

BABY CARRIER DRESS

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ABSTRACT

Functional aspects, such as practical in use and ergonomics are even more present on the development of new products. The product aesthetic is an aspect that is being improved, in a manner to attend the new requirements of the market, mainly related to baby carrying systems. A research on baby carrying systems was developed, intending to create a baby carrier considering functional, ergonomic, and aesthetics aspects. The result is a dress that has as main features the transport of babies on secure, practical and comfortable way, and that once it is no longer used as a baby carrying system it can still be used, because it can be transformed in a casual dress, created from fashion trends, thus increasing value to the product. The dress besides practical has fashion appeal becoming desired by contemporary mothers, the main target of the new baby carrier dress.

Keywords: Baby Carrier Dress, Fashion Design, Product Development.

INTRODUCTION

Baby carrying has been improved through times. This evolution has had as main goal to make them even more practical and comfortable both for the baby as for the person who carries them. The design improvement of the baby carriers is evidenced through the improvement of the ergonomic and aesthetic aspects, through the suitable application of materials, moulding, shape and colour, according to the life style needs of the mother and the market trends.

Throughout the history, it is observed great advances on baby carriers. However, much has to be improved, intending the consumer satisfaction. Among the observation of the relationship between the mother quotidian and the baby carrying, a project has initiated with an essential objective, to satisfy the mother's needs, with a contemporary life style, of baby carrying, in view of practical, aesthetics and ergonomic aspects.

The dress developed has been created based on the marsupial concept. For this, on a first stage, a consumer research has been made aiming at the characterization of the target audience. This target consists in cosmopolitan mothers with multiple activities, residing in urban centres and that need to transit freely, walking or using means of transportation. On a second stage, it was made a research on the products available on the market through direct observation in big urban centres, where a large flood of people exists.

After determining which were the baby carriers most used, the third stage began. Marsupials were profoundly researched, with particular incidence on their advantages and disadvantages, based on literature review and through an inquiry done with mothers users of marsupials as means of baby transportation. With the results achieved by the direct observation research, and by the inquiry with mothers users of marsupials, it was possible the conception of a transportation mean for babies, that intends to supply the practical needs of both mother and baby, and an improvement on the aesthetic aspects in respect to baby carrying, considering:

- Ergonomic comfort, through appropriated pattern making;

- Physiologic comfort, through innovative textiles;
- Psychological comfort, through the development of a product with aesthetic features.

CONSUMER TARGET

The society is suffering cultural changes, and the consumers are following them, looking for products that are not merely functional, but products that look for aesthetics. The public-target which the product is designed for are mothers who acquire innovative products with added value, following fashion trends and valuing new innovative materials, that satisfy their needs of cosmopolitan mothers with multiple activities, that inhabit in urban centres and are concerned about appearance. The aesthetic aspect is very important in the process of innovation and affirmation of design [1]. Therefore, they are always searching for products that supply these needs. Despite the improvement in design of the marsupials that already exists, the contemporary mothers are looking for differentiated products, which are not merely different in colour and pattern.

The creation of the dress concept was developed from this perspective of market joining aesthetic and functionality. The elegance, easiness of use, vigour, and durability are factors that products with aesthetic value carry as symbolic meanings [2], as well as the market trends, using new materials and technologies to improve the product. In contemporary societies, the new trends assume multiple differentiated and/or innovative shapes, therefore it is important using them in the development of new products, to satisfy the consumer.

MARKET RESEARCH

Upon definition of the consumer profile, was possible to begin the observatory research. The observatory research aims to identify the means of babies transportation most used, by the mothers defined on the public-target, for transporting little babies. The cities that had served as places of observation were: Frankfurt, Barcelona, Paris and London. The reasons of choice of these cities are due to the fact of being global cities, with cosmopolitan population, having big transport centres, beyond/besides the fact that these cities are the most populous of Europe.

From the observation of the different ways of transport, it was evident that the majority of the babies carried were not in comfortable conditions and in certain conditions the mothers were also uncomfortable. The main reasons for such discomfort were: the inconvenience of the size of the transport, that makes the mobility on the entrance in public transport or crowded places difficult (fig. 1a); the lack of comfort for the baby, with breath difficulty (fig. 1b) and warping of legs (fig. 1c), as it can be perceived in the use of the vertical marsupials.

On observation research, it was evident the use of marsupials or as known commercially "baby slings", the same sort that is used by African mothers is a strong trend on the streets, but it seems to have a poor aesthetic aspect, as illustrated on figure 1d.

The marsupial seems to be the most comfortable and practical transport of babies comparing to the others means of transportation. This aspect was considered when the creation of the transport concept was done. The marsupial has inspired the development of the new baby carrier.



Fig. 1a



Fig. 1b



Fig. 1c



Fig. 1d

Fig. 1a - lack of mobility; fig 1b - difficult of breathing; fig - 1c warping legs; fig 1d - “baby sling”

Despite the fact that the marsupial seems to be a coherent mean of transport, some possible problems are not visually perceived. Then, the second stage initiates, with the research on the marsupial and inquiring mothers users of these marsupials.

THE MARSUPIAL

The use of marsupials as means of transportation began on the end of XIX century [3]. The appearance of this means of babies’ transportation was a consequence of the practices related to the work of lower classes. The use of marsupials was common at agricultural zones, where trips were frequent and therefore the marsupial was important.

Until the present, the use of marsupials, that simulates the kangaroo’s abdominal pocket, is common in some cultures. The marsupial is a viable option of transport, through the fastening of the child with fabrics and leather. Related to practical aspect the marsupial has as main features the freely movement of arms and hands (fig. 2c) and easiness of mobility in places of large flow of people.



Fig. 2a



Fig. 2b



Fig. 2c

Fig. 2a. Painting XIX century – Fig. 2b Marsupial in Africa – Fig. 2c Practical aspect of marsupial.

Beyond the practical aspect, the marsupial promotes the emotional development; therefore, the act of “carrying the baby” improves the relationship between mother and baby, because of the proximity between both. Instead placing babies in conventional transports when carrying the baby next to the body, the user will be sharing its heat, the rhythm of his breath, the sound of its voice and its smell. It means that when using this kind of transport, the mother will be more receptive to the needs of the baby, establishing a better communication between both, demonstrating to the baby that the mother is always available and that the connection established during nine months of gestation didn’t finished after birth.

Baby carrying systems that imitate the natural position of the mother arms when carrying the baby are efficient not only by the fact of the contact with the baby, but also because the arms position follows the natural line of the column of the baby and it does not press it directly in no point [4]. Carrying the baby in the transversal helps the thermal stability, as well as the development of the neurological behaviour, a better mental and motor development, and deep periods of sleep.

Beyond the physiological benefits, there are psychological benefits for the mother and for the baby [5], providing to both a close relationship. The babies who are carried in this position present reduction of sobbing, and the mothers reduce the symptoms of stress. These advantages and benefits had been taken in consideration in the research and on development of the new baby carrier.

MOTHER INQUIRY

The inquiry was made with mothers of new-born babies, from 0-3 months old. The main aspects to be considered are: practice (easiness of use of the marsupial), ergonomic (baby and mother comfort and well distribution of the baby weight on mother's body), aesthetic (related to fashion aspects) and security (related to the danger of a fall and external factors). From the results of the inquiry and comments made from mothers during the inquiry, it was evident the existence of problems on marsupials related to the distribution of the baby weight, that is concentrated mainly on the back, and neck of the mothers body, becoming uncomfortable for the user. The aesthetic aspect was pointed as poor, as it was mentioned on the observatory research.

The practice, the comfort for the baby and the security are considered as positive points from the perspective of the mothers that were interviewed, providing freely movement, aspects that were maintained on the development of the new product. Both other aspects, weight distribution and aesthetics, considered negatives on the inquiry, were refined, to provide ergonomic and psychological comfort to the wearer, through a better weight distribution and the development of a product oriented for the contemporary mother.

DEFINITION OF THE CONCEPT

Due to the changes in market behaviour, beyond the functional aspects of the marsupials, the aesthetic feature is even more present on the improvement of the marsupial as means of transport, following fashion trends that change even more each year. Colour, shape and pattern making are being improved, to provide a wide range of products offer.

Upon on the three stages of the research made, begins the elaboration of a new concept of the baby carrier: the development of a dress that has as main features the transport of the baby on a secure, practical and comfortable way for the mother, with a contemporary life style, as for the baby. The same dress can be used as a casual dress after the baby is removed, because of a transformation that happens on it. The possibility of use of the dress after the baby is removed meets the needs of a practical lifestyle, and prizes the aesthetic factor.

The dress was designed to support babies from 0-3 months old, and has followed references of weight and length of the anthropometric table, illustrated on table 1. According to this table, the maximum weight and length that the dress can support is respectively 6 Kg, and 59 cm.

age	Male weight	Female weight	Male length	Female length
New-born	3,254 kg	3,291 kg	48,7cm	49,2cm
1 month	4,305 kg	4,308 kg	53,7cm	53,5cm
2 month	5,310 kg	4,971 kg	56,2cm	56,4cm
3 month	6,314 kg	5,634 kg	59,8cm	59,9cm

Table 1. : Anthropometrics of babies from 0 to 3 months old.

The development of the baby carrier dress was based on the concept and improvement of the traditional marsupials. The development began considering the positive aspects of the marsupials, which have been mentioned on the inquiry and are: practice and security, and the way the baby is carried, horizontally, following the natural line of the arms identified in the act of the mother carrying the baby. It is possible to observe (fig. 3a) in front of the dress, on the abdominal zone, the destined space to carry the baby. Held inside of the pocket, the baby is protected against fall, and external factors.

Relatively to the negative points that are the distribution of the weight and the aesthetics, the model takes advantage of the adjusted structure as can be perceived in the pattern making and the lace created on the back (fig 3b), allowing a better distribution of the weight of the baby along the mothers torso, including shoulders and the neck, that are the points most prejudiced with the use of marsupials.

The good distribution of weight on the body provides corporal sustentation for the person who carries the baby, increasing the ergonomic comfort of the user. This structure allows that the silhouette of the mother is moulded and not pressed, providing better comfort and not harming its appearance. The shape dress adjusted and the skirt were developed in accordance to the last fashion trends. Sleeves have been incorporated, because generally after the pregnancy the arms are bigger and swelled, and the sleeve allows the mothers to feel more comfortable, beyond being a present detail in the last fashion trends.

The mother well-being, mainly in the phase after baby-birth is generally prejudiced, for the increase of the weight, persistence of the swell, harming the psychological factor that is in certain way affected for the great majority of the mothers, who feels a difference on the body shape after the pregnancy.

For the mother, the good appearance is primordial in this phase. Therefore, the dress proposed has as essential feature the ability for the mother to keep on using the dress after removing of the baby. This is achieved because the volume formed after the baby removal, can be adjusted with the waist band, creating adjusted folds that will be pressed with buttons and a lace made with the waist band (fig. 3c), transforming the dress in a visually attractive style, without apparent volumes exceed. When the baby is in the pocket, the waist band can be used to adjust to the size of the baby. The top of the dress is removable, allowing the mother to breastfeed the baby, anytime and anywhere.



Fig. 3a - front

Fig. 3b - back

Fig. 3c – front tied

MATERIALS AND FINISHES

The materials choice followed the same innovative idea which was proposed on the shape and pattern making of the dress. There are innovative materials, presently available on the market, that have been developed to make human life more practical. Beyond the practical aspect, the new materials development aims at the creation of fabrics with better performance with respect to physiologic comfort, having positive features as the breathability and the thermoregulation. The application of innovative materials is appropriated for the new concept of transport developed; therefore it follows the same logic of practical use, necessary to supply the needs of the life style of contemporary mothers. Each part of the dress has a particular feature and consequently it needs a specific functionality. The “pocket” that holds the baby is subject to some types of dirtiness caused by the baby, when he regurgitates, is feed and salivates, therefore the fabric we considered to be more appropriate for the internal part of the pocket is lyocell® with self-cleaning treatment [8], which repels dirties or liquids from the surface of the fabric. Moreover, lyocell® presents other interesting characteristics, such as being breathable, allowing the improvement of the baby comfort, who will be situated in a heating zone due to the heat generated from the mother, and consequently the baby needs to be in contact with a fabric that allows the breathability. The internal fabric of the dress, which is in contact with the mother abdominal zone, needs thermoregulation properties, this body area has an increase in its skin temperature because it is in direct contact with the baby. Considering these needs, it was selected the Outlast® technology, that continuously interacts with the unique microclimate of the human body and the environment to moderate temperature from being too hot or too cold to being just right, through the incorporation of microcapsules on the fabrics[9], and preventing perspiration in the abdominal zone. The fabric of the bulge, which supports the bra, is subject to spots as consequence of breast-feeding. To prevent the fabric to become damp, the same is made from a blend of organic cotton and hydrophobic finishing which repels liquids of the fabric surface preventing undesired appearance of spots. The external fabric of the dress was developed in denim, with different gathers and washes. Denim is a resistant fabric perfectly suitable to the model of the dress, therefore its resistance is fundamental to provide sustentation to the user. The skirt of the dress has ruffles, providing feminine characteristics to the dress. The printing of the internal fabric, of the pocket was chosen in accordance with the last trends of colours and

prints. The printing fabric turns the dress more attractive besides contrasting with the dark denim. The internal pocket has triple backstitch, providing a better resistance to the weight of the baby when the baby is carried in the internal part of the pocket. The folds make use of pressure buttons, thus facilitating the closing, and the belt for the sustentation and attractive appearance for the part. The plaids formed upon removing the baby from the dress, make use of buttons, as well as the waist band which provides sustentation and visual attractiveness to the dress.

RESULTS AND DISCUSSIONS

From the choice of materials and of the structural development of the dress based on functional and aesthetical concepts, the work is concluded with the prototype of the dress illustrated on figure 4.



Fig. 4a

Fig. 4b

Fig. 4c

Fig. 4d

Fig. 4a – Front with open pocket to place the baby; Fig. 4b – Back adjusted through the waist band; Fig. 4c – Front adjusted with waist band; 4d – Back effect with waist band crossed.



Fig. 4e

Fig. 4f

Fig. 4g

Fig. 4e – Removal bulge to allow the breastfeeding; Fig. 4f – lateral sight of dress; Fig. 4g. Detailed adjusted folds.



Fig. 4h – lateral sight with the baby;



Fig. 4i – front sight;



Fig. 4j – Detail of the dress carrying the baby

CONCLUSIONS

The development of functional and aesthetic clothes has challenging aspects; therefore its success depends on the association and good development of some factors. In the particular case of the baby carrier dress, its functional and aesthetic aspects have been searched and analyzed, and them, applied to the development of the dress. A dress that considers physiological, psychological and ergonomic comfort. An attractive dress, with increased added value, for both mother and baby.

Another aspect which brings positive advances to the dress is the use of suitable fabrics, which are adapted to the functions and needs required for baby and mother, providing an increase in practical use and comfort.

The possibility of use of the dress after the removal of the baby is a great advantage, providing the product with versatile and practical features, based on fashion trends. Thus resulting in a dress with good aesthetic appearance, aiding the mother day life, and at the same time satisfies the needs of a mother, and woman, who is always looking for a good trendy appearance.

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