential to create a calm and supportive environment for children with ASD. The use of sound-absorbing materials and effective zoning can significantly reduce auditory stimuli, contributing to a quieter, more comfortable urban atmosphere.

Inclusive Play and Recreation Spaces: Parks and recreational areas should be designed with the specific needs of children on the autism spectrum in mind. These spaces should provide a safe, engaging, and accessible environment that supports both social interaction and sensory regulation, promoting the development of critical social and recreational skills.

Adapting Public Transport: Public transportation systems should be adapted to accommodate children with ASD by introducing quiet zones and simplifying informational signage. Such measures would reduce anxiety and confusion, ensuring a more inclusive and accessible travel experience for children on the autism spectrum.

Conclusion

International best practices emphasize that living and therapeutic environments for children with ASD should be situated in natural settings, removed from excessive noise and the hustle of dense urban areas. Providing children with greater opportunities to engage with nature and participate in outdoor play is essential for their development and well-being. Additionally, greater attention should be paid to the cognitive and sensory aspects of environmental design when constructing

residential spaces. Creating environments that are sensitive to the needs of children with ASD will ensure greater comfort and accessibility for all individuals.

The urban environment plays a significant role in shaping the experiences of children with ASD. In urban planning, it is crucial to consider the sensory sensitivities of these children by minimizing noise and visual overload while developing safe, structured, and predictable spaces. Inclusive urban planning policies and architectural solutions will facilitate the social integration of children with ASD, thereby enhancing their quality of life and fostering a more supportive and inclusive society.

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