

Conceptual Design of a Winter Jacket for Victims of Stroke

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Stroke is the leading cause of long-term disability, and the third leading cause of death in the United States. Each year there are about 795,000 people that suffer a stroke, and on average in the United States someone has a stroke every 40 seconds (“Stroke Statistics”, n.d.). However, there are not many commercial clothing items available and adapted to stroke survivors. While stroke survivors are able to find a limited number of clothing items specifically designed and adapted for them, the styles are simple, inelegant, and tend to look very different from the style of the general culture. Following the design model proposed by Koberg and Bagnall (1974): accept, analyze, define, ideate, select, implement, and evaluate, this study adopted the first four steps, accept, analyze, define, and ideate, in order to create conceptual designs of winter jackets for victims of stroke.

Accept: As stated above this stage involved the researchers learning about the problem that victims of stroke have, and the statistics of how many people it affects.

Analyze: The problem was further analyzed as we explored the companies that already produced adaptable winter jackets, we also explored online forums and websites that told stroke victims what to look for in a winter jacket.

Define: Victims of stroke mainly needed extra support for their affected side, especially for their arms. Ease in closure was important so that the victims of stroke could have independence and material choices were also important for warmth as well as ease of donning and doffing the garment.

Ideate: A number of sketches were developed to ideate the concept. Once the researchers had developed these ideas they were examined and the top ideas were utilized or combined so that the researchers could really focus on three main designs, jacket A, B, & C.

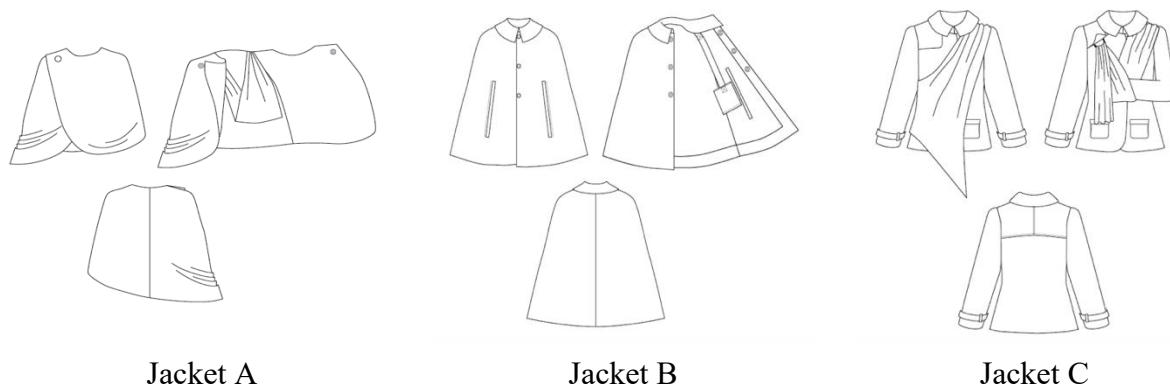


Figure 1. Three designs for victims of stroke

Jacket A utilizes a lightweight wool for drapability. This design features an attached inner sling made of a medium-weight cotton jersey for comfort. The design utilizes the wearer's non-affected arm to apply a simple magnetic closure on one side and creates an elegant draped coat that helps the wearer without calling attention to their disability. Jacket A has the most aesthetic appeal and the least adaptability.

Jacket B is also a cape that is not side specific. On the outside the cape appears similar in style to many other cape jacket styles, with welt openings for the arms to come out, and three buttons down center front. However, on the inside we see that magnetic snaps are used for closure and the buttons on the outside are simply decorative, again aiding in the ease of use for the stroke victim. A casing is sewn near the welt opening that acts as a sling for whichever arm is affected. For strength and durability polyester webbing is sewn from the neckline to the casing. A slippery polyester lining is utilized for ease when donning and doffing the jacket, the lining reduces friction and allows the jacket to easily slide over whatever material the stroke victim is wearing. This design is equally aesthetic and adaptable.

Jacket C is a peacoat variation with a wrap/sling. This jacket when worn with the wrap down is able to double as a lap blanket if the wearer is seated and provides extra warmth if they begin to feel cold. The wrap is attached at the shoulder and at a small area on the opposite side seam. Fake flap pockets are utilized on the outside for aesthetics but contain a hidden side opening for ease of use. O-rings are hidden under the gun flap on the front of the jacket and the wrap can be threaded through these with the strong arm and adjusted similar to a sling for a child with the affected arm supported and contained. This design is the most adaptable and could be the least aesthetic because out of the three options it draws the most attention to the disability.

To design effective winter jackets for victims of stroke, the researchers identify that there were not many choices of clothing for stroke survivors. As the number of stroke victims increases, specialized clothing for stroke victims also needs to develop. The main design criteria were developed and the researchers conceptualized three effective winter jackets for stroke survivors utilizing the first four steps of the design process model. Jacket A applied the magnetic closure to improve the wearer's comfort on the draped silhouette. Jacket B, cape style of jacket, also applied the magnetic snaps and a sling was placed inside of the jacket to support the arms. Finally, Jacket C, a peacoat style, has the wrap, which provides extra warmth when the wearer is cold. The wrap also utilized a sling that is adjustable to the wearer's needs. In this paper, only phase 1 (accept, analyze, define, & ideate) was presented. The phase 2 (select, implement, & evaluate) will be presented in future study. In phase 2, the researchers will develop the actual prototypes and also evaluate these designs to select the most effective designs for victims of stroke.

References

- The Internet Stroke Center. (N.D.). *Stroke Statistics*. Retrieved from <http://www.strokecenter.org/patients/about-stroke/stroke-statistics/>
- Koberg, D., and Bagnall, J. (1974). *The universal traveler: a soft-systems guide to creativity, problem-solving, and the process of design*. Los Altos, CA: Kaufmann.