



## A Needs Assessment for Adaptive Clothing: Women with Chronic Neurological Disorders

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**Background and Research Purpose.** Over 100 million Americans—close to a third of the total population—suffer from neurological disorders such as Alzheimer’s, multiple sclerosis, migraines, epilepsy, and spinal cord injuries (Gregorie, 2017). People with neurological disorders may be gradually experiencing a decrease in cognitive function or suffer severely from cognitive impairment and physical disabilities. In particular, physical disabilities such as involuntary movements and insensibility cause them to face difficulties with dressing independently and moving comfortably. Clothing designed for nondisabled people is often inappropriate and nonfunctional for people with disabilities. Even the best-designed clothing made from the most luxurious fabrics may not fit or be functional for people with disabilities. Their clothing needs are often different.

*Adaptive clothing* can help. As defined by Wikipedia (n.d.),

adaptive clothing is clothing designed for people with physical disabilities, the elderly, and the infirm who may experience difficulty dressing themselves due to an inability to manipulate closures, such as buttons and zippers, or due to a lack of a full range of motion required for self-dressing. (para. 1.).

Regrettably, there is limited research on adaptive clothing design for women with chronic neurological disorders. Therefore, the purpose of this study was to investigate a needs assessment for women who are suffering from chronic neurological disorders such as Spinal Cord Injuries (SCI) or Multiple Sclerosis (MS).

**Method.** To identify the special needs of women with chronic neurological disorders, data were qualitatively collected through 18 personal interviews. To obtain accurate information regarding these special clothing needs, the issue was approached and investigated from 3 different angles. To that end, three groups of people were recruited to participate in a separate personal interview. Those three groups were a) 6 health professionals, b) 6 caregivers/family members of patients, and c) 6 female patients. The 6 female patients were able to communicate but physically impaired due to SCI or MS. The length of personal interviews took 30 minutes to one hour. The age of the female patients ranged from 33 to 58 years old.

The functional, expressive, and aesthetic (FEA) consumer needs model proposed by Lamb and Kallal (1992) was applied to identify the special clothing needs of those women. The interview questions

were modified from the two previous studies in clothing conducted by Bye and Hakala (2005) and Kidd (2006). Health professionals and caregivers including family members of the patients were also interviewed to gather information on their experiences with the patients in terms of clothing issues.

**Results and Discussions.** All of the interview participants believed that there is a lack of options and styles to address both the functional and the fashionable aspects of adaptive clothing for women with SCI and MS. The FEA model was useful in assessing which clothing needs are important to consider when meeting the expectations of the wearers.

Functional needs included comfort, donning and doffing, appropriate fit (either tight or loose, depending on personal preference), flexibility (e.g., seamless or reducing seams), adjustability, warmth, smoothness, softness, appropriate location of pockets (e.g., no back pockets), washable materials, accessibility, and easy care. Expressive needs included feeling good about herself, femininity, having a body image that feels ‘normal’ or fits in, and confidence. Aesthetic needs focused on choices in fashionable and casual styles (e.g., modern, classic, and vintage), a preference against sleeveless items, a preference against turtlenecks, various colors (pink, Caribbean blue, lime, purple, orange, green, black, gray, white, and red), small or few floral prints, simple patterns, shiny textures for tops, lightweight fabrics, and small accents/embellishments.

The patients revealed that they have never tried on mass-produced adaptive clothing for 2 reasons: the items are expensive, or they were unaware of their availability. Four patients expressed that their own opinions matter most when they are shopping for clothing, whereas the other 2 patients said that their family members’ or friends’ opinions matter most. The patients also stated that of all body parts, they wished their stomach area could be visually minimized by clothing. All patients pointed out that neither buttons nor strings are desirable fastenings for getting in and out of a garment. The interview participants pointed out that adaptive clothing could be trendy, yet the styles would need to be wearable. Donning and doffing would be an important attribute to consider among functional needs because of the patients’ limited mobility and weakening of hand/finger function over the course of a day. All 3 groups of the interview participants mentioned that economical adaptive clothing would also be an important attribute to the wearer because it would be financially helpful for the patient not to spend extra money on clothes on top of expensive medical bills.

**Conclusions and Implications.** The purpose of this study was to investigate a needs assessment in clothing for women with neurological disorders such as SCI and MS. All participants’ opinions about clothing issues and expectations, gathered using the FEA needs model, were analyzed through in-depth personal interviews. Overall, all participants perceived that adaptive clothing should be improved to meet the needs of the wearers. Consequently, improving the functionality and aesthetics of adaptive clothing would boost the wearer’s mood and assist her in expressing her individuality and normality like everybody else. Thus, the specific design criteria reflected by improvements suggested through the FEA

needs model can be shared with designers and manufacturers to develop better functional and fashionable adaptive clothing, as their female apparel consumers desire.

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