Journal of Business and Economics, ISSN 2155-7950, USA
November 20240, Volume 15, No. 11, pp. 559-567
DOI: 10.15341/jbe(2155-7950)/11.15.2024/002

http://www.academicstar.us

Research on the Home Life of Adults With Growth Delay

Yuchi Huang, Tsungsheng Huang, Chiennan Chen
(Department of Creative Product Design, I-SHOU University, Taiwan)

Abstract: This study focuses on the differences between individuals with growth delay disorders and the general population in daily life. It explores the experiences and needs of individuals with growth delay disorders in their home lives. Through the use of observation and interviews, real-life data from individual cases were collected to identify and analyze the needs and challenges faced by these individuals. The study also highlights the difficulties that individuals with growth delay disorders face, which may not be fully understood by the general population.

To address the challenges faced by individuals with growth delay disorders in their home environments, such as difficulties in accessing items placed at higher levels and poorly designed furniture, interventions and improvements are proposed. These interventions aim to enhance the quality of life for individuals with growth delay disorders in their home settings, while also helping their family members better meet their needs. Understanding the difficulties and needs of individuals with growth delay disorders in their home lives is crucial for providing appropriate support.

Key words: growth delay disorders, home life, observation and interviews, quality of life
JEL code: I3, I320

1. Introduction

1.1 Introduction to Growth Delay and its Conditions

Growth delay is a condition that affects the rate of physical development and growth. Individuals with growth delay typically have significantly lower height, weight, and growth indicators compared to their peers. This condition can have negative effects on the physical and psychological well-being of children. Various factors can contribute to growth delay, including genetic factors, hormonal imbalances, malnutrition, chronic illnesses, endocrine abnormalities, or structural abnormalities.

Growth delay has long-term effects on the physical development of children, including impacts on bone development, sexual maturation, and immune system function. However, growth delay does not directly affect intelligence. Intelligence refers to a person's cognitive and reasoning abilities, while growth delay primarily involves delays in physical development, which can indirectly impact cognition and intelligence. Additionally, the

Yuchi Huang, Master, Department of Creative Product Design, I-SHOU University; research areas: social design, service design. E-mail: annann26672353@gmail.com.
Tsungsheng Huang, Master, Department of Creative Product Design, I-SHOU University; research areas: industrial design, green design. E-mail: Sanhuang2010@isu.edu.tw.
Chiennan Chen, Doctor, Department of Creative Product Design, I-SHOU University; research areas: social design, service design, industrial design. E-mail: jaspview2024@gmail.com.

negative effects of growth delay on the psychological and emotional well-being during childhood may also indirectly influence intellectual development.

Therefore, this study aims to analyze the psychological impact on the daily lives of adults with growth delay and their peers.

1.2 Impact of Growth Delay on Daily Life for Patients

The causes of growth delay mentioned above can result in various inconveniences in daily life for patients, which can be broadly categorized into four areas: limitations in mobility, challenges in learning and education, social interaction and mental health, and the development of daily life skills.

Limitations in mobility: Individuals with growth delay may experience limitations in their mobility, such as walking, running, jumping, and other activities. This can make it difficult for them to participate in physical education classes, sports competitions, and other daily activities, restricting their physical activity and exploration abilities.

Challenges in learning and education: Patients with growth delay may require special education to meet their learning needs. They may need to use assistive tools or technologies during the learning process to participate in school activities, which may require additional time and resources to address learning difficulties.

Social interaction and mental health: Patients with growth delay may face challenges in social interactions with peers, experiencing exclusion or discrimination due to a lack of understanding. This can have a negative impact on their emotional well-being, leading to feelings of frustration. They may require appropriate support and social skills training.

Development of daily life skills: Patients with growth delay may need to invest more time and effort in developing certain daily life skills, such as climbing stairs, to enhance their autonomy and independence.

1.3 Psychological Impact on Patients with Growth Delay

During the process of growth, patients with growth delay inevitably receive special attention, which can lead to self-doubt and a sense of loss of identity. The following are five common psychological effects on patients' psychological development:

Self-esteem and emotions: Children with growth delay may become aware of the physical differences between themselves and their peers, which can negatively impact their self-esteem. They may experience feelings of inferiority, sadness, or shame, especially when faced with comparisons and teasing from their peers. This can lead to emotional issues such as anxiety, depression, or social withdrawal.

Social difficulties: Due to the limitations in physical activities and sports caused by growth delay, children may feel uncomfortable participating in sports and physical activities. This can affect their interactions with peers and their ability to engage in social activities, leading to social difficulties.

Academic pressure: In a school environment, the delayed physical development caused by growth delay can result in academic challenges. Patients may struggle to keep up with their peers' learning progress, leading to academic pressure and a lack of achievement. This can make them feel frustrated and doubt themselves, ultimately affecting their motivation and academic performance.

Psychological difficulties: Growth delay can lead to psychological adaptation challenges at different stages. Patients may need to cope with physical and appearance changes caused by growth delay, as well as face questions and judgments from others. These challenges can create stress on their psychological development, requiring them to learn coping strategies and build psychological resilience.

Family and societal impact: Growth delay can have an impact on family and social relationships. Parents may feel worried and anxious, facing additional pressures in order to help their child. Family members may need to navigate medical and treatment arrangements, communicate with schools, and provide emotional support, among other challenges. Furthermore, lack of understanding and prejudice in the social environment can cause stress for children, affecting their social adaptation and self-worth.

In conclusion, growth delay not only affects physical development but also has significant implications for various aspects of daily life and psychological well-being. Understanding and support from family, peers, and society are crucial in helping individuals with growth delay overcome challenges and achieve their full potential.

2. Literature Review

2.1 The Impact of Growth Delay on the Family and Psychological Well-Being

The psychological impact of growth delay is multifaceted. Those affected may experience low self-esteem and social difficulties. Not only do individuals with growth delay face psychological stress, but their parents may also feel powerless due to their child's limited social activities and educational placement. This can lead to emotional distress and resentment. When parents and family members are unable to affect change, their emotions can turn to despair and even lead to depression, taking a downward spiral. However, if families are willing to confront the situation and seek effective medical intervention, the family atmosphere can not only improve but also become similar to that of a typical family (Chen J. Y., 1995).

2.2 The Application of Assistive Devices for Growth Delay

3D printing utilizes the concept of additive manufacturing, where the main material is formed by layering. It offers advantages such as customization, rapid production, and a variety of materials. With the advancement of technology, 3D printing has become increasingly popular, not only in the medical field but also in science and daily life, with many useful applications. It is suitable for the development and testing of initial prototypes for assistive devices. In the medical field, it actively assists various departments in hospitals to plan, design, and materialize innovative requirements for clinical practice, education, and research. Different development models are categorized for various types of assistive devices (Chuang S. F., 2023).

Currently, there are numerous innovative designs for assistive devices using 3D printing, which not only help individuals with growth delay but also bring about innovation in medical assistive devices. In recent years, research has explored the integration of digital games into educational training and health therapy. Early applications of such games in the healthcare industry were known as RSI games, specifically designed to address inflammation or pain caused by long-term compression on muscles or joints. The aim is to achieve a primary goal by changing thoughts or attitudes through various methods (Chou W. S., 2009).

2.3 The Assistance Provided by Assistive Devices for Growth Delay

Due to the physical differences and limitations in body functions experienced by individuals with growth delay, the selection of assistive devices needs to be assessed and determined by assistive device professionals based on individual functional needs. The proper use of assistive devices is crucial for promoting independent living and participation, and it can help address areas of deficiency by utilizing appropriate assistive devices and environmental adaptations. Educational aids that can improve learning abilities for individuals with growth delay include visual aids, auditory aids, mobility and positioning aids, reading aids, writing aids, communication aids,

and computer aids (Cheng H. Y., 2017).

The most significant difference between individuals with growth delay and the general population is their physical size. As mentioned earlier, mobility aids such as wheelchairs and walkers can enhance mobility and independence. Daily living aids such as eating and bathing aids can make daily life more convenient and safer for individuals with growth delay. These assistive devices can be selected and adapted according to the specific needs of each individual, providing practical support and increasing independence in daily life.

3. Methods

3.1 Research Object and Sampling Method

This study adopts an empirical research method, as well as interview and observation methods. The empirical research method collects actual data related to home electric wheelchairs through measurement, interview questionnaires, user experiences, needs, and feedback. Statistical analysis is then conducted to validate hypotheses or answer research questions. Additionally, on-site observations are carried out to record the movements, postures, comfort levels, and other relevant data of patients using electric wheelchairs. Through analyzing and comparing various functional needs and user feedback from this research data, conclusions are drawn.

The interview and observation methods, along with conversations with patients and their parents, provide in-depth understanding and insights into the patients' existing needs, issues, and expectations regarding wheelchairs. Observing the actual usage of wheelchairs by patients can help guide research and design directions, understand the practical situations, and grasp the patients' difficulties and challenges. These qualitative data can supplement and support the research.

3.2 Sampling Method

Congenital renal dysplasia, a condition where the kidneys fail to develop normally at birth, is a disease experienced by the case subjects. The kidneys are essential organs responsible for filtering blood, eliminating metabolic waste, and maintaining fluid balance. However, due to certain reasons, some patients experience impaired kidney development at birth, resulting in their inability to function properly. Common symptoms include frequent urination, hematuria, lower back pain, or high blood pressure. Additionally, patients may also have skeletal deformities, urinary system infections, and growth delay issues.

The case subject in this study has congenital renal dysplasia, leading to growth delay and an appearance that remains similar to that of a young child. As mentioned above, with kidney damage, regular hospital visits for renal dialysis and peritoneal dialysis treatments are required to remove accumulated metabolic waste and excess fluids from the body.

3.3 Interview Steps

We will conduct one-on-one interviews with the case and physically inspect the patient's residence. We will assess the patient's difficulties in areas such as the living room, dining table, bathroom, bedroom, and office space, and record measurements. After collecting the data, we will engage in in-depth conversations with the patients to gain a comprehensive understanding of their actual situations, and document the findings as research data.

The following table contains compiled data and images.

Basic data	Growth Delayed Participants	General Participants
Age	22 years old	22 years old
Height	125 cm	165 cm
Weight	27 kg	55 kg
Arm Length	50 cm	60 cm
Maximum Reach Height	150 cm	190 cm

Figure 1 Comparison Chart of Two Testers.

Figure 2 Patient Standing with Maximum Reach Height of 140 cm or Below.

Figure 3 General Population Easily Reaching Heights of 170 cm or Below.

Figure 4 The Patient Is Unable to Reach the Showerhead at A Height of 170 cm.

Figure 5 It Is Slightly Challenging for An Average Person.

Figure 8 Inconvenience in Using the Mirror at A Height of 130 cm, So A Smaller Mirror Is Placed at a Height of 110 cm.

Figure 9 The Patient Finds It More Difficult to Use the Storage Shelf at a Height of 130 cm in the Corner.

Figure 10 It Is Very Inconvenient for the Patient to Use the Shelf Placed at a Height of 160 cm.

4. Results and Discussion

According to the interviews, we were able to identify several inconveniences experienced by patients in their home environments. These include difficulties in reaching the showerhead, slippery bathroom surfaces leading to falls, inability to access the upper shelves and topmost compartments of the refrigerator, the need to use a small stool for added height during cooking in the kitchen, and inability to use the bathroom mirror. During the interviews, we also asked the patients how improvements could help them, and we discovered that they had psychological concerns about inconveniencing others. For example, they felt ashamed when unable to reach high objects and relied on others for simple daily tasks. They also experienced feelings of inferiority and worried about burdening their peers through comparisons and interactions. Therefore, it is crucial to foster more acceptance and attentiveness, actively offering assistance when patients require help.

5. Conclusion

The aim of this study is to explore the needs of individuals with growth retardation in their home life and how improving design can enhance their quality of life. Through a deep understanding of the unique needs and

challenges of individuals with growth retardation, we have found that improved design plays a significant role in helping them achieve a more independent, comfortable, and meaningful life.

Firstly, we have observed that improved design can provide the safety and accessibility that individuals with growth retardation require. For example, adjusting the layout and arrangement of the home environment to better suit their mobility and needs. Additionally, using appropriate furniture and equipment that provide good support and stability can reduce the risk of accidents and falls. These improvements can enhance their confidence and promote their independence in their home life.

Secondly, improved design can assist and facilitate individuals with growth retardation in their daily activities. For instance, designing user-friendly appliances and tools that simplify the execution of daily tasks enables them to participate more easily in household and community activities. Furthermore, considering their communication and cognitive abilities, designing products and environments with clear instructions and readable labels can help them better understand and follow instructions, thereby improving the efficiency and quality of their daily lives.

Lastly, improved design can promote the social engagement and emotional well-being of individuals with growth retardation. Creating a friendly and inclusive home environment that provides a comfortable and warm atmosphere can foster interactions with family and friends. Additionally, incorporating multicultural elements and multimedia entertainment facilities can enrich their daily lives, stimulate their creativity, and spark their interests.

References

Chen C. Y. (1995). “Children with disabilities and their families”, *Journal of National Taiwan Normal University*, Vol. 40, pp. 187-212.

Chuang S. F. (2023). “The application of 3D printing in clinical teaching aids and assistive devices”, *Medical Discourse*, Vol. 30, No. 2.

Chou W. S. (2009). “Design of digital game communication aids for severely disabled children: An empirical case study of children with cerebral palsy”, *Journal of Design Research*, Vol. 12, No. 1.

Cheng H. Y. (2017). “Assistive devices and life participation: Investigation of issues and current status in the application and allocation of educational aids”, Vol. 15, No. 4.

Ho J. C. (2006). “Family stress and psychological adjustment of children with disabilities”, *Counseling and Guidance*, Vol. 246, pp. 58-61.