Smart motherhood wear: A solution to the problem of maternity wear

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Abstract
Maternity wear is a functional garment specially designed to address the anthropometric growth in the human body during pregnancy. With the wide variety of body shapes and sizes, physical changes occur differently for every pregnant woman; thus, these variations lead to problems of comfort, fit, and sizing of ready-to-wear maternity apparel. Therefore, this study examined the changes in body measurements and shapes during pregnancy and analyzed the relationship between these changes and pattern measurements and shapes. These garments are designed in such a way that they have enough space on waist to accommodate the maximum growth on waist and also have roominess on hip, bust and bicep which is corresponding to the growth in human body during maternity. These garments are serviceable only for the second and third trimester of pregnancy i.e. 6 months. This is exploration of the possibility of using features to make the maternity wear fit well and hence remain serviceable during pregnancy and post pregnancy periods. Such garment designs are achieved through-pattern styling features (like Godet, Gores, Accommodating Silhouette, Appropriate Trims, Placket Placements etc.), Construction features (like Smoking, Pleats etc.), Pattern Engineering (to achieve innovative designs) and typical fabrics selections (fabrics which are forgiving in nature). The author undertook the research to develop such garments and called them “Smart Motherhood Wear.”

The research methodology included first conducting a survey across India to understand the desired features and expectations of the target group, developing smart maternity wear keeping in view the inputs thus received and finally collecting the feedback from the target group on the developed garments. The garments were well appreciated by the target group as they provided good styling, fit and comfort with longevity. The entire pattern adjustment process represents the analysis of the relationship of body changes to pattern changes.

Keywords: Innovative maternity wear, anthropometric growth, smart garments

Introduction
“Clothing is a silent language it speaks for us!”
Says Louise A.Lidle in clothes and your appearance.
“Clothes do not make the man but they are a way of starting his value code”
Says George L. Ball Chairman and CEO of Prudential Bache securities Inc.

In every culture and age dress has reflected the way people think and live. Through the ages dress has been an individual’s most immediate environment. Pregnancy is an important milestone life with the onset of pregnancy changes occurs in the mother’s body so as to meet the needs of a growing fetus. The increased body proportion remains even after the birth of the child for the some months till she regains her original body proportion. Clothing is one of the main problem she has to face during these days. In today’s fast changing world a pregnant woman who goes for either shopping, job or parties prefer clothing that’s is comfortable and easy take care of

It’s said that motherhood is ultimate of womanhood
Since ages pregnancy was thought to be a state of nine months illness rather than a positive state. Being a mother one will feel top of the world but she might not be ready to announce to the world.
This would be the first and foremost reason for a mother to think about different attire for these days. Clothing for maternity should be attractive, comfortable and easy care. Design should be selected with lines that will minimize the added weight and changes in physical proportion. Besides the outerwear undergarments, maternity support, girdles and belts and shoes are inseparable part of the maternity wardrobe.

In particular, pregnant women experience dramatic body changes during their pregnancy. Some women have reported that pregnancy triggered negative feelings no matter how satisfied they were with their bodies before pregnancy (Leifer, 1977). In Fairburn and Welch’s (1990) study of 50 pregnant women, they found that that 40% reported fears about weight gain during pregnancy.

For example, pregnant women who have a low Body Mass Index (BMI) tend to gain more weight than those who have a high BMI. In addition, depending on the position of the fetus, abdominal shapes vary from person to person. Another reason for variations in body change is that a subsequent or multiple pregnancies may lower the abdomen. For example, a pregnancy usually does not become obvious until around week 20 with the first baby but by week 14 in subsequent pregnancies (Stone & Eddleman, 2003). These variations lead to problems of comfort, fit, and sizing of ready-to-wear maternity apparel. Matthias, president and chief creative officer at Destination Maternity, says that maternity wear is fashion that fits women when they are pregnant (“Ooh la la, MAMA,” 2009). Today’s trend in maternity apparel is stylish and fashionable compared to maternity wear 20 years ago when “tent” dresses were the norm. The change - they are pregnant. With the increasing need for well-fitted maternity wear, today’s market has grown rapidly. According to the National Center for Health Statistics, more than 4.3 million babies were born in the U.S. in 2007, which resulted in American women spending more than $1.2 billion on maternity apparel. According to the National Product Diary (NPD) Fashion world AccuPanelSM, purchases of maternity clothing were up 3.6% from 2007 to 2008, compared to purchases of total women’s apparel, which declined 5.6%. Despite the important need for maternity wear, little research on maternity wear has been conducted.

“To study the market potential of maternity wear mega town and developing smart maternity wear.”

Maternity fashion: a new concept

In India the maternity dress is relatively a new phenomenon and very few shops are selling the maternity garments. The whole concept of maternity clothing is relatively new and rise in manufacturer sales during the last decades has been phenomenal. As skilled designer enter in the field maternity dress become more stylish and attractive as well as comfortable and functional.

‘Functional maternity wear’ can therefore be defined as a generic term that includes all such types of clothing or assemblies that are specifically engineered to deliver a pre-defined performance or functionality to the user, over and above its normal functions.

Such clothing would normally be made from a mix of innovative materials, and functionality in this case would imply the added value or function that a garment is expected to perform. Design and development of functional clothing products is driven by the choice of materials, as defined by the social, psychological or physiological requirements of the user; choice of technologies as defined by desired functionality; and ergonomic considerations, assembly methods, sizing and fit. Design considerations would include changed body shape, limitations of strength & mobility, as well as the psychological and social needs. Clothing that looks and feels good and is comfortable can go a long way in improving the quality of life for these groups with special needs.

Objectives of the Study

The main objective of the study is to design and construct, maternity garment that is acceptable to Pregnant Women. The specific objectives of the study are to:

1. Design and construct comfortable and easy to fit maternity wears with longevity.
2. To introduce a pattern engineering (to achieve innovative designs) for further utility and to remain serviceable for post pregnancy.
3. To introduce various pattern with unique style and designs are achieved through- pattern styling features (like Godet, Gores, Accommodating Silhouette, Appropriate Trims, Placket Placements etc.), Construction features (like Smoking, Pleats etc.), Pattern Engineering (to achieve innovative designs) and typical fabrics selections (fabrics which are forgiving in nature).
4. To design a garment adjusting the pregnant women’s mentality activating their interest in life and meeting their mental and psychological demand.
5. To construct or make maternity wear at an affordable prize.

Research Design, Research Methods and Research Methodology

The present study aims at the documentation of smart-motherhood wear -a solution to the problem of Maternity Wear. To fulfill this aim, a descriptive study was planned for which a questionnaire was structured and purposive sampling method was followed. For the collection of authentic data, interview method was implemented. It also focuses on designing of maternity wear.

The method of procedure followed to fulfill the aim and objective of the research are as follows:

Research Design

Documentation of the study

- Preliminary survey of the topic
- Preparation of the tool
- Selection of the sample
- Collection of the information regarding the topic
- Analysis of the data collected regarding the topic

Designing and construction of maternity wear

- Sourcing the fabric
- Exploring and selection of the different garment making techniques.
- Pattern engraining of the design
- Construction of the best preferred design
- Evolution of the constructed maternity wear.

Research Design Process

The research methodology included first conducting a survey across India to understand the desired features and expectations of the target group, developing smart maternity wear keeping in view the inputs thus received and finally collecting the feedback from the target group on the developed garments. The garments were well appreciated by the target group as they provided good styling, fit and comfort with longevity.
Interviews (Doctors, Designers, Pattern Masters & Pregnant women)

**Doctor’s view towards Maternity wear**

| Division of pregnancy period for clothing purpose | 1-3, 3-6, 6-9 |
| Does she need different attire | Of course |
| Fabric Preferred | Cotton or cotton blends in summer |
| Use of elastic | Should be avoided in waist region |
| Change belly in height | Below navel-16th weak, Up to naval – 20th weak, Half of the naval chest-28th weak, Up to chest- 36th weak |
| Effect of color | No such effect but dark color should be avoided |
| Porosity of fabric | Porous is better as she sweats a lot |
| Change in circumference | 8-9 inches |
| Change in weight | 9-18 kg |
| Support or comfort | Comfort is more important support only when she needs it. |
| Time to start wearing maternity garment | Not before 4th month |
| Doctor’s opinion on qualities of maternity wear | Soft, light, absorbent, clean, loose, Hanging from shoulder or bust without any uncomfortable fasteners. |
| Recovery of body shape | After 2.5-3 months but original body cannot be recovered. |

**Opinion of designers**
Pregnant women should be wear a loose clothes which don’t hamper her free movement. Maternity wear should be such that they don’t compress her abdomen and breasts.

**Opinion of pattern masters**

**Linear methods**: Linear methods are used to measure length along the body surface between landmark points including circumferences and curvatures. Linear methods only indicate body length, so they cannot quantify surfaces, shapes, or volume.

**Opinion of pregnant women’s**

Maternity which will useful for pre-pregnancy, during pregnancy and post pregnancy.

After analysing the available data and survey results, it was understood that people are enthusiastic to know more about “Smart maternity wear”. People were ready to accept the Smart maternity wear concept for Comfort, Quality, Durability, Availability, Aesthetic appeal, Creativity, Trendy and cost effective.

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Fig 1: Final Design (Self Clicked)
Significance of the Study
The result of this study will be of benefit to the pregnant women in the following ways
- With this kind of design we can remove weight fluctuation and size problem for overweight women, to give pregnant women most comfortable and easy to wear garment.
- To incorporate aesthetic in maternity wear which can play an important role in regulating the pregnant women's special psychological need?
- To satisfied a pregnant women physical needs.
- To design and develop a maternity which is allegiant, protective and acceptable.
- To provide the knowledge about variety of maternity wears available and suitable for different occasions.
- To provide double advantage for maternity wears that could be used before and even after delivery.

Conclusion
- Using various pattern styling features, Garment construction features and pattern engineering techniques in conjunction with fabric selections the maternity wear can be made serviceable for a longer duration of period.
- The garments designed and constructed in such a way would fit well pre, during and post pregnancy. The feedback was taken from sample population after they were made to try out the garments.
- The overall feedback on the developed garments was highly favorable. The cape-cum -top, dungaree was the most appreciated garments in western wear category. Side Seam godet, which were controlled with drawstring in kurta / kameez, was the most liked styling. The idea of attaching Knits belt over woven fabric in lowers i.e. Salwar, skirt, trouser; churidar and the grown on extensions in kurta and parallel were the most comforting and functional styles appreciated by the respondents.

Sustainable development is development that meets the needs of the present without compromising the needs of future generations to meet their own needs.It is the long-term maintenance of well being, which has environmental, culture ,economic, and social dimensions to manage the use of resource.

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