



Designing to Include:  
A Pilot Study Offering Creative Design Solutions for People Living with Disabilities

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Approximately 56.7 million people (18.7 percent) in the United States have a disability and 38.3 million (68 percent) of those individuals have a severe disability (Brault, 2012). People living with disabilities (PLWD) struggle with clothing-related barriers to social participation, which can impact their quality of life and independent living. PLWD navigate both physical and attitudinal barriers and the individual models that frame disability often describe the disability as a personal tragedy or problem that the PLWD must overcome. The passage of the Americans with Disabilities Act (ADA) moved the social disability model to the forefront and framed the perspective that the environment and communities contribute to the impairments of PLWD. This has resulted in the built-environment receiving the accommodations for PLWD, while the role of clothing is left out of the disablement process.

Previous research has focused on simplifying and categorizing the types of disabilities (Newton, 1984-1985), and identifying design methods for adapting clothing for these disability categories (Lamb & Kallal, 1992), rather than on social participation barriers that impact the clothing needs of PLWD. To apply a social disability model to the clothing needs of PLWD requires a shift in thinking and approach. The aim of this exploratory pilot study was (a) identifying clothing-related problems, and (b) using an inclusive design approach to support the clothing-related problems facing PLWD. To achieve the study's objectives, data was collected through seven, 90-minute focus groups, consisting of semi-structured interviews, which took place over a one-year period in the Midwestern United States. The sample of twenty participants (18 women and 2 men) consisted of eight adult PLWD, seven parents or caregivers for PLWD, and five health care professionals working with PLWD. Participants were asked to share their thoughts, opinions, and experiences with clothing-related challenges and coping strategies. For example, they were asked to recall times when going out and doing something meaningful was made more difficult because of the lack of suitable clothing. Focus group interviews were recorded and transcribed for analysis. Through a holistic analysis of the data, unique unmet clothing needs were identified and innovative designs created [first by hand, then in illustrator, and finally to a photobook] for the following markets based on needs and wants: (a) people with mobility challenges; (b) people with sensory sensitive issues; and (c) people with medical devices such as IV ports and catheters.

Participants shared their frustrations with the lack of appropriate clothing for PLWD. First, people with mobility challenges discussed their need for closures that can accommodate them. Several participants shared how "a big, huge issue with the wheelchair is you can't put on coats in the winter" as described by a mother of a 10 year old wheelchair user. To address this concern consideration was made to use soft Velcro closures at the center back of the designed garments.

Second, sensory sensitivity was an issue. A mother discussing her daughter with spinal cord injury stated “you can’t put them on her because of pressure sores, because they all have buttons and rivets on the pockets, which because she’s in her wheelchair gets pressure sores” that become unbearable to her, creating the sensation of electrocution. For these issues, designs were created that include specific options that will accommodate sensory sensitivity issues such as soft Velcro for back closure options in addition to using modal and modal blended fabric. Finally, access to medical devices for participants was also a clothing-related barrier. An 82 year old man asked “can’t they just put Velcro on pants where I can just pull it off and pull it back on?” while another discussed the inability to find pants with appropriate leg openings to accommodate her braces. For other participants the challenge was in accommodating g-tubes, and trach’s. These medical devices were considered while designing. Side buttons and Velcro plackets were used on both pants and shirts for easy access to catheters and g-tubes, as well as, button-hole closures on the center front of a turtleneck for both warmth and discrete access for a trach tube.

This research includes many important contributions including the discovery of clothing-related barriers as it relates to the built-environment and that functional and comfortable clothing designed for the general public can accommodate the needs of PLWD and be widely accepted. Future research opportunities could include additional and larger interview samples that would continue to build on the categories developed in this study and strengthen the argument for developing an inclusive clothing design framework to accommodate the needs of PLWD and including more PLWD participants in this research to help demonstrate to clothing manufacturers the significant growing market for fashionable yet functional clothing utilizing inclusive design.



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