

# A Study on Adaptive Clothing for Females with Arthritis

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## **Abstract**

The Aim for conducting this research is to explore functioning in older adults with joint pain and comorbidity in terms of mobility, functional independence and participation and to identify possible predictors of poor functional outcome. We have heard a lot from older adults about the difficulty in finding attractive and comfortable clothes that they can easily put on and take off by themselves. Mobility and dexterity limitations can make this everyday process a nightmare. We've been told that it sometimes feel like the arthritis sufferer is a prisoner in their own clothes. This study was able to aid the life of a woman who is riddled with a physical disability in living a normal life, without having to fuss about daily clothing exercise. With the help of adaptive clothing, a woman with rheumatoid arthritis can dress up independently and comfortably and still feel good about her-self, which increases self-confidence. This design concept is unique in this society's context, and will be able to help many others in the future, have more or less similar disabilities.

## **1. Introduction**

The paper must be divided into various sections An excellent design is one created by the human mind, It is a triumph of human imagination over materials, methods and innovation to put man into possession of his own earth. Over the decades computers and fashion have developed gradually, changed with time, taste and trend. But nobody knew that a time will come when both these fields will complement each other so well. Today garment design has reached new heights by computer aided methods of design. As a result of which, computer industry has got its new customer. Computer technology is making waves in the fashion design zone. From determining textile weaves to sizing designs; computers are a vital component of the fashion industry. Computer aided design (CAD) programs

reduce the demand for manual sketches. New software programs continue to replace old manual skills. Going by the wayside are "old fashioned" flat pattern construction, pencil sketching and traditional math-based pattern sizing. Those who lag in math and falter at sketching can now breathe a little easier. The use of new information technologies and software provide the possibility to solve problems connected with raising work efficiency in the company. At present most of the companies use computer aided software.

The computerization of different processes in the garment industry is necessary to reduce the costs of a product and raise the competitiveness. Computer systems allow making two dimensional as well as three dimensional product illustrations and visualizations. It is possible to create computer aided garment constructions, as well as gradations, and create a virtual first pattern of the model - such computer aided operations significantly decrease the time consumption and cost necessary to design a product. The costs of the product itself can be calculated with the help of the product management systems.

Software can help to draw, create woven textures, drape models to create patterns, adjust sizes and even determine fabric colors. By Introducing this technological aspect will enable students to understand a lot better and try various combinations in their design.

So I tried to create garment pattern for women adults with joint pain with the help of Gerber Software. We have heard a lot from older adults about the difficulty in finding attractive and comfortable clothes that they can easily put on and take off by themselves. Mobility and dexterity limitations can make this everyday process a nightmare. We've been told that it sometimes feel like the arthritis sufferer is a prisoner in their own clothes. So the main challenge is to create a garment which they can easily wear and take off.

## 2. Objective

The main purpose of this study is to explore functioning in older adults with joint pain and comorbidity, in terms of mobility, functional independence and participation and to identify possible predictors of poor functional outcome.

## 3. Research methodology

The study has been designed as a prospective cohort (a group of people with a shared characteristic) study. For this 45 patients were approached who are residing in Suniyawa village in Pratapgarh district. The basic criteria for choosing patients are 55 years or above, report joint pain on most days. Data will be collected using various methods (i.e. one to one interaction, focus groups). Furthermore, health care utilization, health care needs and the meaning and impact of joint pain will be investigated from an older person's perspective.

## 4. Focus Group Meeting

To explore the personal experience and impact of joint pain in an older adult's everyday life, organized a **focus group meeting**. Focus group meetings allow participants to share experiences and thus, enable exploration of the impact of joint pain, how joint pain interacts with other health problems, how people manage to lead their life despite pain and other health problems, which self management strategies they may use and how they could be supported by family members. Participants can interact with each other, which makes it possible to clarify statements and opinions and allows investigation into beliefs, attitudes, behavior and needs.

## 5. Observational Analysis

Based on the group discussion, the result was taken out, measured functioning from different perspectives, in terms of mobility, functional independence and participation. It was assumed that these functional outcomes are related to each other, because they all measure different aspects of functioning and provide information about functional status.

The results of the focused group will provide additional qualitative information on patient's health care needs and the meaning and consequences of joint pain in everyday living. This mixed methods approach enables us to generalize the quantitative results to the target population, while emphasizing the personal perspective and experiences of older adults with joint pain and comorbidity (one or more additional diseases).

Based on the analysis these points were observed as of prime importance for the patients:

- Clothing protects people from humidity, heat & cold and helps them feel physically comfortable. Characteristics of fabric that affect physical comfort include flexibility, bulkiness, weight and texture. Garment construction also affects physical comfort.
- Clothing gives the wearer a sense of wellbeing. It tells something about the person. Clothing also affects the way others see, think of, and react to the person.
- A person can be comfortable or uncomfortable wearing a certain garment or type of clothing in a social situation. Social comfort may be involved when a person wishes to "make an impression" through the clothing he or she wears.
- The stereotype says older people don't care about their appearance. But, research shows:
  - Most older people think of themselves as younger than they are.
  - Their sense of fashion reflects their youthful thinking and the fashion of earlier years when they were younger and
  - They like clothing that looks good on them. Clothing can help older people feel better about themselves and present a positive image to those around them.
  - Safety from fire is a special concern for older people. Some may lack the agility to step away from a spark or flame source quickly enough to avoid having their clothing ignite. Lightweight, thin, or napped fabrics will catch fire most readily. Wool has some natural flame resistance. Much of today's clothing is so strong that it doesn't tear easily. Some people may not have sufficient strength and stability to prevent injury if they were pulled off balance. The safe choice is clothing that fits close to the body especially for the people using wheelchair.

## 6. Concept Derived

Choices for daily functioning Mobility refers to a person's ability to walk, move around and function on a daily basis. Mobility may be limited by clothing that gets in the way—either for the person wearing it or for others who assist him or her. Most people like clothing that is easy to put on and take off. If a

person needs help getting dressed and undressed, clothes that go on and come off easily help everyone concerned. Clothes that fit loosely without being baggy are easier to get on and off.

- Clothing with front openings, large zipper pulls, hook-and loop tape closures, or wrap styles may help.
- Sleeves with adequate shoulder width that are not too tight or too loose.
- Considering people who cannot dress themselves easily.
- Front-opening styles.
- Large neck openings.
- Two-piece garments. The top and bottom may be of different sizes for better fit.
- Accessible front pockets for carrying personal items.
- Garments that open out flat, so the wearer can be rolled onto them.
- Pop-over tent styles with ample neck openings.
- Zip, snap, or hook-and-loop tape closures.
- Smooth fabrics that may slip on easily. However, such fabrics may make it more difficult to grip and assist the wearer when he or she must be moved.
- Skirts or gowns that wrap to close in back and divide while the wearer is seated.

## 7. Criteria for choosing appropriate products

- The wearer's physical condition,
- The frequency of changing required,
- Convenience of changing,
- Purchase costs,
- Time required and cost of care and upkeep of reusable,
- Are less likely to produce potentially embarrassing rustling noises as the wearer moves,
- Plan put forward for consideration.

While velcro and tich button seems to be the easy 'go to' solution that many manufacturers gravitate to when designing clothes for people with arthritis, we also heard that for many it is not always the perfect solution. Some find Velcro difficult to pull open, while others report that the Velcro gets stuck on other materials, or that it is difficult to connect the correct Velcro patches. Finally the Velcro strips are usually either white or black and can be unattractive.

## 8. Pattern created in Gerber Software

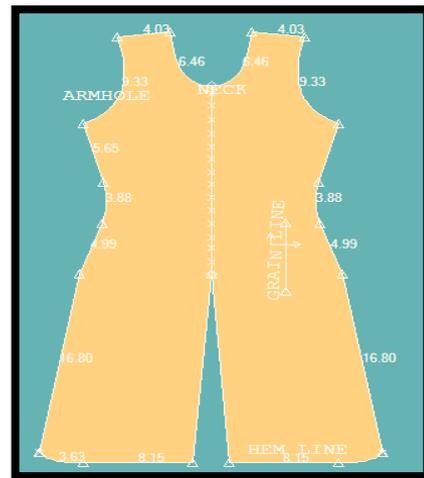


Fig. 1 Kurta pattern created in Gerber Software with tich button

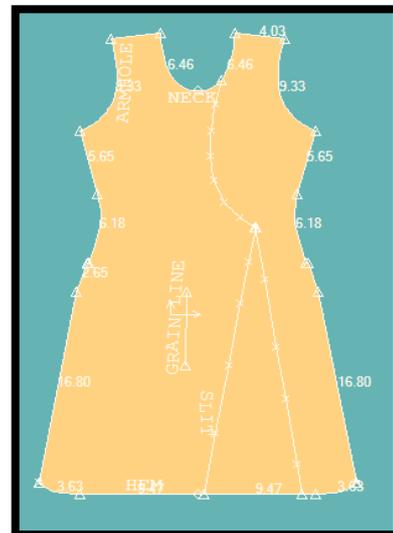


Fig. 2 Kurta pattern created in Gerber Software with velcro opening

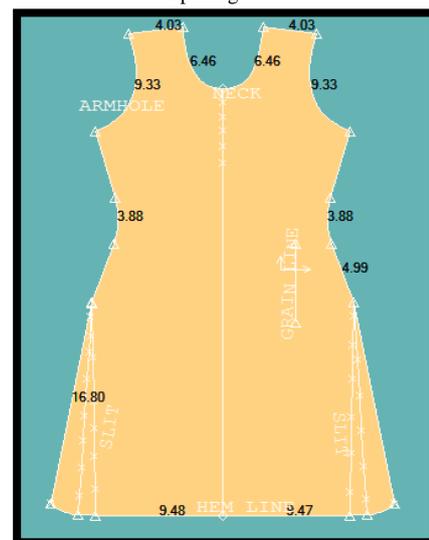


Fig. 3 Kurta pattern created in Gerber Software with Side velcro opening

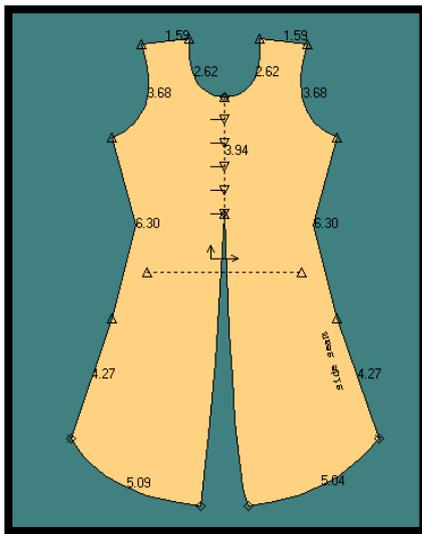


Fig. 4 Kurta pattern created in Gerber Software with front velcro opening

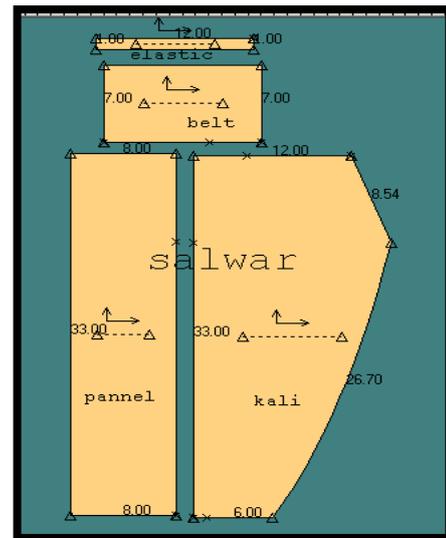


Fig. 7 Salwar pattern created in Gerber Software with front opening

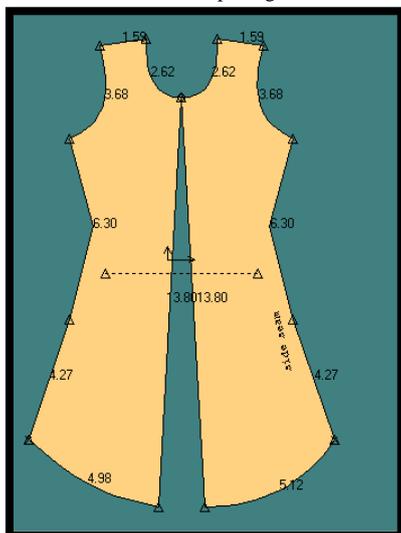


Fig. 5 Kurta pattern created in Gerber Software with front opening

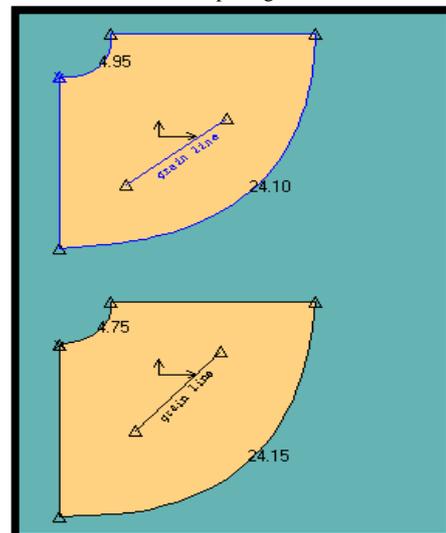


Fig. 8 Skirt pattern created in Gerber Software with front opening

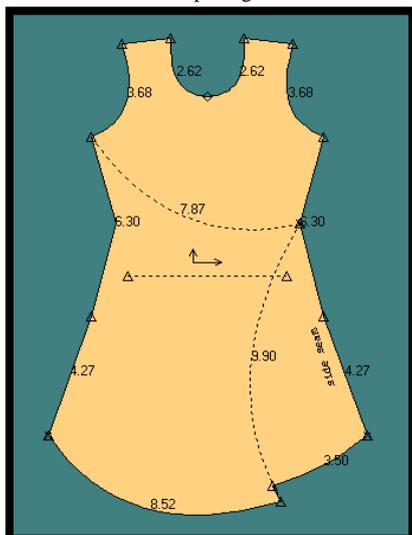


Fig. 6 Kurta pattern created in Gerber Software with front opening

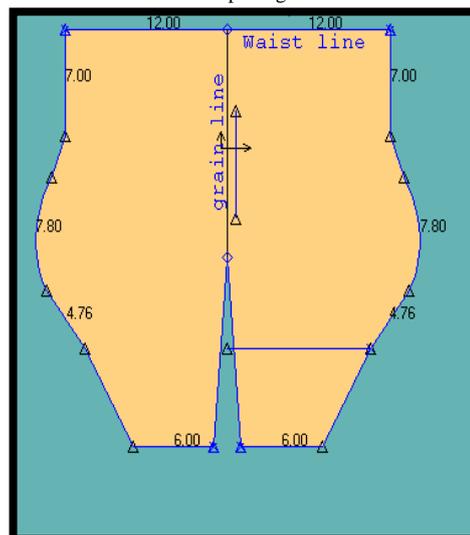


Fig. 9 Salwar pattern created in Gerber Software with front opening

## 9. Conclusion

In this article a qualitative method was used, employing data collection by in-depth interviews and observations. The researcher did a detailed thematic analysis using predetermined codes to aid analysis, of all the information gathered from three female participants of the study. The researcher found what was missing in the clothing that the participants wore in their regular lives, and worked with them to find out what they wanted in the adaptive clothing that provides them independence and self-confidence. This study was able to aid the life of a woman who is riddled with a physical disability in living a normal life, without having to fuss about daily clothing exercise. With the help of adaptive clothing, a woman with rheumatoid arthritis can dress up independently and comfortably and still feel good about herself, which increases self-confidence. This design concept is unique in this society's context, and will be able to help many others in the future, have more or less similar disabilities.

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## References

- M. Harriet & V. Minna Clothing and textiles for disabled and elderly people.
- Hatch, Kathryn L. Textile science. St. Paul / Minneapolis: West Publishing Company, 1993. 472
- Karatza, M. The use of colours in the environment of the elderly. Knegsel: Akontes Publishing. The Akon series "Ageing in the contemporary society", 1995, Vol. 11.
- <https://www.fibre2fashion.com/industry-article/5313/importance-of-computers-in-fashion-design>
- Diseases and conditions psoriatic arthritis, [www.rheumatology.org](http://www.rheumatology.org)
- [https://www.apparesearch.com/computer\\_assisted\\_design.htm](https://www.apparesearch.com/computer_assisted_design.htm)
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3214164/>
- <http://patient.info/in/health/knee-pain-patellofemoral-pain>