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Designing of Warm shirt for Arm Broken Persons for Winter Season

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Abstract

In winter season warm apparel such as woolen sweater, quilted garment and stretchable knitted garment, unable to wear by the arm broken persons when they had plaster on their hands and even caretaker of them also find problems to dress up, to find the solution of warm clothing. A study is carried out on designing of warm upper garment with the objective such as to find out the problems faced by arm broken persons in wearing of warm clothing in winter, tried to developed design of warm shirt Design I is style open shirt of collar, Design II open shirt of hood cap and sleeves opening was planned to the arm broken hand side of plaster hand out side of arm from shoulder on placket simple button of big size and magnetic button were stitched .Warm shirt was stitched using cotton woven fabric like grey, poplin and casement of plain weave. For providing warmth utilizing double layered and triple layered of woven fabric and prepared warm shirt were distributed among respondents for wearing trails and suitability of warm shirt was tested by weighted Mean Score (WMS). Results reported by the respondents by their personal experiences that Design II hood cap warm shirt of triple layers (2 layer grey + poplin single) was found to be comfortable for wearing next to skin, provided sufficient warmth . Hood cap design with elastic band, patch flap pocket is more preferred by the respondent and also caretaker

Key words:-Warm shirt,arm broken, woven fabric, double layer,triple layer,hood cap collar

Introduction

Winter clothes are especially outer wear like coats, jackets, hats, scarves and gloves or mittens, earmuffs, peoples wear in healthy stage, even in very cold temperature, peoples use to wear over the woolen sweater lots of layers of blankets and shawl, rather than one thick piece of clothing. Now a days many types of warm apparels are in fashion

like quilted garment ,jacket of three layered made up of sponge material or Rexene upper layer and second layer of fur fabric, all warm clothes are suitable for winter season but after some hours these warm readymade garment developed heat in body and feel uncomfortable and remove it by healthy person. Fashionable quilted and even woolen sweater are unable to wear in broken arm in the stage of plaster had on their hand and many problems faced by arm broken person and their care taker to dress up warm clothes. Even shrug, poncho, woolen blanket, cap and mufflers were unable manage by one hand all warm cover tuck and bunching in rest position. Therefore to find out solution of warm clothing of wool and arm broken person, a study carried out for designing of warm shirt and stitch by using woven fabric of double layer and triple layers in the Department of Textiles & Apparel Designing, College of Community Science, Vasantrao Naik Krishi Vidyapeeth, Parbhani.

Methodology

A survey was conducted in winter season among 55 persons of arm broken in the stage of plaster had on their hand from various orthopedic hospitals of Parbhani District of Marathwada.

Information collected

Information was collected with the prepared questionnaire by personal talk & discussion from arm broken persons (in stage of plaster had on their hand) and also with their governess about problems faced of wearing of warm apparels by the arm broken persons in stage of had on their hand. such as normal style of sweater made by wool is comfortable to wear next to skin, type of warm clothes used, easy to put and take out, texture of warm clothes, problems of fasteners, seam & seam finishes and maintenance of warm apparels and cover head for protection from cold can manage with on healthy hand and have knowledge of special design of clothes that is available in the market. Collected data was pooled and analyzed and discussed in percentages

Selection of respondents

A total 30 number of respondents (arm broken persons in stage of plaster had on their hand) were selected randomly under the age group from 30 to 70 years,

Selection of fabric

For stitching of warm shirt cotton fabric like poplin, grey and casement material of light pink y blue colour was selected.

Poplin fabric

Poplin fabric of plain weave (cotton of count of 80x75), was selected because it manufactured in plain weave with thickest yarn and have tightest weave, medium weight, nice drape, being strong and durable, inexpensive and wrinkle-resistance.

Grey fabric

Grey fabric of plain weave, having count of 60x65, thin, un finished woven fabric, which has not been dyed & bleached, durable and light in weight

Casement fabric

Casement fabric is medium-weight, plain weave & constructed in thicker yarns, tight weave a smooth surface,

Selection fasteners

Two types of fasteners were selected such as big size press button (touch button) and magnetic button. Magnetic button are strong, round-shape like a touch button.

Testing of stitching combination of fabric layers

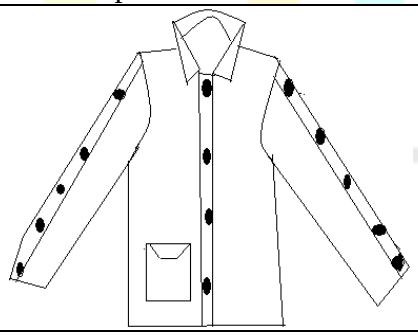
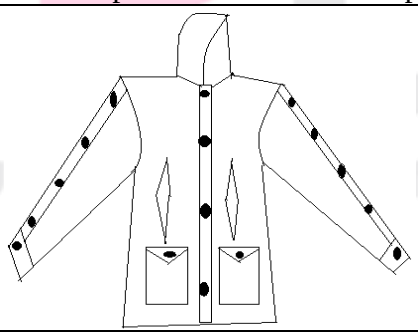
A stitching trails was taken by using small pieces of selected fabrics in combinations as double, layers and triple layers to know whether combination of selected fabric is suitable for stitching on simple sewing machine without facing difficulties,

S .no	Combination of double layers	Combination of three layers
1	Grey cloth + poplin cloth	3 layers of grey
2	Poplin cloth +casement cloth	2 layers of grey + layer of poplin
3	Casement cloth + grey cloth	2 layers of grey + layer of casement

Selection of style of garment

A simple slim-fit style of open shirt with collar and hood cap was selected for sketching and designing of warm shirt.

Sketches of warm shirt

Design-I Open shirt with collar	**Design-II** Open shirt with Hood cap
	

Details of construction

Length of shirt

Length of shirt was planned below hip and for avoiding problems of bunching and tucking shirt at back in rest position, full front placket provided button & button hole and magnetic button, Extra-large arm hole for easy sliding of arm in sleeve armhole without raising & lowering of plastered hand. **A** flap pocket was design in front of shirt at right and left both side for easy put and take out pen and mobile

Slim-fit shirt

Slim-fit shirt was planned by stitching two pointed darts in front and back for a better and more secure fit, it can certainly reduce the risk of bunching, and tucking while bending over and twisting body from side to side

Features of sleeves

Full length sleeves of cuff was planned and outside of arm of plaster hand side sleeve opening (placket) was provided in the center from shoulder to wrist and on placket button & hole and magnetic button was stitched for easy put on & take out without raising & lowering of plastered hand

Collar and Hood cap

Collar and hood cap was design for the protection from the trouble caused by the cord of plaster hand that is hanged in the neck. Hood cap was design on shirt for protection of head from cold, as well as for reducing trouble cord hang in neck and elastic band was provided to hood cap to fit it in place.

Measurement of shirt

Individual body measurements of 30 selected respondents of arm broken persons in the stage of plaster had on their hands were taken for stitching warm shirt such as shoulder, chest, waist, length of shirt, length of sleeve outside arm, & inside of arm, length of arm hole and around neck for collar and hood cap. Average body measurements were considered as basic body measurements. Additional amount of wearing ease were added and prepare paper draft, cut fabric and stitched.

Preparation fabric

Selected fabrics were washed made soft and press to avoid shrinkage before cutting

Stitching & finishing of warm shirt

Collar shirt of double layers of Design I and three shirt were stitched using three combination of different fabric in double layers and in collar single layer was used and Design II warm shirt of hood cap is stitched in triple layers fabrics in front ,back, sleeves and hood cap and finished by seam finished with over lock, stitch button & magnetic button on placket.

Assessment of Wearing trials

The developed designs of warm shirts were distributed among the selected respondents (in the stage of plaster had on their hand) for wearing trails for three days. Responses of the wearers and their caretaker were collected on different parameters such as likes and dislike design of warm shirt ,which type of design developed sufficient warmth by double layer and triple layer, t , comfortable for wearing next to skin, suitable weight, suitable thickness ,full front opening , sleeve length cuff and without cuff, sleeve opening from shoulder to wrist, comfortable for dressing independently, suitability of collar and hood cap , maintenance of warm shirt .Similarly which type of fasteners (button & magnetic button) easy to close and open & durability of fasteners. Acceptability, Suitability, and Comfortability of warm shirt was assessed by Weighted Mean Score (WMS) as numerical rating 1 to 3 grading as

1.00-1.66 Somewhat Suitable/ acceptable,

1.67-2.33 Suitable/ acceptable,

2.34-3.00 Highly suitable/ acceptable

Result & discussion

Table 1 showed that suitable combination of fabric layers stitching trail, it was found that double layer grey + grey cloth and grey + poplin cloth were found to be easy stitching on simple sewing machine but combination of grey + casement and poplin + casement are thicker layers not possible to stitch successfully on simple sewing machine . In stitching trails triple layer cloth combination as one layer of poplin + 2 layers of grey was found to be suitable for stitching on simple sewing machine .In case of casement cloth is not suitable for stitching double as well as in triple layers with combination of grey and poplin fabric

Table 1.Suitability testing of stitching different combination of fabric layers

S .no	Double layers	Suitable/not suitable
1	Grey cloth + poplin cloth	Suitable
2	Grey cloth + casement cloth	Not Suitable
3	Poplin cloth +casement cloth	Not Suitable
	Triple layers	
4	3 layers of grey	Suitable
5	2 layers of grey + layer of poplin	Suitable
6	2 layers of grey + layer of casement	Not Suitable

Table 2. Illustrate that problems of warm clothing faced by arm broken persons in winter . Cent percent respondents stated problems of warm clothing that Frustration occurs while wearing formal clothes ,sweater and often impossible without assistant for other, Woolen texture unable wear next to skin, Alteration in existing sweater of full sleeve not possible as it time consuming , spoiled sweater, shrug , overcoat and over size warm clothing un able to manage with healthy hand, it bunches and tucking at back and Warm apparels need to be designed for arm broken persons & suitable for wear next to skin, 72.72 percent arm broken persons expressed cap and muffler worn with one hand is difficult and unable to manage with healthy hand , 54.54 percent care taker reported problem about sweater that it not dry quickly.

Table .2 Problems faced by arm broken persons in wearing warm apparels **(N=55)**

S.no	Problems of wearing warm apparel	Respondent 55(n)	Percentage
1	Common styles of warm sweater are not comfortable to wear due to plaster to hand	55	100
2	wearing sweater not possible without assistant of other	55	100
3	Woolen texture unable wear next to skin	55	100
4	Alteration in existing sweater of full sleeve not possible	55	100
5	Shrug , overcoat and over size warm clothing un able to manage with healthy hand, it bunches, tucking at back	55	100
6	Specially designed warm garments will be preferred	55	100

7	Cap and muffler worn with one hand is difficult and unable to manage with healthy hand	40	72.72
8	Sweater not dry quickly	30	54.54
9	Warm apparels need to be designed for arm broken persons & suitable for wear next to skin	55	100

Table 2. Illustrate those problems of warm apparels faced by arm broken persons in winter. Cent percent respondents stated problems of warm apparels that , Common styles of warm sweater are not comfortable to wear due to plaster to hand , wearing sweater not possible without assistant for other, Woolen texture unable wear next to skin, Alteration in existing sweater of full sleeve not possible as it time consuming , spoiled sweater, shrug , overcoat and over size warm clothing un able to manage with healthy hand, it bunches and tucking at back, Specially designed warm garments will be preferred and warm apparels need to be designed for arm broken persons in stage of plaster. 72.72 percent arm broken persons expressed cap and muffler worn with one hand is difficult and unable to manage with healthy hand. Sweater not dry quickly is reported by caretaker.

Table 3. Evaluation of warm shirt for suitability on the basis of construction feature

S.no	Warm shirt of double layer of collar (Design I)	Suitability WMS	Warm shirt of triple layers of hood cap (Design I)	Suitability WMS
1	Design of warm shirt of collar	2.66	Design of warm shirt of hood cap	3.00**
2	Performance of fabric	3.00**	Performance of fabric	3.00**
3	Length of shirt (30 inches)	3.00**	Length of shirt (35 inches)	3.00**
4	Length of sleeve without cuff	2.66	Length of sleeve of cuff	3.00**
	opening of sleeves from shoulder to the wrist was best	3.00**	opening of sleeves from shoulder to the wrist was best	3.00**
5	Length of armhole	3.00**	Length of armhole	3.00**
6	Front opening placket (27 inches)	3.00**	Front opening placket (32 inches)	3.00**
7	Suitable for wearing next to skin	3.00**	Suitable for wearing next to skin	3.00**
8	Suitable weight, suitable thickness	3.00**	Suitable weight, suitable thickness	3.00**
9	Comfortable for dressing up without raising and lowering hand	3.00**	Comfortable for dressing up without assistance	3.00**
10	Collar	3.00**	Hood cap	3.00**
11	Patch pocket one side	2.66	Patch pocket two side	3.00**
12	Warmth provided	2.66	Warmth provided	3.00**
13	Protection from cord of plaster hand hang on neck	3.00**	Protection from cord of plaster hand hang on neck	3.00**

14	Very good design and replacement of woolen sweater	2.66	Very good design and replacement of woolen sweater	3.00**
15	Slim-fit style, achieve an attractive and formal appearance	3.00**	Slim-fit style, achieve an attractive and formal appearance	3.00**
16	Washing and drying very easy	3.00**	Washing and drying very easy	3.00**

Highly suitable/ acceptable- 3
Suitable/ acceptable- 2
Somewhat Suitable/ acceptable- 1

Table .2 revealed the evaluation of warm shirt for suitability on the basis of construction feature

Cent percent of arm broken persons reported that their personal experience regarding Design II of three layers warm shirt, (upper layer poplin and inside two layers of grey cloth material combination,) that design of warm shirt of hood cap is like, comfortable performance of fabric wear next to skin ,provided sufficient warmth to body, Length of shirt (35 inches), Length of sleeve of cuff, opening of sleeves from shoulder to the wrist was best, Slim-fit style, achieve an attractive and formal appearance, extra-large and loose armhole was excellent because plaster hand easily slid in armhole without raising and lowering of plaster hand; full front opening was best for wearing with minimum assistance was found to be highly suitable with WMS noted 3. Respondents express experience that magnetic button provided on placket was excellent idea and comfortable to close button and open individually with healthy hand and without assistance of other person and found to be highly suitable. Regarding hood cap design and provided elastic band that fit below chin to keep the cap in place and due to triple layers of hood cap provided sufficient warmth and protected neck from the friction of cord that is hang in the neck of plaster hand from the development of wound at the neck and found to be highly suitable. The design of two side patch pocket with flap was preferred more by the arm-broken persons and found to be highly suitable to keep mobile, medicine and handkerchief. It was clear from the result that warm shirt Design II hood cap was excellent design ,comfortable to wear independently, providing sufficient warmth and magnetic button was best to close with healthy hand and found to be highly suitable, acceptable with weighted mean score as about 3.0.

In the case of Design I warm shirt of collar this design is stitched in double layer using combination of fabric (poplin + grey cloth) arm broken persons expressed their opinion that

no sufficient warmth felt, design of collar protect neck from trouble caused by the cord hang in neck of plaster hand but head need to cover with a separate cap and muffler that is unable to wear and manage with healthy hand and found to be somewhat suitable (WMS 1.66).Regarding other parameter arm broken persons reported their wearing experience that full front placket and opening provided from shoulder to wrist on the plaster hand side sleeves with button and button hole is good design but for closing and opening required assistant hence it is difficult to manage individually and found to be somewhat suitable with weighted mean score about 1.66. Length

of shirt of slim-fit style ,length of sleeve and width of armhole of sleeves, patch pocket were found to be suitable with WMS recorded as 2.66. It is clear about Design I warm shirt of collar of double layer of poplin + gray was somewhat suitable and acceptable

Conclusion

From the study, it can be concluded that the arm-broken persons in the stage of plaster had on their hand facing problems of wearing warm clothes in winter. Taking into view the problems faced, two designs of warm shirt were stitched using woven fabric of double layers and triple layers. Results showed that as per the practical experiences of wear trials of the arm-broken persons, warm shirt of hood cap of triple layers (double layers of grey cloth and single layer of poplin) with special features like full-length front opening, full-length sleeves with opening provided from shoulder to wrist on placket using magnetic button, flap pocket at waistline was reported to be highly acceptable, suitable and comfortable for the arm- broken persons in the stage of plaster. Poplin and gray fabric performance is found to be best provided warmth and easy for maintenance.

References

- Irfana Siddiqui (2023)Designing of Stretchable Sari Blouse using Woven Fabric and its Influence on Comfort characteristic, journal Fashion , Value Chain ,March- April 202Volume:2 ,Issue-2, Mumbai, Page 22 to 28, ISSN:2278-8972,Vol.1 No-1, 2023

- Irfana Siddiqui & Sunita Kale (2022)Designing of Apparel for Arm Fractured Women**,** Chapter-14,in the book ,Technology Enabled Ergonomic Design ,Design Science & Innovation(Springer) ,Singapore Springer s, Vol-XLVIII ,No- 9, **153 to 162**

- Medha Ukalkar (2008) Designing Of Function Blouse For Arthritic Women, Journal Dairying Food &Home Science Sadar Karnal Haryana, ISSN:0971-4456,. 27(3/4),pp234-237

- Medha Ukalkar (2002) A Study on Clothing Practices of Pregnant Women of Parbhani & Development of New Pattern of Sari Petticoat' Indian J. of Marketing vol XXXII(8) pp 22 -28