Mass production of functional maternity skirt pattern for sustainable economy

Funke Oluwaleyimu, Chinyere Igbo, Nkiruka Nwabah & Regina OhakaChinyere Igbo
University of Lagos, Nigeria

Abstract

The purpose of the study was to develop functional straight maternity skirt patters in small, medium and large sizes with different variations on drop waist lower torso using established block patterns obtained from established mean body measurements by Oluwaleyimu and Igbo (2019) The area for the study was Lagos metropolis, Nigeria. Three hypotheses were formulated to guide the study. Exploratory and descriptive designs were employed in carrying out the study. The two sets of population comprised of the users (registered pregnant women) and judges (Nurses, registered garment makers and Clothing and textile lecturers) with the total of 996 were involved in the study. Purposive, Convenience and Accidental sampling techniques were used to select 31 respondents that participated in the final evaluation of the prototype skirts. The instruments for data collection were the established mean body measurements and Maternity Skirt Assessment Questionnaire (MSAQ). Analysis of Variance (ANOVA) was employed to test the hypotheses at 0.05 level of significance. The following variations of maternity skirts were produced in small, medium and large sizes (Straight functional maternity skirt with yoke on drop waist lower torso; skirt with an inverted draw string for roominess and skirt with detachable godet on the waist region. Findings also revealed that there was no significance difference (P>0.05) among the mean response of the judges on the fit, comfort and aesthetic attributes of the maternity skirts constructed from the patterns, they were rated very satisfactory by the users and judges. Among others, it is recommended that; the patterns constructed in this study should be published for teaching and learning for students and teachers of Home Economics; it should also be used for tailors, fashion designers and the apparel industries for mass production of functional maternity skirts for local use and exportation since the mean body measurements used did not significantly differ from the standardized body measurement

Introduction

Maternity skirt is specifically designed to be worn by pregnant women. It is designed with a loose, comfortable cut which expands as the expectant mother's belly grows. Pregnant women need comfortable maternity skirt which are necessary and not a luxury (Marshall and Raynor, 2014). According to Noopur, (2012) maternity skirt is functional apparel specially designed to address the anthropometric growth in the human body during pregnancy. Maternity skirt should make the pregnant woman feel comfortable. This is a stage where the anthropometric requirements of the human form are very different, reason being that there is substantive

Funke Oluwaleyimu ✉ opeyemileyimu@yahoo.com

weight gain, but the distribution of this weight is not uniform around the body. That is certain body parts grow much more in proportion than other parts. The prominent growth is usually on the waist. Therefore, maternity skirt should be designed in such a way that there is enough space on the waist to accommodate maximum growth on the waist. During this period, good fit functional skirt should be available. Good fit functional skirt for pregnant women can only be achieved by considering the shape, size and measurement of the direct wearer (Noopur, 2012). Maternity skirts which are perfectly comfortable and functional may be completely rejected by pregnant women if they do not look smart, stylish or not perceived to be conveying the proper image (Noopur, 2012). Psychological expectations and preferences of pregnant women must therefore be given due consideration so as to create functional apparels which are in tune with their social and cultural background, geographical location, age, activity and work profile. There is therefore need for functional skirt that will accommodate the increase in body size occasioned by pregnancy, and will also meet the social and psychological needs of the users.

Designing involves a set of skills that range from market research and creativity to sketching and fabric selection. Designing is more than creativity, it entails conceptualization of the needs of the wearer and the accommodation of the solution to the needs in the design (Gupta, 2011). For instance, the process of designing functional apparel for pregnant women begins and ends with meeting the specific requirements of the pregnant women. Most designs also include elastic, tabs, and other methods of expansion allowing skirts to be let out. According to Musial (2014), often, maternity skirts have childish patterns on them such as bows, polka dots or flowers, also, an A-line. This design de-emphasizes protruding belly while re-emphasizing childishness. Good fitting skirt designs are achieved through the inclusion of pattern styling features like godet, gores, and the incorporation of appropriate trims, plackets, and fit elements, like pleats darts, gathers, and smocking (Noopur 2012). The aesthetic aspect of the design; termed the elements of design, is viewed as the interplay of lines, form (shape and space), texture and colour of the garment and other materials used on the garment. These elements of design must be applied artistically. The artistic guidelines that dictate the use of the elements of design are: balance, proportion, emphasis, rhythm and harmony. The elements and principles of design when properly applied, work together to bring about the functionality required on skirt to be developed for pregnant women.

Prototype apparels should be produced, tested and corrected to meet the desired specifications of a design. Prototype apparel is apparel made to the specification of a design for the purpose of fitting, using a cheaper fabric. Development of the patterns termed block patterns prior to apparel construction precedes designing. It is very crucial to a dressmaker, since it provides opportunity for corrections to be affected after series of fitting prototype apparels on the figure before the final apparel construction. Pattern development and drafting requires reasoning, creativity and manipulative skill for constructing apparels. A pattern is the map of the apparel. There are two main types of patterns: the block pattern and the trade pattern (Anikweze, 2013). The block pattern is to the dress designer what the blue print is to the architect (Igbo and Iloeje 2012). Block patterns can be drafted or commercially obtained through modelling or draping method, knock-off design method, grading method, computer aided design method (CAD), and flat pattern method. According to Igbo and Iloeje (2012), drafting is a term used to describe an engineering approach for producing patterns, using a set of measurements obtained from a figure while following a set of guiding instructions. The instructions are interpreted into drawings or shapes on paper or fabrics. Pattern on the other hand, is a piece of paper drafted

and cut to size and shape, used for cutting out pieces of fabrics method, grading method, computer-aided design method (CAD), and flat pattern method.

The trade patterns are already standardized patterns used in mass production of garments (Bray, 2003). Aldrich, (2006) justifies the use of block patterns in the clothing industry because the blocks are constructed to standard (average) measurements for specific groups of people but could also be drafted to fit an individual figure using personal measurements. Unfortunately, commercial patterns for functional skirt for pregnant women which could facilitate mass production of maternity skirt are not readily available. The use of any type of pattern has advantages such as saving energy, time, money and anxiety. Good fitting is likely to be achieved because of the accuracy of patterns. If patterns are well constructed, they can be easily used by inexperienced dressmakers. The production of patterns can also serve as a source of job to teeming unemployed youths in Nigeria. All humans have peculiar shapes and sizes. Sizing and shaping are crucial factors in pattern development (Brown and Rice, 2001; Kinley, 2013). Apparels that are sized properly and according to fashion, style and fabric used, and which conform to body measurements, will fit the wearer well. A garment that is well-sized will fit and align with body contours without any strain. No matter the function of any apparel to the user, the size must be proportionate to the wearer to achieve the purpose for which it is constructed. In an attempt to accomplish the social desires, pregnant women move with fashion trends. This is making them to always wear tight apparels that obstruct their body movement or confine the blood flow to the stomach which exposes them and the babies in their wombs to health challenges. Mass production is the manufacture of goods in large commercial quantities. Apparel production has been known to play a significant role in increasing personal income and enhancing the growth of gross domestic product (GDP) of most developing countries of the world. In less developed countries of the world, average wages in textile and apparel production are estimated at $401,000,000 U.S dollars (World Trade organization, (WTO, 2006). The apparel industry, therefore, plays an important role in job creation and this can drastically reduce the problem of poverty and unemployment which is a major economic problem of the nation today. Mass production paves way for ready to wear and mass-produced fashion, as well as creation of job and wealth for the growth and development of the economy (Iloeje and Anyakoha, 2012).

Statement of the Problem

Many pregnant women in Nigeria generally and in Lagos State in particular dress to achieve portability and fashion. This is making them to forget the need for comfort and protection in their dressing patterns, this has implications on their health. The fashion trend is now making many pregnant women in Lagos state dress without consideration for their comfort and that of the unborn children. For example, by wearing tight fitting foundation apparels, tight fitting skirts to look smart and this has negative implications on their health. There is need to develop functional maternity skirt for pregnant women to specifically accommodate the growth on the abdomen and there is also a need to develop stylish and smart functional apparels to meet their yearning aesthetic needs. (See Appendix 1)

Purpose of the Study

The major purpose of the study was to produce functional maternity skirt patterns in small, medium and large sizes which can be used for mass production of maternity skirts for pregnant women for sustainable economy. Specifically, the study:

1. developed maternity skirt patterns for three sizes: small, medium and large using established block patterns from Oluwaleyimu and Igbo (2019).

2. constructed three variations of three sets of prototype maternity straight skirts each in small, medium and large sizes, based on the adaptations of the basic block pattern pieces developed.

3. determine the judges' ratings of the appropriateness of the maternity skirts in terms of fit comfort and aesthetics variables of the three sizes of the prototype maternity skirts.

Hypotheses

Three null hypotheses were tested in this study at 0.05 level of significance

$H0_1$:   There is no significant difference among the mean ratings of users on the fit of prototype maternity skirts for small, medium and large users' sizes.

$H0_2$:   There is no significant difference among the mean ratings of users on the comfort of women.

$H0_3$:   There is no significant difference among the mean responses of judges (nurses, clothing and textiles lecturers and garment markers) on the aesthetic attribute of the prototype maternity skirt required by pregnant women.

Methodology

Design of the Study

The study was exploratory and descriptive. An exploratory research is an attempt to lay the groundwork that will lead to future studies. (Kowalczyk,2016). The patterns produced in this study can be adopted for further studies. The study was descriptive because it describes data and characteristics about the population. (Gall, Gall and Borg, 2007).

Area for the Study

The study was carried out in Lagos metropolis, Nigeria. Lagos state is bounded by Republic of Benin on the West and Ogun state both on the North and East respectively. On the South, the state stretches for 180 kilometers along the coast of the Atlantic Ocean and consists of Lagoon and Creeks.

The researcher chose this area of study basically for operational ease and enhanced access to research subjects from her work station. Furthermore, Lagos metropolises have a good mix of people from different parts of Nigeria. (Lagos Island Local Government Area), Lagos Mainland LGAs which is from the middle ring of the metropolis and Ikeja division LGAs were used for the study. There are tertiary health care delivery centres, government and private maternity centres and clinics in Lagos metropolis, Island Maternity is situated in Lagos Island LGA, Gbagada General Hospital is situated in Lagos mainland LGA while Ayinke House Maternity in Ikeja General Hospital is situated in Ikeja LGA. The Redeemed Christian Church of God (RCCG) and other private maternity home are also situated in every local government area of Lagos metropolis. All these were used to select samples among the pregnant women and nurses used as judges and respondents. There are clothing and textiles lecturers in some tertiary institutions

and registered tailors and garment makers in Lagos metropolis. All these informed the choice of Lagos state for the study.

Population for the Study

Two sets of population comprised of the users (Registered pregnant women) and judges (Nurses, registered garment makers and clothing & textiles lecturers) with the total of 996 were involved in the study. Nurses, Clothing and Textile lecturers, tailors/seamstresses and fashion designers were included in the study because it is assumed that they are stakeholders in the welfare and clothing of pregnant women.

Sample and Sampling Technique

The sample size for this study was 31 respondents drawn from the two groups: Judges and users (pregnant women). Convenience or Accidental sampling technique was employed to select 19 judges from a population of 612. Convenience or Accidental sampling is a non-probability method of sampling where subjects are drawn because of accessibility and proximity to the researcher (Trochim, 2003). Accidental sampling involves subjects who are willing to participate in the research. Accidental sampling is simply by asking for volunteers, those who are available, (Adebanyo, 2015, and Explorable.com, 2009). Purposive sampling technique was used to select 12 registered pregnant women (users) from a population of 384. It was purposive because the 12 selected pregnant women belong to small, medium and large size categories. Those selected to fit test prototype skirts were those whose body sizes coincided with the mean body measurement charts computed from data obtained from the study. Other criteria for choosing fit-testing from among the pregnant women were ability to understand the requirements of the research and consent to participate in the exercise.

Instruments for Data Collection

A 5-point Likert scale maternity skirt Assessment Questionnaire (MSAQ) was developed and used for rating the fit, comfort and aesthetics of the prototype skirts constructed from the drafted patterns. The instrument was both users and judges. The (MSAQ) had three sections (1, 2, and 3). Section I had different variables on fit of the prototype functional skirt on the users while standing, sitting and walking (section 2) had variable on comfort and overall performance of the skirt on the users, (section 3) had variables aesthetics characteristics of the prototype skirts. Mean body measurement established by Oluwaleyimu and Igbo (2019) was employed in drafting the pattern. The established mean body measurement was in small, medium and large sizes.

Method of Data Collection

Research assistants were recruited by the researcher. The research assistants were briefed prior to data collection. Data for this study were collected in four phases (I, II, III and IV). This involved two sets of samples of respondents: users and judges (nurses, clothing and textile lecturers, and garment makers.

Phase I: Adaptation and development of straight maternity skirt patterns with Variations in small, medium and large sizes. (See Appendix 2).

Phase II: Construction of Functional Prototype maternity skirts in small, medium and large sizes with variations: (Short straight maternity skirt draw string for roominess;

straight maternity skirt with stretch fabric on drop waist, to accommodate the growth on the abdomen a detached godet) see Appendix 3.

Phase III: Modification and fit-testing of prototype maternity skirts: Fit-testing of prototype functional skirts on pregnant women was done and final modifications on the prototype functional skirts were affected. Alternatives on the prototype functional skirts were based on feedback from users. The major parts corrected were length of skirt, reinforcement of openings and closure. Phase III is summarized as follows:

- Training of users for correct assessment of fit of the prototype skirt.

- Training of the judges for correct assessment of aesthetics and variables of the prototype functional maternity skirts.

- Construction of new sets of functional skirts using the corrections from first fit.

- Fit-testing prototype functional skirts by users. This entailed one user in each size category of small, medium, large, fatting three different skirts. Photographs of fit testing exercise are included in Appendix 4

Phase IV: Final Evaluation of the Prototype Functional Maternity Skirts by Users and Judges. In phase IV, the feedback obtained from the users (pregnant women) was utilized to effect corrections on the prototype functional apparels, 12 pregnant women/user and 19 judges comprising five nurses, five garment makers and nine clothing and textile lecturers participated in assessing the aesthetic and expressive attributes of the prototype functional skirts. The 12 selected pregnant women belong to small, medium and large size categories. Those selected to fit test prototype skirts were those whose body sizes coincided with the mean body measurement charts computed from data obtained from the study. Other criteria for choosing fit-testing from among the pregnant women were ability to understand the requirements of the research and consent to participate in the exercise. Phase 1V: Final Evaluation of the Prototype functional maternity skirt. (See Appendix 4)

Method of Data Analysis

Mean and analysis of variance (ANOVA) was used to test the hypothesis at 0.05 level of significance. Any item with a probability value (Sig.) greater than or equal to the 0.05 level of significance indicates no significant difference ($P \geq 0.05$), and the hypothesis was not rejected otherwise there is a significant difference ($P < 0.05$) and the H0 was rejected. Data collected for the study was analyzed using Statistical Package for Social Sciences.

Results

The result in Table 1 shows the ANOVA analysis of users (pregnant women of medium, small and large sizes) on the fit of prototype functional maternity skirts. The result indicates that the 10-items indicate no significant difference in the mean ratings of the pregnant women of different sizes because the probability values (sig) of the items are greater than 0.05 level of significance (P>0.05). Hence, the null hypothesis which states that there is no significant difference in the mean ratings of users (pregnant women of small, medium and large sizes) on the fit of the prototype functional maternity skirts is therefore accepted in these items.

Test of null hypotheses

H0$_1$:   There is no significant difference among the mean ratings of the users (pregnant women.) on the fit variables of the prototype functional maternity skirt.

Table 1:   ANOVA analysis of mean ratings of pregnant women (users) on the fit of the prototype functional maternity skirts.

S/N	Variables: Skirt Fit of the skirt while:	Source of Variation	Df	SS	MS	F-cal	Sig	Rmk
1	Sitting	BG	2	1.500	0.750	0.273	0.767	NS
		WG	9	24.750	2.750			
		T	11	26.250				
2	Bending	BG	2	7.167	3.583	1.743	0.229	NS
		WG	9	18.500	2.056			
		T	11	25.667				
3	Walking	BG	2	2.167	1.083	0.929	0.430	NS
		WG	9	10.500	1.167			
		T	11	12.667				
4	Variables Ease on waist line	BG	2	0.667	0.333	0.136	0.874	NS
		WG	9	22.000	2.444			
		T	11	22.667				
5	Hip level	BG	2	5.167	2.583	2.735	0.118	NS
		WG	9	8.500	0.944			
		T	11	13.667				
6	Ease at thigh	BG	2	17.167	8.583	9.968	0.058	NS
		WG	9	7.751	0.861			
		T	11	24.917				
7	Side seam curve	BG	2	0.667	0.333	0.188	0.835	NS
		WG	9	16.000	1.778			
		T	11	16.667				
8	Hemline ease	BG	2	3.167	1.583	0.656	0.542	NS
		WG	9	21.750	2.417			
		T	11	24.917				
9	Functionality safety	BG	2	6.167	3.083	3.265	0.086	NS
		WG	9	8.500	0.944			
		T	11	14.667				
10	Overall fit	BG	2	1.500	0.750	0.529	0.606	NS
		WG	9	12.750	1.417			
		T	11	14.250				

Note: BG = Between group, WG = Within group, T = Total. df = Degree of freedom, SS = sum of Squares, MS = Mean of Squares, Sig = Probability value

H0$_2$:   There is no significant difference among the mean ratings of the users on the comfort variables of the prototype functional maternity skirt.

Table 2:   ANOVA analysis of mean ratings of users (pregnant women) on the comfort variables of the prototype functional maternity skirt.

S/N	Variables	Source of Variation	df	SS	MS	F-cal	Sig	Rmk
1	Overall fit	BG	2	4.667	2.333	1.714	0.234	NS
		WG	9	12.250	1.361			
		T	11	16.917				
2	No restricting	BG	2	5.167	2.583	1.043	0.056	NS
		WG	9	5.750	0.639			
		T	11	10.917				
3	Feel on the body	BG	2	0.167	0.083	0.070	0.933	NS
		WG	9	10.750	1.194			
		T	11	10.917				
4	Non-irritability of body	BG	2	0.167	1.083	0.115	0.892	NS
		WG	9	6.500	0.722			
		T	11	6.667				
5	Air permeability	BG	2	8.667	4.333	2.400	0.146	NS
		WG	9	16.250	1.806			
		T	11	24.917				
6	Adjustable waist line	BG	2	2.167	1.083	0.582	0.578	NS
		WG	9	16.750	1.861			
		T	11	18.917				
7	Safety	BG	2	2.167	0.083	0.557	0.591	NS
		WG	9	17.500	1.944			
		T	11	19.667				
8	Functionality	BG	2	2.167	1.083	1.500	0.274	NS
		WG	9	6.500	0.722			
		T	11	8.667				
9	Ease of wearing and taking off (donning and doffing).	BG	2	0.167	0.083	0.043	0.958	NS
		WG	9	17.500	1.944			
		T	11	17.667				

Note: BG = Between group, WG = Within group, T = Total. df = Degree of freedom, SS = sum of Squares, MS = Mean of Squares, Sig = Probability value

The results in Table 3 show the ANOVA analysis of mean ratings of users (pregnant women of medium, small and large sizes) on the comfort and overall performance variables of the prototype functional maternity apparel (skirt, trouser, dungaree, blouse and gown). for pregnant women. The result indicates that the 9-items show no significant difference among the mean ratings of the pregnant women of different sizes on the comfort and overall performance variables of the prototype functional maternity apparel (skirt, trouser, dungaree, blouse and gown) for pregnant women because the probability values (sig) of the items are greater than 0.05 level of significance (P>0.05). Hence, the null hypothesis which states that there is no significant difference among the mean ratings of users (pregnant women of small,

medium and large sizes) on the comfort and overall performance prototype functional maternity apparels is therefore accepted in all the items.

H0₃: There is no significant difference among the mean ratings of judges (nurses, garment makers and clothing and textiles lecturers.) on the aesthetic variables of the prototype functional maternity skirt.

Table 3:   ANOVA analysis of mean ratings of judges on the Aesthetic variables of the prototype functional maternity skirts.

S/N	Variables	Source of Variation	df	SS	MS	F-cal	Sig	Rmk
1	Beauty	BG	2	10.667	5.333	2.954	0.103	NS
		WG	9	16.250	1.806			
		T	11	26.917				
2	Colour	BG	2	4.167	2.083	1.974	0.195	NS
		WG	9	9.500	1.056			
		T	11	13.667				
3	Texture of fabric	BG	2	17.167	8.583	30.900	0.060	NS
		WG	9	2.500	0.278			
		T	11	19.667				
4	Fashion ability style attribute	BG	2	0.667	0.333	0.158	0.856	NS
		WG	9	19.000	2.111			
		T	11	19.667				
5	Visual appendix X	BG	2	2.667	1.333	0.800	0.479	NS
		WG	9	15.000	1.667			
		T	11	17.667				
6	Shape/Silhouette	BG	2	1.167	0.583	0.296	0.751	NS
		WG	9	17.750	1.972			
		T	11	18.917				
7	Style attributes	BG	2	1.500	0.750	1.421	0.291	NS
		WG	9	4.750	0.528			
		T	11	6.250				
8	Construction	BG	2	6.500	3.250	1.773	0.224	NS
		WG	9	16.500	1.833			
		T	11	23.000				
9	Fastenings	BG	2	4.667	2.333	0.875	0.450	NS
		WG	9	24.000	2.667			
		T	11	28.667				
10	Acceptability	BG	2	4.500	2.250	1.025	0.397	NS
		WG	9	19.750	2.194			
		T	11	24.250				

Note: BG = Between group, WG = Within group, T = Total. df = Degree of freedom, SS = sum of Squares, MS = Mean of Squares, Sig = Probability value

The results in Table 3 shows the ANOVA analysis of mean ratings of judges on the aesthetic variables of the prototype functional maternity skirts for pregnant women. The result indicates that the 10-items show no significant difference among the mean ratings of the judges on the fit of aesthetic variables of the prototype functional maternity skirts for pregnant women because the probability values (sig) of the items are greater than 0.05 level of significance (P>0.05). Hence, the null hypothesis which states that there is no significant difference among the mean ratings of judges on the aesthetic of prototype functional maternity skirts is therefore accepted in all the items.

Findings of the Study

The following were the findings of the study.

The following functional prototype straight maternity skirts were produced:
1. Maternity skirt with yoke on drop waist lower torso made with stretch fabrics or the same fabric tucked or gathered,

2. Straight maternity skirt with an inserted draw string for roominess and

3. Maternity skirt with a detachable godet on the waist region.

4. There was no significant different (P > 0.05) among the mean rating of user (small, medium and large) on the fit, comfort, overall performance and aesthetic attributes of the prototype functional apparels.

5. There was no significant difference among the mean responses of judges (nurses, clothing and textiles lecturers and garment makers) on the aesthetic attributes of the prototype functional apparels required by pregnant women.

Discussion of the Findings

The block patterns were adapted into the functional maternity straight skirts with variations. This agrees with Igbo and Iloeje (2012) who stated that pattern can be developed in many ways to include: knock off, modifying and flat pattern drafting (Igbo and Iloeje, 2012). Anyakoha (2012) also documented pattern adaptations which were used to include the desired features on various basic patterns drafted. The skirts produced in the present study was liked by the pregnant women because of the functionality and the skirts have the features on the women's conventional apparels. This supports Marshall and Raynor (2014), Ashileigh (2013) and Nima (2015) who stated that pregnant women need comfortable maternity apparels which is necessary to take care of their changing shape and not a luxury. And that the pregnant women need functional maternity apparel when they begin to feel uncomfortable in their old tighter fitting apparels. It is evident from table 1–3 that the fit of the prototype function maternity skirt as follows: sitting, bending, walking, ease on waist line, ease at hip level, ease at thigh, side seam curve, hemline ease, functionality safety and overall; the users and the judges rated the prototype functional skirts to be very good. The result is consistent with the assertions of Alexander et al. (2005) that the fit preferences are subjective and vary from person to person and that defining and interpreting good fit is difficult and can only be defined by each individual. The skirt fit preferences of consumers according to Alexander et al. (2005) are mostly influenced by attitudes, culture, perceptions, geographic location, social afflictions, and education level of the individual as well as globalization Rating (2001) had noted that the wearer of garment has the best judgement of the fit of any garment. Hence if the wearer is satisfied with the fit of the apparel, it is perceived to fit well. Comfort as: overall fit, non-restricting, feel on the body, non-irritability of body, air permeability, adjustable waist line, safety, functionality and ease of wearing and taking off (donning and doffing); which forms major requirements in design of functional maternity skirt. Alexander et al. (2005) and Marshal et al. (2004) were accomplished in this study. The users were subjected to slight movement tests such as walking, bending in relation to brown and Rice (2001) that supported comfort

allows bending, stretching and easy movement of the body while improving the general appearance of the skirt. Comfort assessed by both users and judges were satisfactory or above, satisfactory. All the aesthetic variables assessed by the users and judges for the prototype functional skirts were acceptable. On aesthetic attribute of the prototype of the functional skirt, the study identified beauty, colour, texture of fabric, fashion ability style attribute, visual appendix, shape/silhouette, style attributes, construction, fastenings and acceptability. Annette (2001) also noted that pregnancy does not mean that the comfort or stylish days are over, and so one should offer oneself the perfect mix of comfort, fit, style and look of today's fashions. Most importantly, Heejae and Catherine (2012) discovered in a study that functional and aesthetic consideration needs to be taken into account to develop pregnant women maternity apparel.

Conclusion

Design is important in developing garments. Garment patterns are very necessary in garment construction for necessary alternations before the fabric is finally cut. Apparels made from drafted patterns always give very good fit. Skirts styles produced in this study were functional maternity skirts which will make the pregnant women comfortable on their waist to accommodate the growth of their babies and give the aesthetic attributes. The design details for the skirts on the lower waist and torso were judged to be more functional and comfortable. After evaluation, the overall feedback from the models was highly favourable. It was concluded that the study was successful since the prototype functional skirts designed, constructed and fit-tested satisfied both the users and judges.

Recommendations

Based on the findings, the following recommendations were made:

1. The findings of this study should be made available to garment makers and apparel industries to encourage the production of smart, stylish and attractive designs that are functional, aesthetic and expressive for pregnant women's use based on the established design ideas obtained from needs assessment.

2. The summary of the method of pattern drafting adopted in this research should be extracted and published to provide knowledge for students offering courses on Home Economics garment designing, clothing and textiles, and their teachers in all the levels of institutions. This will aid in equipping them for creativity in garment designs with functionality in focus especially for pregnant women.

3. Ready to wear functional maternity apparels in different sizes should form part of the anti-natal registration, kits for pregnant women in the maternity centres. The cost of the kit may be built into the cost of pregnant women's registration in the maternity centers.

4. The apparel industries and manufacturers should use size charts and patterns produced in this study to prepare commercial patterns that can be used to mass produce functional maternity apparels for sale in markets and shops locally and also exported to other countries of the world. It should equally be used for participation in African Growth and Opportunity Act (AGOA).

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APPENDIX 1   A PREGNANT WOMAN IN HER CONVENTIONAL APPAREL (STRAIGHT FITTED

APPENDIX 2   Straight maternity skirt

Straight maternity skirt