

Style Meets Function: The Inclusive Winter Jacket.

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Introduction:

Many persons with disabilities experience an adverse response to their appearance and feel distanced from existing fashion (Freeman, Kaiser & Wingate, 1985-1986). The shortage of fashionable adaptive clothing is especially difficult for young adults with limited mobility who wish to partake in social occasions where they may be judged by their clothing and appearance (Kidd, L.K.2006). Hemiparesis is partial paralysis on one side of the body that can result from stroke. Persons with hemiparesis often have difficulties with gross and fine movements in their arms and hands. Women experience greater post-stroke disability than men and are more likely to experience difficulties with dressing (Petrea et al., 2009). The purpose of this study was to use participatory design to create a winter jacket for female stroke survivors who have hemiparesis. Women with chronic hemiparesis in their upper extremities were recruited to provide input on the initial jacket design and feedback during field-testing. This jacket was designed to be inclusive (universal) and to overcome the functional and aesthetic challenges faced by stroke survivors.

Objective: The objectives of this study were: 1) Use Participatory Design methodology to engage women with chronic hemiparesis in designing, creating, testing, and evaluating a winter jacket; 2) Create a winter jacket that is stylish, functional, and based on the needs of our study population and; 3) Ensure the jacket is inclusive of all women.

Methodology:

Phase 1 - Data collection: Twelve female stroke survivor participants were recruited using advertisements through community agencies and support networks. Participants experienced restrictions in the use of one of their upper extremities following stroke. The study used a mixed methods research design consisting of:

1) a quantitative questionnaire rating the ease of putting on the garment; and 2) semi-structured interviews and qualitative questionnaires. All sessions were video and audio recorded for post-analysis. Data were transcribed and thematically analyzed by the fashion design and Occupational Therapy (O.T) students. Following informed consent, fashion design and O.T students collected demographic

information and conducted baseline interviews with participants. Participants were asked to bring their own garments and demonstrate donning and doffing during a “think aloud” process. Participants were encouraged to describe challenges and concerns as they demonstrated donning and doffing. Fabric samples were also created with twelve various types of fastening systems. Each participant tried all of the different fasteners and provided feedback on the ease of using them.

Phase 2 - The design process: Analysis of quantitative and qualitative data identified 10 garment attributes linked to participant needs and clothing preference (Table 1). Participants commented more than once on a category. Through a weighted average we calculated the percentage of comments on each feature. Preliminary sketches using the analyzed data were shared with the participants to co-create the designs. For example, the initial designs of a thigh length jacket were changed to a longer jacket as a result of the co-creation process. (Fig. 1a & 1b).

Phase 3 – Field-testing: Each participant was provided with a prototype jacket for one week. During which they performed specific activities and answered a corresponding questionnaire, for instance: “How easy or hard was the coat to put on or take off? Did you have any issues with doing up the coat?” They were contacted twice during the field-testing to inquire about any concerns they had with the garment or the required activities. Following field-testing, participants completed a feedback questionnaire and were recorded (audio and video) while donning and doffing the jacket.

Results and Discussion: Initial feedback on the jacket was very positive, with suggestions made only for minor fitting adjustments. The magnetic zipper, 80/20 polyester fabric (fabric that loses



(Fig. 1a & 1b).

only 20% of its water repellency after 80 washes) with insulated quilted lining, fleece lining to provide extra warmth, and the overall style of the jacket were very well received. The participants particularly appreciated having multiple pockets in the jacket where they could store items such as phones, transit

tokens, coins etc. in them. Equally important was having the option of a zipper in the center back of the jacket to provide shoulder ease. The possibility of the zipper opening at the hem for those in wheelchairs was appreciated as it did not result in sitting on the jacket and the discomfort of it tugging at the neck. However, there was mixed feedback regarding the attached mitts. Some of the participants liked the mitts but some found they interfered with their ability to grip the walker. Additional suggestions included detachable mitts, reflective tape and a drawstring on the hood. Participants found the detachable skirt useful while walking but had to remove it if travelling by car. Participant Comments: On Satisfaction of the Jacket: "Everything. Especially the zipper, how it's magnetic. Because my other coat it has zippers but I can't zip it up. I just use the buttons. And this is like, a bit roomier. It's warmer. It's nice that you have like, the mitts built in." On the aesthetics of the Jacket: "it's stylish, the colour is black and it's versatile I can wear it anywhere or for any event."

Features	No. of Participants commenting on features	% of total comments on feature	Features	No. of Participants commenting on features	% of total comments on feature
<b>On Fabric</b>	<b>12</b>		<b>On Warmth</b>	<b>8</b>	
Soft	9	52.9%	Hands/Arms	6	75.0%
Shiny	1	5.9%	Legs	1	12.5%
Not Itchy	3	17.6%	Shoulders	1	12.5%
Stretchy	3	17.6%	<b>On Zippers</b>	<b>10</b>	
Crease Resistant	1	5.9%	Easy-to-use	1	10.0%
<b>On Care</b>	<b>8</b>		Difficulty	9	90.0%
Wash Friendly	7	53.8%	<b>On Buttons</b>	<b>11</b>	
Dry Friendly	4	30.8%	Prefer Big buttons	4	36.4%
Iron Free	2	15.4%	No Buttons	5	45.5%
<b>On Fit</b>	<b>11</b>		Time-consuming	2	18.2%
Loose	8	72.7%	<b>On Pockets</b>	<b>10</b>	
Fit	1	9.1%	Pockets - Yes	7	70.0%
Somewhat	2	18.2%	Pockets - No	3	30.0%
<b>On Aesthetics</b>	<b>12</b>		<b>On Hoods</b>	<b>11</b>	
Stylish	10	83.3%	Hoods - Yes	9	81.8%
Not Stylish	2	16.7%	Hoods - No	2	18.2%
<b>On Weight</b>	<b>5</b>				
Light	5	100.0%			

(Table.1)

Future Directions: The O.T and Fashion team were encouraged by the response of the participants to the project and their reaction to the prototype. There were requests from the participants to purchase the garment. The next steps will be to develop a business case in support of a social enterprise model. This will give more choices to consumers and generate revenue for adaptive design solutions.

## References:

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