

Reliability assessment of functional clothing for lactating women

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■ **ABSTRACT** : The modern day woman faces various psychosocial barriers to breastfeeding, in addition to the emotional and physical to assess clothing requirements of lactating mothers. The identified clothing requirements were incorporated in garment challenges. There is great potential for the development and improvement of apparel for breastfeeding mothers. The aim of this study was to design and develop functional clothing for a lactating woman. A questionnaire was developed for personal interview designs. After designing preference was taken by lactating mothers and top six preferred designs were constructed and given to the lactating women for wear trial. The related data highlights that design 1 with jacket was ranked 1st on overall basis (4.68) followed by design 3 having side pleat (Rank II, 4.59), design 2 with horizontal opening (Rank III, 4.47) and design 6 with yoke (Rank IV, 4.32). Design 6 with princess line and 4 with centre long front opening having average mean score 4.20 and 4.13, respectively were assessed next in their rank orders. It can be concluded from the data that subject was satisfied with the functional designs. This type of designing and construction of functional clothing can boost up the confidence of lactating mothers to breastfeed in the public places and thus ultimately breaking psychosocial barriers to breastfeeding and also enhance psychological comfort by lifting their self esteem.

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Every individual needs some kind of thing or other to protect, to cover and to beautify his/ her body which is of great importance to him/her (Singh and Arya, 2017a). Clothing is one of the most important factors in the development of an individual personality. It influences a person socially, psychologically and emotionally (Arya and Singh, 2017). A dress should be suitable for the person for whom it has been designed. Some of the important considerations which should be

taken are climate of the region, season of the year for which the garment is made, the time or type of occasion when it is most likely to be worn, the type of role and age of person (Singh and Arya, 2017b). As the need regarding clothes varies, the choice of color, material and print also differs from person to person. These variations are due to difference in age, personality, sex and role the individual has to play (Lawrence *et al.*, 2005).

Every change in a life- situation- birth, entering

school, college, getting a job, marriage, parenthood and even death requires a change in wardrobe. Even in the course of daily life, situation after situation requires a change in dress to facilitate and symbolize the situational change. Lactation is a period when women experiences physical as well as psychological changes (Arya and Singh, 2016). This period leads a woman to another level of maturity, *i.e.* her motherhood. She has her own demands and needs during this period, so her demand during lactation for dressing will be different from normal condition. Like absorbent type texture, looseness (comfort) and the most important is specially designed dress so that she has no need to lift up the shirt while feeding her child and has extra home for free movement. Maternity clothes have very significant role during lactation period also because breast feeding in regular clothes become awkward and embarrassing. Thus, there is a great need to design clothing for lactating women (Khatri, 2016 and Singh and Gahlot, 2016).

Lactation is a very physical process and requires the baby to be held throughout. There are four common holds utilized during breastfeeding (Gjerdingen *et al.*, 1993). The cradle hold (and variations), the cross-over hold, the clutch or football hold, and the reclining position are the most commonly breastfeeding positions (Pollard, 2011). Designers of breastfeeding apparel should consider how the baby is being held when implementing functional properties into the product such as ease-of use. Consideration should be given to the factors that clothes should be designed to flatter the figure, ultra-comfortable, easy to wear and offer easy access by allowing lactating mothers to feed baby anytime, anywhere. Functional properties required within apparel need to be designed for lactating mothers include components of fit, material comfort, visibility of design features, ease-of-use and mobility (Choi *et al.*, 2000; Lamb and Kallal, 1992 and Rosenblad-Wallin, 1985). It is possible by developing an understanding of design that one can select clothing that will fulfil the wearer's desire. Nursing clothes make feeding infant easier and more enjoyable (Anonymous, 2015 and 2016).

The modern day woman faces various psychosocial barriers to breastfeeding, in addition to the emotional and physical to assess clothing requirements of lactating mothers (Anonymous, 2017a and b). It is well known that pregnancy and childbirth can be a stressful transition with respect to the physical body and to a women's

changing social roles (Riordan and Wambach, 2010). Feeding the baby is a private activity which is many times embarrassing or awkward in public places. Mother face this problem of feeding the baby because she had to lift the suit or dress either from the hem or from the neck to nurse. The social environment surrounding a breastfeeding mother, as well as her socio-economic status, significantly affects a mother's decision to breastfeed (Flacking *et al.*, 2007). The identified clothing requirements can be incorporated in garment challenges. There is great potential for the development and improvement of apparel for lactating mothers. Priority is to provide new mothers with fashionable nursing clothes so that she can feed her baby feeling comfortable and looking fabulous (Murray, 2015).

Different types of apparel do exist that are designed specifically for breastfeeding mothers. But the variety in designs and colors are not easily available. The functional features are same across styles and brands. A mother has to breastfeed often throughout the day and apparel needs to be very easy to use (Lawrence and Lawrence, 2011).

Considering this factor, the study was conducted to find out the clothing related problems of lactating mothers to design and develop functional clothing for lactating mothers so that she would be able to feed the baby in the public places too. The study highlights the suitability level of the functional features incorporated in the garments for the subject.

■ RESEARCH METHODS

On the basis of existing clothing pattern of lactating mothers and problems encountered by them while feeding; twenty five designs of *Kameez* having desired functional features were were sketched. Preferences of lactating mothers for developed designs were taken from Hisar city. Thirty urban lactating women were randomly selected from Hisar city to assess the suitability of designed *Kameez* for urban lactating mothers.

Top ranked six designs of *Kameez* selected on the basis of functionality and attractiveness of the garment according to the respondents preferences; were constructed with bust size 36". Suitability was assessed for constructional and designing features of *Kameez* for lactating mothers with the help of self-structured interview schedule on five point scale *i.e.* highly suitable, suitable, somewhat suitable, least suitable and unsuitable

scoring 5, 4, 3, 2 and 1, respectively. Weighted mean scores were categorized as highly suitable (5.00-4.21), suitable (4.21-3.41), somewhat suitable (3.40-2.61), least suitable (2.60-1.81) and unsuitable (1.80-1.00). Paper patterns of all six designs with 36" bust size were developed for designer *Kameez*.

■ RESEARCH FINDINGS AND DISCUSSION

On the basis of existing clothing pattern of lactating mothers and problems encountered; fifteen designs of *Kameez* were. Preferences of lactating mothers for developed designs were taken for selection of most preferred functional designs.

Top ranked six designs *i.e.* design 1 – vertical side openings at bust level with jacket covering the opening; design 2 – horizontal opening at bust level with flap; design 3 – vertical side opening with side pleats; design 4 – vertical long centre front opening; design 5 – vertical side openings in the princess line and design 6 – yoke with vertical side openings; were constructed with bust size 36".

Design 1 – Vertical side openings at bust level with jacket covering the opening fastened with zipper :

- Front with round neck line.
- Back- plain with round shape neckline.
- Use of invisible zipper in vertical pattern at bust level for opening on both the sides.
- Contrast color jacket.

Design 2 – Horizontal opening fastened with zipper at bust level with flap to cover the zipper :

- Front with V –shaped neck line.
- Back- plain with round shape neckline.

Use of invisible zipper horizontal pattern at bust level for opening on both the sides.

Matching flap to conceal zipper.

Design 3 – Vertical side opening with side pleats closed with embroidery upto across front level :

- Front with U-shaped neck line and vertical pleats.
- Back- plain with round shape neckline.

Vertical invisible zipper on both the sides at bust level for opening hidden under the lengthwise pleats.

Design 4 – Vertical long centre front opening fastened with buttons :

- Front with round neck line.
- Back- plain with round shape neckline.
- Vertical long centre front opening fastened with buttons.

- Decorative buttons on the front opening.
- Embroidery for decoration.

Design 5 – Vertical side openings in the princess line :

Front with round neck line and piping at the princess line.

Back- plain with round shape neckline.

Invisible zipper at bust level for opening on both the sides inserted under the piping.

Design 6 –Vertical side openings and yoke :

Front with U-shaped neck line and contrasting color yoke with tucks.

Back- plain with round shape neckline.

Vertical invisible zipper at bust level for opening which is hidden under the yoke.



Design 1

Design 2

Design 3

Design 4

Design 5

Design 6

These six designed *Kameez* were tested on thirty urban lactating women to assess their suitability with respect to constructional and designing features. Overall suitability was assessed in terms of comfort, modesty, becomingness and functionality.

Suitability assessment of constructed *Kameez* on various constructional and designing features :

Different types of openings were included in the constructed *Kameez*. It was reported by the respondents that these openings could avoid the lifting of *Kameez* while feeding the child which is the main problem faced by majority of lactating mothers.

Placement of opening:

It is clear from the data that placement of openings provided in Design 1, 3, 6, 5 (vertical opening at bust level on both side) and Design 2 (horizontal opening at bust level) were found to be highly suitable scoring 4.6, 4.4, 4.3, 4.26 and 4.5., respectively. Centre vertical front opening provided in Design 4 was also found suitable with suitability score 4.0.

Length of opening for feeding:

Length of openings was found highly suitable in

design 1, 2, 3 and 4 with suitability score of 4.5, 4.36, 4.36 and 4.33, respectively. Length was also found suitable in design 6 (4.13) and 5 (3.86).

Fasteners used in the opening:

Type of fastener used (zipper) in the *Kameez* designs was assessed as highly suitable in design no. 1, 2, 3, 4, 5 and 6 with suitability score in the range of 4.23 to 4.6. Type of fasteners (hook and shirt buttons) used in design 4 was also found suitable (4.06).

Designing features:

Design with jacket (4.6), horizontal opening (4.4) and side pleats (4.56) were the highly suitable designing features of *Kameez* for urban lactating women. Princess line design with opening, design with yoke and design with centre front long opening were also found suitable with suitability score 4.2, 4.2 and 4.03, respectively.

In terms of overall appearance, design with jacket (Design 1) was assessed as highly suitable with WMS 4.6 followed by design with side pleats (4.53) and design with horizontal opening (4.5). Design 4 with vertical centre front opening was the also found suitable (4.13).

Overall suitability of designed *Kameez* for urban

Sr. No.	Design no. with features	Opening			Overall fitting WMS	Designing features WMS	Overall appearance WMS
		Placement WMS	Length WMS	Type of fasteners WMS			
1.	Design 1 : Vertical side openings at bust level with jacket covering the opening	4.6	4.5	4.6	4.13	4.6	4.6
2.	Design 2 : Horizontal opening at bust level with flap	4.5	4.36	4.23	4.16	4.4	4.5
3.	Design 3 : Vertical side opening with side pleats	4.4	4.36	4.23	4.03	4.56	4.53
4.	Design 4 : Vertical long centre front opening with buttons	4.0	4.33	4.06	4.2	4.03	4.13
5.	Design 5 : Vertical side openings in the princess line	4.26	3.86	4.23	4.2	4.2	4.16
6.	Design 6 : Vertical side openings and yoke	4.3	4.13	4.23	4.2	4.2	4.23

Highly suitable - 4.21 – 5.00; Suitable - 3.41 – 4.20 ; Somewhat suitable – 2.61 – 3.40; least suitable – 1.81 – 2.60; unsuitable – 1 – 1.8

Sr. No.	Design	Comfortability WMS	Becomingness WMS	Functionality WMS	Modesty WMS	Overall acceptability WMS	Rank
1.	Design 1	4.6	4.56	4.56	5.00	4.68	I
2.	Design 2	4.4	4.4	4.5	4.6	4.47	III
3.	Design 3	4.53	4.46	4.4	5.00	4.59	II
4.	Design 4	4.06	4.03	4.06	4.4	4.13	VI
5.	Design 5	4.23	4.2	4.13	4.23	4.20	V
6.	Design 6	4.26	4.36	4.23	4.46	4.32	IV

lactating women :

Suitability of *Kameez* for urban lactating women was assessed on the basis of overall appearance in terms of comfort, modesty, becomingness and functionality. The results achieved are presented in Table 2.

Comfort ability:

It is evident from the table that design number 1 scored highest (4.6) and rank I, followed by design number 3 (4.53) rank II, design number 2 (4.4) rank III, design number 6 (4.26), design 5 (4.23) and design number 4 scoring 4.06.

Becomingness:

It is clear from the results that design number 1st (4.56) scored highest in terms of becomingness followed by design number 3 (4.46), design 2 (4.4), design number 6 (4.36), design number 5 (4.2), and design number 4 (4.03).

Functionality:

It was found that design number 4 was adjudged Ist (4.56) in terms of functionality of developed *Kameez* followed by design number 2 ranked II (4.5), design 3 ranked III (4.4), design number 6 ranked IV (4.23), design number 5 ranked V (4.13) and design number 4 ranked VI (4.06).

Modesty:

It is clear from the results that design number 1 and 3(5.0) scored highest in terms of becomingness followed by design number 2 (4.6), design 6 (4.46), design number 4 (4.4) and design number 5 (4.23).

The related data highlights that design 1 with jacket was ranked 1st on overall basis (4.68) followed by design 3 having side pleat (Rank II, 4.59), design 2 with horizontal opening (Rank III, 4.47) and design 6 with yoke (Rank IV, 4.32). Design 6 with princess line and 4 with centre long front opening having average mean score 4.20 and 4.13, respectively were assessed next in their rank orders.

Paper patterns of all the designs with bust size 36" were developed for designer *Kameez* for urban lactating women. Seam line, cutting line, stitching line and necessary design details were marked on paper patterns to make stitching an easy and time saving task.

Conclusion :

In terms of overall appearance, design with jacket

(Design 1) was assessed as highly suitable with WMS 4.6 followed by design with side pleats (4.53) and design with horizontal opening (4.5). Design 4 with vertical centre front opening was the also found suitable (4.13). It can be concluded from the data that subject was satisfied with the functional designs. This type of designing and construction of functional clothing can boost up the confidence of lactating mothers to breastfeed in the public places and thus ultimately breaking psychosocial barriers to breastfeeding and also enhance psychological comfort by lifting their self esteem.

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