

‘Smart Maternity Wear’ - an Answer to Longevity 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. 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 paper explores the possibility of using features to make the maternity wear fit well and hence remain serviceable pre-pregnancy, 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 Maternity 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.

Keywords: Maternity wear, anthropometric growth, smart garments

Introduction

Much has been written discussed and printed about maternity wear. Maternity wear is a garment which is specifically designed for pregnancy stage of a woman’s life. A stage where the anthropometric requirements of the human form are very different, the reason being that there is a substantive weight gain but the distribution of this weight is not uniform around the body i.e.

certain body parts grow much more in proportion to the other parts. The prominent growth is in on the waist, bust and hip. There is also growth on the biceps, thighs etc.

To address this need, especially in India, what majority of the Indian women do is to buy plus-size garments. Although the bigger size garment addresses the need to

accommodate the growth on the waist comfortably it essentially results in a shabby look as the garment is poorly fitted in both the horizontal and vertical dimensions. In vertical dimension, the garment starts riding high from the front as the demand of growth on center front is more than that on the center back. Ideally, the maternity wear should be longer in the center front but in a *plus size* garment the front and back are balanced. In the horizontal dimension, the problem areas are the neck width, across chest, across shoulder, across chest area, reason being that the growth in the body of pregnant women in these areas is designed to be lesser than that of a standard plus size garment.

Lately, as it has been an option available in western countries, India has seen emergence of maternity wear from both local and international brands, as Mr. Xitij Joshi of Uzazi says⁵ “Market for maternity wear has grown, from nonexistent to noticeably growing in certain pockets of Indian metro cities. Various market surveys have given a feedback that there is a Rs. 1000+ core market for maternity wear in India.”

These maternity wear essentially uses following principles to address the anthropometric growth during pregnancy

- 1- **Use of ‘Accommodating’ silhouette-** A-line/tent silhouette are very popular- the triangular looks of these silhouette actually help accommodate the growth on the abdomen hip and thigh.
- 2- **Use of ‘Accommodating’ features of fullness** – Like gathers, flare are very accommodating as they lead to achieving of the A-line/tent silhouette
- 3- **Use of ‘Accommodating’ fabric-** Fabric which are inherently forgiving because of the stretch property like knitted fabric or crushed fabric are also good solutions to the challenges posed by this specific condition. The knitted belts on pants and jeans are a very common place feature in maternity wear.

The problem in India with this second option of buying a maternity wear, although

they address the issue of poor fit and shabby look of option 1, is that it’s an expensive alternate, a fact validated by the feedback received from the target group (Indian women) in the survey and to some extent by the small off take of these garments in the Indian market vis a vis the potential demand. Besides basic pricing, the garment appears more expensive to the consumers because the serviceable lives of these garments are fairly short. These garments are primarily designed to address the need during the second and the third trimester, after that the garment is mostly rendered non-functional as the flare which was required to address the bump on abdomen is not required now and the garment is discarded and hence it becomes non serviceable.

The research carried out by the author and garment designs thus developed primarily addresses this longevity problem. The aim is to design maternity wear that can fit a women pre- pregnancy, during pregnancy and post maternity, a Smart alternative. The garment that can have features which can grow with the growth of body and collapse/ fold back when not required. A garment which can be worn till the user is ready to discard it not because the garment has outlived its utility.

Smart Maternity Wear

Following approach was followed to develop the concept and prototypes of Smart Maternity Wear:

- 1- Understanding the need and problem areas in current garments.
- 2- Understanding the dimension by which the pattern has to be grown to accommodate the anthropometric growth of the body during pregnancy
- 3- Designing the garments to address the needs of wearer with longevity in mind.
- 4- Developing the Technical specification packages for the designed garments.
- 5- Making prototypes of the garments.
- 6- Taking feedback on the designed garment.

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385 respondents comprising of urban Indian expectant ladies and mothers in the age bracket of 18-40 years and belonging to a middle income house hold income bracket of 2-6 lakh per annum or more were interviewed through close ended questionnaires. Their problems were analyzed and understood and then the smart maternity wear was developed incorporating the features desired by them like good styling, fit and comfort with longevity at affordable pricing.

The garments categories selected were **Western Wear** (like- top, trouser, skirt, and dungaree) **Indian & Indo-western wear** (like salwar kameez, churidar kurta, and saree blouse) Nightwear and **Winterwear**.

The problems with these category garments were discussed and analyzed. The major problems and limitations found with the upper garment were tightness on Bust/ Waist/ Hip & Bicep. The riding of the front panel and it's falling away from the body, as there was disproportionate growth on center front and center back body, was another key drawback. The problems observed with the lower garments apart from tightness on waist/ hip was that the crotch length was either small for the respondents wearing

garment over the full grown abdomen (resulting in hem riding high as well) or big for the respondents wearing the garment under the bulge of the stomach (resulting in the hem lines slipping low).

The anthropometrical growth^{1&2} and its impact on pattern making was that the garment was to be designed so as to make it looser on waist; bust; hip and bicep girth by approximately 7-10inches; 2-4inches; 3-4 inches & 1-2 inches respectively. The length from the base of bust to base of the full grown abdomen (Symphysis Fundal height)taken on curve of the body was to be adjusted to an average 14'' ;to accommodate this bulge on the abdomen the front length of the garment was to be made 2''-4'' inches longer compared to the back.

After understanding the problem areas from respondents and anthropometric study of the growth of body during pregnancy the size chart was developed according to which the garmenting process was undertaken and prototyping was done.

The increment for the key measurements during the maternity period over the normal body dimension is indicated in the table below.

Girth measurements	Increment for maternity
Chest	Pre-pregnancy size + 2'' – 4''
Waist	Pre-pregnancy size + 7'' – 10''
Hips	Pre-pregnancy size +3'' – 4''
Height measurements	Increment for maternity
Highest Shoulder Point to Top Hip Level in front (measured against the body curve)	Pre-pregnancy size +4.5'' – 5.5''
Highest Shoulder Point to Top Hip Level in front (measured on straight line by hanging the measuring tape from the HSP and taking the measurement from the level of base of abdomen bulge)	Pre-pregnancy size +2'' –4''

Besides adjustments in measurements typical features were designed and incorporated in the garments to increase their longevity and make them grow as per

the body growth .Some of these Pattern Styling Features were Godet, Gores, Accommodating Silhouette, Appropriate Trims, Placket Placements etc. Key

construction features which were designed and incorporated were- Smoking, Pleats etc.. Pattern Engineering techniques (to achieve innovative designs) and typical fabrics selections (fabrics which are forgiving in nature) were used to achieve the desired results. Some of the incorporated features are discussed below:

A) Pattern styling features (*like godet, extension features, pattern shaping, appropriate trims, placket etc.*),

1. Godet – It is a triangular wedge of fabric which is inserted between the seams to bring in fullness. This was used to provide fullness in side seam of kurta / kameez/ tops/ dungaree. The dimensions of the godet were designed so as to accommodate the growth allowance as indicated in the table above. This fullness then was controlled by using the trims i.e. zipper or button or the shoe

string arrangement. Of all the trims the shoe string was most appreciated as it gave a complete control on the quality of fabric to be let out at one given point of time.

The godet was also used in the seam between the bib and the front leg of the dungaree which was controlled by the concealed zipper. In normal dungaree the growth during pregnancy on center front is not planned for in its center front length hence to accommodate the abdomen bulge the wearer has to loosen the straps of the bibs which imbalances the garment as the crotch point moves in front, making the wearer uncomfortable. This godet placed in the seam between the bib and the front leg of the dungaree with concealed zipper provides fullness during pregnancy by unzipping the Godet and pre or post pregnancy can work like a small pocket.



Godet on side seam of top controlled by concealed Zipper



Godet on side seam of top controlled by shoe string arrangement



Godet on the side seam of dungaree controlled with shoe-string arrangement and below bib controlled with concealed zipper



2. *Extension features (Like wrap around, Cowls, side seam extensions)* these features are extensions of already existing blocks to bring in more fullness. They can be extensions of the front panel to make wrap around kameez /

kurta or on open unstitched out seam of a trouser for making a wrap-around trouser. The extensions were built in on the stitched side seam of the bifurcated garment which can be rolled to tie on the front.



Wrap around cowl top



Wrap around trouser



Trouser with side seam extension



3. *The pattern shaping* The bifurcated garments were cut on low waist i.e. 2"-3" inches below the waist line and then further shaping (hollowing) is done by 2" inches on the center front to reduce the front crotch length, this way the garment was designed to sit at the base of the bulge and hence the problem of crotch length being small or big was avoided.

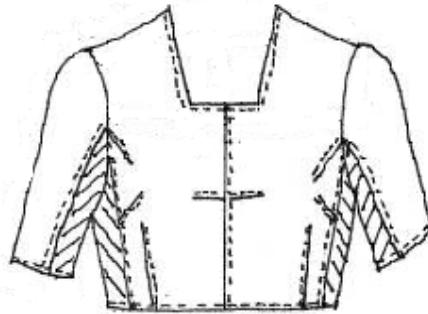
4. *Placket:* Eyes are stitched at three different positions on the left front panel Placket extension. Hook arrangement is provided on the right front panel of the kurta/kameez. Depending upon the demand on the waist the position of the hook can be changed to close with the relevant eye.

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Extension on Centre front to allow the abdomen to grow by shifting the Hooks and Eyes Closure

B) Construction features (like smocking, pleats etc.)



Panel of smocking in inseam and side seam of saree blouse takes care of the growth on the bust and bicep

1. *Smocking & Gores (panels)* – Gores (Panels) with elasticized smocking were used to provide the much desired growth and also for styling. This feature was used in saree blouse where a gore panel was used under the arm and on the side seam and this elasticized smocking gore (panel) provided the fullness to accommodate the growth on bust during pregnancy and later during lactation stage.



Knife pleat positioning on empire line provides simple solution to growth on abdomen during pregnancy

2. *Pleat:* It is a fold of fabric created by doubling cloth on itself. This feature was used on a kurta or a kameez(can be used in any upper torso garment). The pleat is positioned such that the top of

the pleat is at the bust base (empire line) from where the maximum growth of the abdomen starts. The growth on the abdomen will push against the fold of fabric and pleat will come open to accommodate the growth. During pre and post pregnancy the fabric will fold back to provide styling.

C) Fabrics selections (fabrics which are forgiving in nature)

3. *Fabric selection-* fabrics with stretch properties were selected to accommodate the anthropometric growth on lower torso garments (i.e. salwar, churidar, trousers and skirts) and also to achieve longevity.

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First the lower torso garments were shaped as discussed in Sl. No A 3 and the panel/ Belt were attached on this waist of the fabric having two ways stretch i.e. lingerie lace or knitted fabric. The width of such panels were kept around 7” -8”inches so that pre and post pregnancy it will stay till the bust base but during pregnancy it will stretch to accommodate the stomach bulge and post pregnancy it will support the abdomen. In another sample a knitted cycling shorts were stitched on the legs of the churidar to achieve the desired feature.



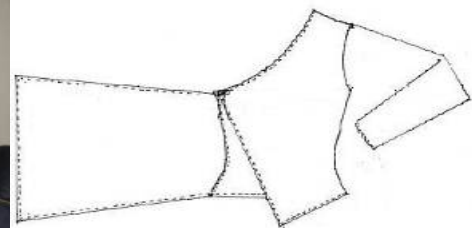
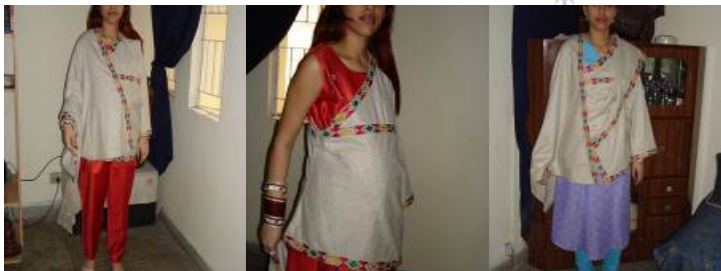
Use of two way stretch knitted fabric belts on dropped waist lower torso garments made the garments accommodate the growth on abdomen during pregnancy

D) Pattern engineering (to achieve innovative designs)

4. *Innovation in winter wear- half jacket and half drape-* The garment was designed to remove the difficulty of managing the flowing piece of garment during pregnancy or with infant post-delivery. The garment has one half top with sleeve and other half as flowing

yardage of cloth. The stitched part of the jacket stabilized the garment and removed the problem of managing the flowing garment. The flowing arm is the styling arm and has functionality as it can be wrapped around during pregnancy and can cover both the mother and the child post pregnancy. It is cut in such a way that it leaves one arm open for movement.

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Half Jacket & Half Drape

5. *Innovation in upper garment – Top-cum-Poncho.* The top was designed in such a way that there was button placket on side seam of front and back panel and inseam of sleeve. The front inseam of the sleeve could be unbuttoned with the inseam of the back sleeve and side

seam of the front could be buttoned with the side seam of the back to give a top. The front inseam of the sleeve could be buttoned with the front side seam of the top and the back inseam of the sleeve could be buttoned with the back side seam of the top to give a poncho.



Top-cum-Poncho

Conclusion

Using various pattern styling features, Garment construction features and pattern engineering techniques in conjunction with forgiving 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 gown on extensions in kurta and parallel were the most comforting and functional styles appreciated by the respondents.

Recommendations: the garment on the same lines can be designed for the oversized women who have a fluctuating weight problem.

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