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THE STATE OF THE ART OF ADAPTIVE CLOTHING FOR PEOPLE WITH DISABILITIES

BY

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Abstract. Improving the quality of life for people with special needs is a matter of international concern, necessitating the fashion industry's commitment to creating equal opportunities for persons with disabilities, preventing discrimination, and enhancing their standard of living as productive members of society. Throughout history, the field of adaptive clothes has shown resilience and progress, evolving from the functional necessities of the early 20th century to today's innovative technology. The general idea of adaptive clothing is to meet the needs for individuals with various physical limitations by incorporating different features to facilitate easier dressing and undressing, often without assistance. This factor also contributes to empowering individuals to actively participate in social activities. Through raising awareness and cultivating a strong collaboration among designers, researchers, and the disability community, adaptive clothing can become a prominent influence, promoting not just independence but also boosting self-confidence for individuals with disabilities.

However, significant challenges remain. Limited research on user preferences and a lack of public awareness hinders wider adoption of adaptive clothing. Additionally, the cost of these garments can be a barrier for some individuals. Another issue that this field should be focused on is the lack of ergonomic mind that focuses also on comfort. To address these issues, this paper will delve into the current state of adaptive clothing, tracing its progression into a

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movement for independence and self-expression. The paper examines current design trends, analyzes the benefits for people with special needs, and explore the remaining obstacles that hinder full accessibility.

By addressing these multifaceted challenges, the fashion industry can truly make a difference in the lives of individuals with disabilities. Through collaborative efforts, including research, design innovation, and advocacy, we can create a future where adaptive clothing is not just a niche market but a fundamental aspect of inclusivity and accessibility in fashion.

Keywords: adaptive clothing, innovations, state of the art, accessibility, disability.

1. Introduction

From the beginning of human history, one of our basic needs has been protection. One of the ways humans found to protect themselves was by using clothes and garments. These not only provided protection but also evolved along with society. People with disabilities have always existed, but the concept of adaptive clothing can be traced back to the early 20th century. It was then that the focus began to shift towards creating clothing that met the practical needs of individuals with disabilities.

The initial designs of adaptive clothing were driven by functional necessity. Features like adjustable closures and easy-access fastenings were introduced to make dressing easier for those with mobility challenges. It was after World War II that the mainstream began to recognize the need for clothing designed with accessibility in mind. This awareness led to the emergence of specialized adaptive brands in the 1980s, marking a significant shift towards inclusive fashion.

For many people, being able to choose and wear clothes independently is very important. However, individuals with disabilities often find their clothing options quite limited. Adaptive clothing offers a solution, but the journey towards truly inclusive fashion is still an ongoing process.

2. Current state of adaptive clothing: definitions, trends and benefits

Adaptive clothing refers to garments specifically designed to meet the needs of individuals with disabilities, the elderly, and those with limited mobility. These clothes incorporate features such as adjustable closures, easy-access fastenings, and comfortable fits to enhance the wearer's independence and comfort. They consider factors such as age, type of disability, level of independence, mobility, and dexterity, as well as whether the individual requires assistance in dressing. Adaptive clothing serves a wide range of users, from wheelchair users and individuals with visible disabilities to those with sensory sensitivities, such as those with autism. It also benefits the elderly and children,

both with and without disabilities, enabling them to dress more independently or facilitating the tasks of caregivers. Central to adaptive clothing design is the concept of adaptive design, which anticipates users' needs and proactively modifies garments accordingly. This not only promotes users' independence but also aids caregivers and healthcare professionals in providing assistance more efficiently, reducing the risk of injuries. When crafted to be both functional and stylish, adaptive clothing can significantly enhance an individual's quality of life and confidence, bridging the gap between utility and fashion while promoting inclusivity and dignity (Farha, 2021).

Because adaptive fashion is constantly evolving to meet the accessibility needs of individuals, it grows alongside current trends to produce new fashion-forward items. This is evident in the rise of adaptive fashion runways, major brands including adaptive fashion lines, and independent designers committed to making modern clothing accessible. Adaptive clothing is gradually becoming the future of fashion (Adaptive clothing, 2023).

The World Health Organization reported in February 2023 that 1.3 billion people –16% of the global population – experience a significant disability today, Fig. 1 (Adaptive clothing, 2024).



Fig. 1 – The World Health Organization global report on health equity for persons with disabilities *source* (Global report on health equity for persons with disabilities, 2023).

This growing number of people with disabilities and their need for adaptive garments is one of the biggest stimulators for the adaptive clothing industry. Industry leaders are now acknowledging this budding market, investing in the production of new and trendy adaptive clothing lines. The main leaders that dictate the trends of this industry include IZ Adaptive, Tommy Hilfiger, Zappos Adaptive, Buck and Buck, and Able2Wear. These companies have introduced various adaptive features, such as magnetic buttons and zippers, into their mainstream clothing lines.

According to the latest research, the global adaptive clothing market size was valued at 13,870.69 million USD in 2022 and is expected to expand at a CAGR of 5.45% during the forecast period, reaching 19,070.52 million USD by 2028 (Current Trends, 2023).

Based on this forecast, one of the benefits is the economic growth of the market and opportunities for businesses, innovation, and new job creation within the fashion industry. Other benefits of using adaptive clothing include enhanced independence, improved dignity, and increased confidence. By producing more adaptive clothing, we can ensure that individuals with disabilities can dress more easily and independently, reducing the need for assistance from caregivers and boosting their confidence and dignity. Another benefit of adaptive wear is improved comfort and functionality. Beyond fashion trends and innovation, the core of adaptive clothing is the comfort and functionality it offers. By focusing on this and enhancing existing ergonomic methods, the industry can create new levels and layers of innovation and functionality, offering more options and features to people with disabilities.

3. Challenges and Future Directions of Adaptive Clothing

Although adaptive clothing offers many benefits and has a positive market growth forecast, several barriers and challenges still impede its widespread adoption.

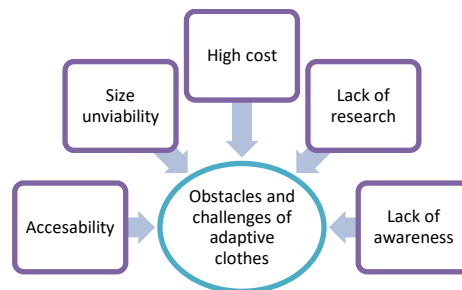


Fig. 2 – Obstacles and challenges of adaptive clothes.

One of the primary issues is limited accessibility and size availability. Many consumers find it difficult to visit physical stores due to undergoing treatment or as a side effect of their illness, figure 2. Additionally, finding appropriately sized clothing for special needs can be challenging, especially when shopping online, due to the limited availability of adaptive clothing in mainstream markets. High costs are another major barrier. Limited knowledge and awareness further compound the issue. This lack of knowledge is also caused by insufficient research into the specific needs of consumers with disabilities, which slows the progress of adaptive clothing brands.

One approach is incorporating innovative technologies, such as smart fabrics and wearable technology, which can offer new functionalities and improve the wearer's quality of life.

Another method to address the issue of sizing is the use of 3D prototyping, enabling more affordable and customizable clothing options. Increased collaboration between fashion designers, medical professionals, and technology experts is crucial.

Mainstream integration is also essential. Making these garments available in mainstream retail stores and online platforms can improve accessibility. This can also help in education campaigns and better marketing strategies to raise awareness about adaptive clothing among consumers, while advocating for supportive policies can help the growth of the adaptive clothing market. Focusing on sustainability is another important direction. Using sustainable materials in adaptive clothing and developing garments with longevity and recyclability in mind can contribute to a more sustainable industry.

By addressing these challenges and focusing on these future directions, the adaptive clothing market can evolve to better meet the needs of individuals with disabilities, promoting independence, comfort, and dignity.

4. Conclusions

Adaptive clothing has the transformative ability to change lives, foster inclusivity, and reshape societal views on fashion and we should strive for a future where adaptive clothing isn't relegated to a niche market but rather becomes a fundamental element of inclusive fashion. This will empower individuals of all abilities to express themselves genuinely and confidently.

➤ Adaptive clothing is not merely a fashion trend - it signifies a profound transformation in the lives of people with disabilities.

➤ Despite significant progress, challenges such as limited accessibility, high costs, and lack of awareness remain obstacles to widespread adoption.

➤ To overcome these challenges, a multi-faceted approach is essential.

➤ By collectively addressing these challenges and embracing forward-looking strategies, we can usher in a new era of inclusivity and accessibility in fashion.

REFERENCES

Adaptive Clothing Market: Anticipated to Be the Sector with the Fastest Growth in 2032, 2024, <https://www.linkedin.com/pulse/adaptive-clothing-market-anticipated-sector-fastest-f172f/>.

Adaptive clothing, https://en.wikipedia.org/wiki/Adaptive_clothing, 2023.

- Current Trends: Why Adaptive Clothing is the Future of Fashion, 2023, <https://www.juneadaptive.com/blogs/our-community/current-trends-why-adaptive-clothing-is-the-future-of-fashion>.
- Farha L., *Identifying the Gap Between Adaptive Clothing Consumers and Brands*, 2021, <https://udspace.udel.edu/server/api/core/bitstreams/0ecb6525-dbed-4569-ab17-d2c76511018b/content>.
- Global report on health equity for persons with disabilities, 2023, <https://www.who.int/publications/i/item/9789240063600>.

STADIUL ACTUAL AL ÎMBRĂCĂMINTEI ADAPTIVE PENTRU PERSOANELE CU HANDICAP

(Rezumat)

Îmbunătățirea calității vieții persoanelor cu nevoi speciale este o problemă de interes internațional, ceea ce necesită angajamentul industriei modei de a crea oportunități egale pentru persoanele cu dizabilități, de a preveni discriminarea și de a le îmbunătăți standardul de viață ca membri productivi ai societății. De-a lungul istoriei, domeniul hainelor adaptate a dat dovadă de rezistență și progres, evoluând de la necesitățile funcționale de la începutul secolului al XX-lea până la tehnologia inovatoare de astăzi. Ideea generală a îmbrăcăminte adaptive este de a satisface nevoile persoanelor cu diverse limitări fizice prin încorporarea diferitelor caracteristici care să faciliteze îmbrăcarea și dezbrăcarea mai ușoară, adesea fără asistență. Acest factor contribuie, de asemenea, la abilitarea persoanelor să participe activ la activitățile sociale. Prin creșterea gradului de conștientizare și prin cultivarea unei colaborări puternice între designeri, cercetători și comunitatea persoanelor cu dizabilități, îmbrăcăminte adaptivă poate deveni o influență proeminentă, promovând nu doar independența, ci și sporind încrederea în sine a persoanelor cu dizabilități.

Cu toate acestea, rămân provocări semnificative. Cercetările limitate privind preferințele utilizatorilor și lipsa de conștientizare a publicului împiedică adoptarea pe scară mai largă a îmbrăcăminte adaptive. În plus, costul acestor articole de îmbrăcăminte poate reprezenta o barieră pentru unele persoane. O altă problemă asupra căreia ar trebui să se concentreze acest domeniu este lipsa unei minți ergonomice care să se concentreze și asupra confortului. Pentru a aborda aceste probleme, această lucrare va aprofunda stadiul actual al îmbrăcăminte adaptive, urmărind evoluția sa într-o mișcare pentru independență și auto-exprimare. Lucrarea examinează tendințele actuale de design, analizează beneficiile pentru persoanele cu nevoi speciale și explorează obstacolele rămase care împiedică accesibilitatea deplină.

Prin abordarea acestor provocări cu multiple fațete, industria modei poate face cu adevărat o diferență în viața persoanelor cu dizabilități. Prin eforturi de colaborare, inclusiv prin cercetare, inovare în materie de design și susținere, putem crea un viitor în care îmbrăcăminte adaptivă nu este doar o piață de nișă, ci un aspect fundamental al incluziunii și accesibilității în modă.