

## **Design and Development of functional clothing for breastfeeding women in Chitungwiza town, Zimbabwe**

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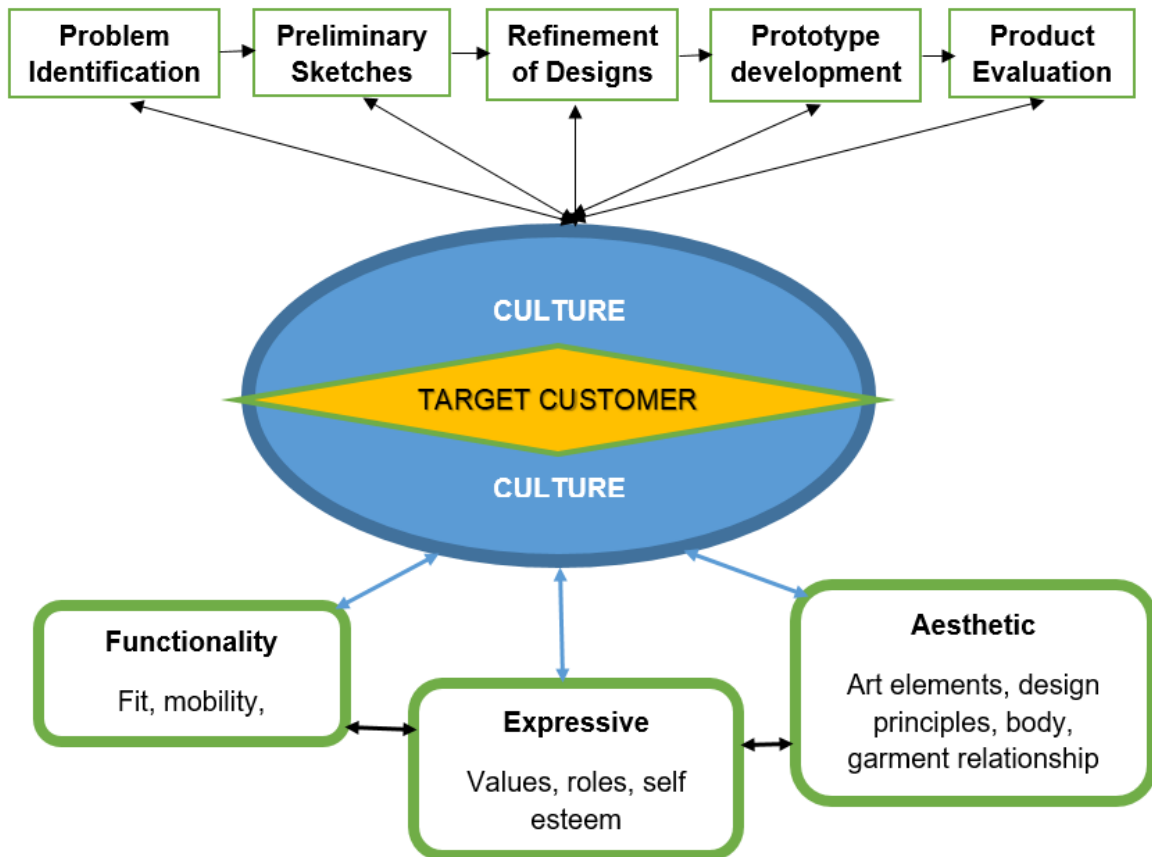
### **Introduction**

Breast feeding is the normal way of feeding the young infants providing plentiful health benefits for both the mother and her infants (WHO/UNICEF, 2000). Breast milk is very critical in early physical, mental and immunological development of babies (WHO/UNICEF, 2000). The World Health Organization (WHO) states that breast milk is the ideal food for the healthy growth and development of infants. WHO together with UNICEF recommends exclusive breastfeeding for the first six months of life, after which the WHO's guidelines recommend continued breastfeeding until two years of age or beyond (Maryam, Agbo and Kembe, 2017). Local studies that have dealt with breastfeeding issues in Zimbabwe include (Mhlanga et.al, 2015) on perceptions and barriers to exclusive breastfeeding, (Nduna et.al, 2015) on experiences and challenges to exclusive breastfeeding in rural areas, and (Mundagowa et.al, 2019) made an assessment of maternal knowledge and attitudes to exclusive breastfeeding in Gwanda District. These studies do not pay attention to the clothing welfare of mothers during lactation. It, therefore, means that the design and construction of comfortable, functional breastfeeding garments have been given little or no consideration in Zimbabwe. Breastfeeding women face a lot of physical and emotional challenges during the entire breastfeeding duration due to uncomfortable clothing (Maryam, Agbo and Kembe, 2017). Available clothes frustrate and inconvenience the mothers because of the inaccessibility of the breast. Existing designs force mothers to raise the apparel or pull down the neckline of their garments causing a form of indecent exposure during breastfeeding. Observations over time

reveal difficulties faced by breastfeeding mothers in public gatherings like weddings, church gatherings, funerals and other ceremonies. When mothers have dresses with openings at the back they usually pull down the neckline thereby exposing the back and chest which is not modest. Usually, mothers make use of a special breastfeeding cloth around their shoulders and most babies do not like this though. Consequently, the difficulties and the inconveniences of uneasy access to the breast cause many mothers not to breastfeed their babies at appropriate times and they sometimes fail to meet the demands of their babies. Uneasy access to the breast makes some babies cry a lot before they can have access to the breast (Maryam et.al, 2019). These challenges negatively affect effective breastfeeding, a highly recommended process by health experts (Maryam, et.al, 2017). United Nations International Children's Emergency Fund (UNICEF), and the World Health Organization (WHO) have laws that protect nursing women because breastfeeding is the best choice for the health of a mother and her baby. Therefore for successful implementation of breastfeeding, there is a need for support from families, health care leaders, educational organizations policy makers and fashion designers. Fashion designers should lead in the design and construction of functional, modest and comfortable breastfeeding apparel.

### **Conceptual framework**

This study was guided by Functional, Expressive and Aesthetics (FEA) conceptual framework by Lamb and Kallal (1992). The framework is guided by three main aspects which are functional, expressive and aesthetics as illustrated in Figure.1



**Figure 1: *Functional, Expressive and Aesthetics (FEA) conceptual framework by Lamb and Kallal (1992).***

**Functional considerations:** According Lamb and Kallal (1992), functional considerations refer to the ease and fit of movement of a garment. The garments need to be comfortable and not confining to the wearer. It should be modest and conservative for the work environment. The garments must also be durable and easy to care for. This study made use of bodices that are appropriate for breastfeeding. They have some bit of ease for comfort and they all have openings that allow mothers to breastfeed comfortably without affecting the style of the garment either by pulling it up or bringing it down in order to allow the baby to breastfeed. Openings were provided either horizontally, vertically, or diagonally on the front of the blouse or T-shirt.

**Expressive considerations:** This aspect is concerned with the users' work environment and personality. It emphasizes that the design should not distract the clientele from the business being conducted. The garments, however still need to provide visual and non-verbal clues about the wearer to send a clear, concise, and professional message to the client about the personality of the wearer. The garments designed and developed in this study incorporated the aspect of personality and the environment which in this case was both the work and home environments. The designs will allow breastfeeding mothers in any environment to work comfortably as the allowance for breastfeeding is inherent in the garment. Garments were designed in such a way that upholds the professionalism of the mother without connotations of being a breastfeeding mother. Nothing has been taken away from the normal lifestyle of the mother but rather, appearance has been enhanced with the personality of the wearer in mind. In addition, the designs will not allow any other part of the breastfeeding mother to be exposed during breastfeeding thereby maintaining the cultural and ethical values of an African woman.

**Aesthetics considerations:** According to Lamb and Kallal (1992), aesthetic considerations include detailing that enhances the silhouette of the garment, adds virtual interest, and balances the overall designs. Principles and elements of design are used to create a unique silhouette. In this study, designing was guided by elements of design such as line, colour, texture, space, shape, and form. These helped produce garments that suit mothers of different complexions, figure types, and design preferences. Principles of design helped in producing balanced items that are proportional and that follow a certain rhythm depending on the element of design used. The prevailing fashion was also considered so as to produce garments that are appealing to breastfeeding mothers. Frills, zips, and buttons were used in a stylish manner that add aesthetic value to the garment of the breastfeeding mother. Moreover, the style features chosen will help maintain the shape of the bodices for the lifetime of the garment as provisions have been made for breastfeeding without stretching the garment out of shape.

## **Objectives**

This study intended to:

1. Establish the challenges encountered by mothers during breastfeeding.
2. To design suitable clothing for breastfeeding mothers
3. To construct prototypes for breast feeding mothers

## **Methods**

The study was conducted in 2022 in Chitungwiza town. For the present study 10 breastfeeding women were selected. Subjects were teaching personnel and housewives. Feeding the baby is a private activity that is many times embarrassing or awkward in public places. These women faced problems in feeding their babies because they had to lift the top garments either from the hem or from the neck to nurse. Two of the mothers interviewed had caesarean delivery and faced the problems while feeding their babies. For that one had to cut her nightwear at the breast portion to easily feed the baby because at that time she was physically not fit and most of the time she used to rest on the bed. After informing the subjects about the breastfeeding garments, the researchers inquired on their needs and noted down their requirements and problems in detail. After analyzing the problems faced by these nursing mothers, functional breastfeeding clothing was designed and provided to them. Further additional information on clothing problems and the constructional details to be incorporated in the special garments was also collected. Structured questions related to the clothing problems and their existing wardrobe were asked. On the basis of information ten designs were sketched and five of them were selected for construction on the basis of functionality and attractiveness of the garment according to the respondents. Finally the garments were given to the participants for wear trial where the wear period for the garments was 1 day. After wear trial the researchers interviewed the mothers by administering the self-structured interview schedule and gathered information about functionality, ease-of- use, acceptability, comfort and attractiveness of the newly designed functional garments.

### Problem Identification

- The design and construction of comfortable garments for breastfeeding mothers in Zimbabwe have been given little or no attention;
- The privacy of both the child and the mother has not been given special considerations;
- Some mothers hide when breastfeeding as if it is an excretory process;
- Mothers are uncomfortable about breastfeeding in public places;
- Some have to lift up their blouses in an attempt to have access to their breast for breastfeeding;
- Some move around with a shawl that they tie around the waist so they can pull up their short gowns to conveniently breastfeed the baby;
- Some cover their breasts with a separate piece of cloth or shawl when breastfeeding in public;
- In some cases mothers pull down the round neck of t-shirts with double-barrelled effects; of constraining the baby and pulling the neckline out of shape;
- Difficulties and inconveniences of uneasy access to the breast cause a lot of mothers not to breastfeed their babies at an appropriate time to meet the milk demands of their babies;
- Uneasy access makes some babies cry so much before they can have access to breast milk;
- Some babies end up rejecting the breast at the time of feeding as a result of uneasy access to the breast making the mother soak in milk in some instances and at the same time making the child vulnerable to childhood diseases;
- Apparel that cause problems in accessing the breasts for breastfeeding and at the same time cause a lot of discomfort have been identified as follows:
  - garments with back openings
  - round closed necklines as in t-shirts
  - one-piece garment; and

- Buttoned up fronts have been identified as comfortable with easy access but indecent especially if the opening is right at the centre front.

### Preliminary Ideas

A collection of designs was made whereby eight designs were sketched. The basic designs had the ordinary design details of the clothes worn by mothers either at work or at home. These were modified by the inclusion of design features with concealed openings for breastfeeding. The design features included zips, Velcro, press studs, ribbons and eyelet holes, underlays and ribbons, frills and zip, button and buttonholes patch pocket, and Velcro, and concealed t-shirt opening. Different colours and textures were used on the base fabric so as the trimmings. Preliminary sketches were shown in figure 2.

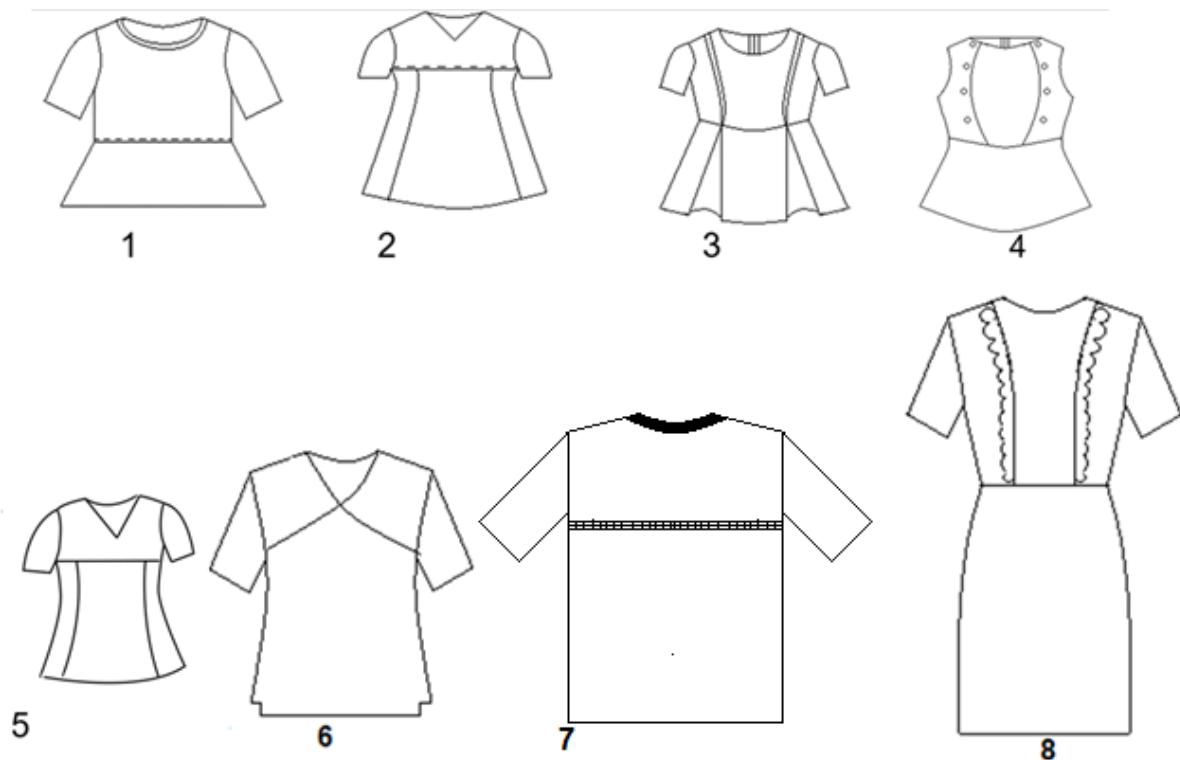


Figure 2 Preliminary Ideas

### Refinement of ideas

Based on the conceptual framework by Lamb and Kallal (1992), the designs for the breastfeeding mother need to allow for comfort, fit, mobility, ease of use, modesty and have aesthetic value. There was a great need to consider the before, during and after use of the apparel such that it was not exclusive to breastfeeding alone, but can be worn even after breastfeeding. Guided by these qualities, five designs were selected and work drawings produced taking into cognizance the ideas of the breastfeeding mothers as the products are supposed to be customer oriented. The designs were drawn focusing mainly on the bust position and openings with the aid of zips and buttons as fastenings were incorporated through design details such as princess lines, yoke lines, and darts. All openings were made inconspicuous and placement was well thought out and well-determined so as not to affect the style of the garment or hurt the baby in any way. The work drawings were developed from sketches 2, 3, 4, 7 and 8 as shown in figure 3.

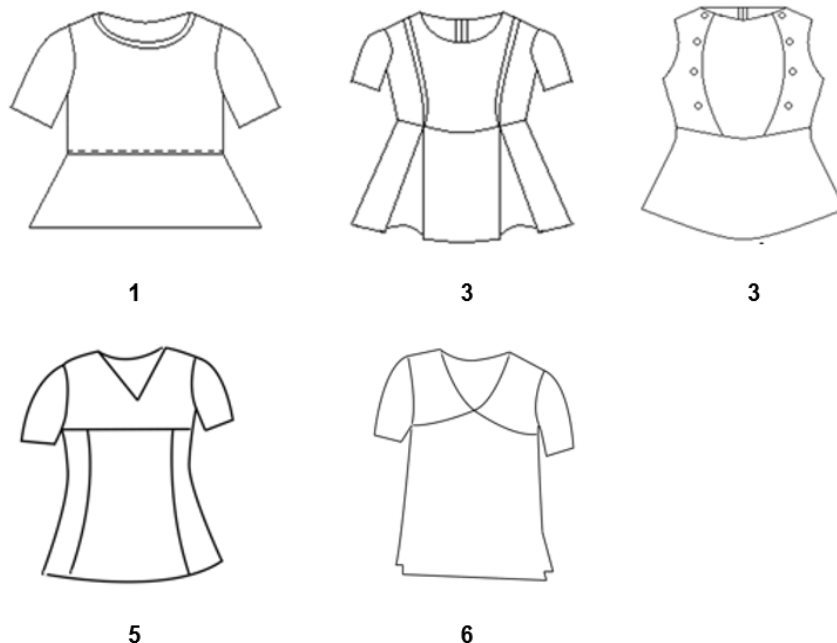


Figure 3 Work drawings

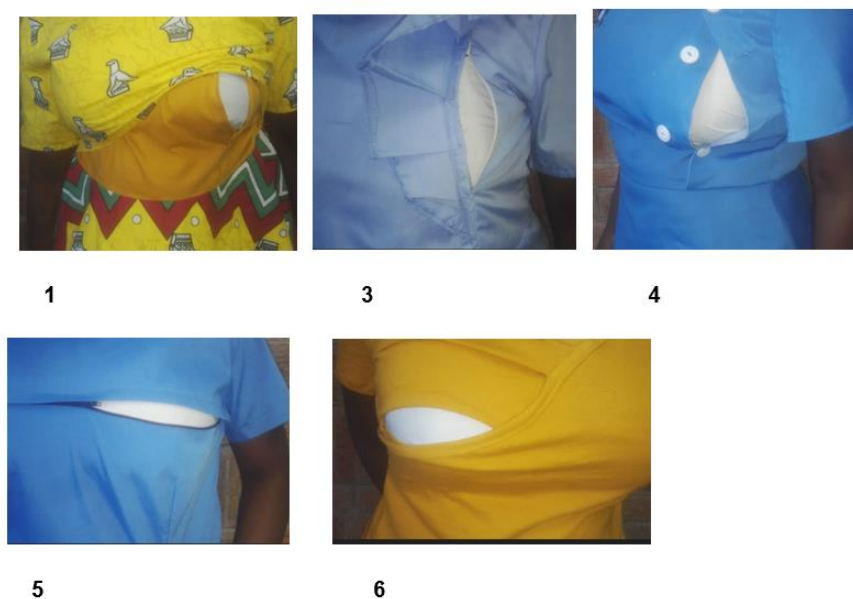


## Materials

The materials used for all the prototypes were procured from a local market. The materials were poly cotton, hartelle, java, T-shirt material, matching threads, zips, buttons and lining.

## Product development

The prototypes produced were selected from the basic bodice designs with different neckline shapes most of which in nature were restrictive and could not allow easy access to the breast. The provision of openings around the breast areas is intended to allow mothers direct access to the breast without exposing other parts of their bodies while keeping intact the necklines of their garments. In addition, these eliminate or reduce frustrations for the baby due to delays in feeding. As such mothers have the chance to choose any design without restrictions. The trimmings and notions used were tested to ascertain their practicability in their usage. Patterns were developed step by step for the five prototypes using body measurements of the selected participants of this study. Final patterns were used to cut and make the prototypes according to the quality specifications. Figure 4 shows the prototypes produced.



**Figure 4 Prototypes**

## Evaluation



1



3



4



5



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**Figure 5 Assessment of the prototypes**

Evaluation is the fifth stage in Lamb and Kallal's apparel design framework to assess the prototypes according to the needs of the customer. It was established that for breastfeeding apparel not to cause discomfort and frustration to the mothers, the basic bodice could be adapted to suit the needs of these mothers by the placement of openings directly on the bustline. Finding apparel that had both specific functional and symbolic properties was a challenge for breastfeeding mothers. Mothers want breastfeeding apparel that is both feminine and beautiful. The symbolic properties that were important to mothers included making sure the apparel allowed them to fit in and feel like any other woman at home or at work. According to the symbolic-interactionist perspective clothing can be redesigned or modified to fit a given situation or to create a special type of impression, (Kaiser, 1990). In this study apparel for breastfeeding mothers was redesigned with different fastenings like zippers, buttons and button holes, press studs and slits on the bust line to gain easy access to the breasts without

exposing some of their body parts. Covering the body parts is very important in the Zimbabwean culture as women are said to be modest if they are properly dressed without leaving some parts of their body naked. It, therefore, translates that dressing should cover the body even when breastfeeding.

Constructional features such as the use of frills, pockets, concealed openings, buttons and button holes, eyelets and ribbons, darts, and zipper openings in the horizontal, diagonal and vertical directions were considered very suitable in breastfeeding apparel. The creation of openings directly on the bust line was to maintain the shape of the neckline for t/shirt blouse. Furthermore, the selected mothers applauded the blouses with buttons and buttonholes for comfort, ease of use and the ease to fasten on and off easily without difficulties. Using buttons and buttonholes also enabled mothers to operate their apparel with one hand to allow for easy and quick access to the breast, giving them the confidence to breastfeed even in public places. The concealed openings inside the blouses provided quick and easy access to the breast and mothers commended that the designs were decent and fashionable and suit any occasion making them confident to breastfeed their babies in public places. However some mothers felt that designs could improve on comfort if nipple shields or pads were included on the apparel for breastfeeding as these would help in absorbing leaks and to avoid stains on the blouses. Some mothers expressed that they had been relieved from the difficulties of balancing being a mother and breastfeeding at work, while still continuing to look professional because the designs allows them to breast pump in their offices. In terms of the materials, most mothers preferred cotton fabrics, cotton blends, jersey cotton knits and stretchy fabrics as the most comfortable options for breastfeeding apparel. The use of Velcro on breastfeeding apparel had a discomfort on some mothers when breastfeeding and other mothers did not like the fastening as they were afraid that their babies would be hurt. The designs should not irritate the mothers or cause abrasion to the inner garments.

## Conclusion

It can be concluded that respondents were satisfied in terms of design, construction and functionality as their confidence was boosted to breastfeed their babies in public places suggesting that garments with functional features are very much vital. This study shows that there is a great need for improved accessible breastfeeding apparel that addresses symbolic and functional values. Designers can use this information as a starting point when developing new products for breastfeeding women.

## References

- Lamb, J.M., and Kallal, M.J.(1992). A conceptual framework for apparel design. *Clothing and Textiles research Journal*, 10(2), 42-47.
- Maryam.A , Agbo, D.A., and Kembe, E.M., (2017). Design and construction of comfortable garments for breastfeeding mothers in Makurdi Metropolis, Benue State.
- Mhlanga, M., Mutseyekwa.,F., Zvinavashe,M., Haruzivishe, C., Mukona, D., Ndaimani, A. (2015). Perceptions and Barriers to Exclusive Breastfeeding in Manicaland, Zimbabwe *Journal of Health, Medicine and Nursing* www.iiste.org ISSN 2422-8419 An International Peer-reviewed Journal, 21, 30-34.
- Mundagowa, P.T., Chadambuka, E.M., Chimberengwa, P.T., F Mukore-Mutseyekwa . Determinants of exclusive breastfeeding among mothers of infants aged 6 to 12 months in Gwanda District, Zimbabwe. *Int Breastfeed J* **14**, 30 (2019). <https://doi.org/10.1186/s13006-019-0225-x>
- Nduna, T., Debbi., M and van Wyk,B. (2015) An Explorative Qualitative Study of Experiences and Challenges to Exclusive Breastfeeding Among Mothers in Rural Zimbabwe *ICAN: Infant, Child, & Adolescent Nutrition* 7 ( 2)
- WHO/UNICEF, (2000) International Code of Marketing of Breast milk Substitutes and Subsequent relevant. Geneva world Health Assembly.