JHER Vol. 26 No. 1 September 2019, pp. 121-128

Establishment of Average Body Measurements of Women with Large Bust Lines for Drafting Basic Bodice Block Patterns

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Abstract

The study established the average body measurements needed for drafting bodice block patterns for women with large bust lines. It focused on three categories of sizes: 1X (extra large), 2X (extra-extra large), and 3X (extra-extra-extra large). The research design was a survey and quasi – experimental design. The study was carried out in three states of Nigeria, the states are; Ekiti, Enugu and Nasarawa. Purposive and snowball sampling techniques were used to select a sample of 225 women with large bust lines from the population. The instrument for the study was an adopted Body Measurement Guide (BMG). One research question guided the study. Mean and standard deviation were used for data analysis. The study revealed that the average body measurements of women with large bust lines increased as the sizes progressed. The study recommended that data generated in this study should be made available to garment producers, Home Economics lecturers and students. The data could be used for production of commercial patterns for women with large bust lines.

Keywords: Bodice, Average, Body, Measurement, Women, Large, Bust, Lines.

Introduction

Women are adult females from 18years and above. The feminine figure varies greatly in shape from person to person. Women tend to store body fats in their busts, hips and thighs resulting in many shapes such as triangular/top-heavy, inverted triangle/bottom-heavy, rectangular, round and hour glass (Faust and Carrier, 2014). According to Anyakoha (2016); some women have natural figure faults. These include; flat chest, short neck, large hips and large busts. Others have sloppy shoulders and protruding tummy.

Women with large bust lines are apparel consumers with bust

measuring 50inches and above (127cm and above) and whose bust measurement is between 2inches and 14inches (5cm and 36cm) than the hip measurements (Felsenthal, 2012). Nellis, (2013), highlighted the body characteristics of women with large bust lines to include, heavy upper torso translating into width prominence of bust and shoulder with relatively narrow hips. This presents a disproportionate figure which is not balanced. This figure fault poses a serious challenge on apparel fit of women with large bust lines. The width at the upper torso contributes to problem of tight fit, while the lower sections experience loose fit. These flaw conditions are manifest and are reflected in ill-fitted garments worn by women with large bust lines. Some of these garments "jump up" while some have a boxy look and others appear too tight resulting in poor fit.

Garment fit problems can be embarrassing, frustrating and costly to both tailors and users, especially women with large bust lines. Poor fit in clothes is one of the major factors that have seen a lot of clothes made by tailors being returned or rejected by their customers. This has incurred unquantifiable losses. These losses are reflected in low patronage with few visits to the tailors shop. If the tailors and researchers do not address the fit problems of women with large bust lines their fit apparel requirements will be compromised. Therefore, to ensure that the clothing needs of women with large bust lines are met, places a huge demand on the clothing industries in Nigeria.

Most developed countries of the world have eased the apparel crisis of their countries by the use of block patterns in garment manufacturing. According to Bhati (2011), pattern drafting is an engineering approach used to establish series of curves and lines on paper to produce patterns by using tools such as T-square, French curves, fashion rulers, yard sticks, rulers, pencils tape measure and white/brown papers and according to Anderson (2013), patterns are pieces of paper drafted cut to size and shape used for cutting out fabric pieces for sewing garments and. A block in apparel production refers to the shape, and form in which a garment is presented (Saima, Sarwa and Ameen, 2014). For women's clothing five basic blocks are used. These include a snug – fitting bodice front and bodice with darts and a jewel neck line, a long fitted sleeve, a fitted skirt front and skirt back with darts. The basic bodice as a component of the basic pattern is most often referred to as the upper part of women's garment covering the body from the neck to the waist. The function of the basic bodice pattern is to provide a simple outline upon which design and fit are based. It is on the basic bodice that style decisions and fit are worked out. According to Igbo and Iloeje, (2012), every style pattern can be developed on the basic bodice. In addition, blocks provide permanent record of correct fit thereby reducing trial and error in clothing construction (Igbo and Iloeje, 2012).

Accurate body measurement is fundamental to the production of well fitted garments. These measurements

are used for the drafting of basic bodice. Igbo and Iloeje (2012), Identified ten principles to be observed while taking body measurements. Aldrich (2002), identified 21 body measurements that are essential for female pattern development. Oluah (2014), also identified 13 body dimensions as basic for drafting women's block and these body dimensions were adopted for the study.

Studies have shown that Nigeria has no block patterns for her populace which is basic to the development of properly fitted garments (Iloeje and Anyakoha, 2009; Ekumankama and Igbo, 2009; Shailong and Igbo (2009); Anikweze, 2013). The non-availability of conclusive study on standard body measurements especially for women with large bust lines that can be used in drafting patterns for them is also a major problem. The garment producers depend on custom – made or 'cut and sew'. This entails sewing for individuals who purchase their fabrics and present them to the garment producers. The individual body measurement is taken and style is sketched directly using free hand unto the fabric. This technique often depends on trial and error, most times do not give garments proper fit. This calls for the development and use of standard patterns that will facilitate the production of fitted garments for women with large bust lines. This study therefore, evolved data that will be used as average body measurements for drafting basic bodice patterns for different categories of women with large bust lines in Nigeria and other countries with similar figure types.

Purpose of the Study

The main purpose of the study was to establish average body measurements needed for drafting basic bodice block patterns for women with large bust lines. Specifically the study was designed to:

1. take body measurements of women with large bust lines required to establish average body measurements.
2. establish average body measurements of women with large bust lines required to draft basic bodice patterns for three categorized sizes of 1X (extra-large), 2X (extra-extra-large) and 3X (extra-extra-extra large).

Research Question

The study was guided by one research question.

1. What are the average body measurements of women with large bust lines required for the drafting of basic bodice block patterns?

Methodology

Design of the study

A survey and Quasi – experimental design was used for the study. The survey aspect was used to elicit information about the background of the women with large bust lines, while the quasi experimental was the actual taking and recording of the body measurements of women with large bust lines.

Area of the Study

This study was carried out in three states in Nigeria, which are Enugu State in South East Geopolitical Zone, Ekiti State in South West Geopolitical Zone and Nasarawa State in North Central Geopolitical Zone. The researcher choice of this area of study was basically for operational ease and enhanced access to research assistants that will help get the type of information needed in the study.

Population for the Study

The population for the study was made up of the entire women population in the study area totaling 3,780,841. This population comprised 1,671,795 women from Enugu State, 1,183,470 from Ekiti State and 925,576 from Nasarawa State (Population and Housing Census, 2006). Out of the entire women population in the three states, women with large bust lines were identified by the researcher and research assistants in a preliminary survey in their homes, offices and business places from whom measurements were obtained.

Sample of the Study

Purposive and snow-ball sampling techniques were used to select 225 women with large bust lines. This sample was made up of 80 women with large bust lines from Enugu State, 76 from Ekiti State and 69 from Nasarawa State. The body measurements of these women were taken, recorded, and average body measurements were established based on three categorized sizes of 1X, 2X and 3X.

Instrument for Data Collection

The instrument for data collection was a Body Measurement Guide (BMG) adopted from Aldrich (2002) with essential body measurements needed for drafting basic bodice patterns. The BMG is a chart with columns on all the different parts of the body to be measured, how to measure and actual measurement obtained. The chart also contained demographic characteristics for each woman to be measured such as age of respondent, state and geo-political zone. The instrument was validated by three experts, two of the validators are from the department of Home Economics and Hospitality Management Education and one from the Department of Home Science and Management (Clothing and Textile Option) all from University of Nigeria Nsukka.

Method of Data Collection

This was carried out in two phases as follows:-

Phase 1: Training of research assistants, 18 research assistants, six from each state used for the study were given training on data collection using the Body Measurement Guide (BMG). The researcher assistants were trained on the following;

- the different measurements to be taken
- the sites/location for the various measurements and
- the techniques of taking the various measurements.

Phase 2: Administration of the instrument, 225 copies of the BMG were used in recording the body measurements of women with large

bust lines sampled for the study. The researcher and the research assistants took the measurements over one layer of garment. Subjects were not allowed to wear bulky clothes such as cardigans or sweaters or belts as such clothing could distort the accuracy of the data. A non-stretch tape measure was used in taking the body measurements of the subjects. The data collected was categorized into three sizes based on their bust and waist measurements.

Method of Data Analysis

The body measurements obtained from the three categorized sizes of the subjects representing 1X, 2X and 3X were organized into tables. The data was analyzed using mean and standard deviation to answer the research questions. The means were obtained using the Statistical Package for Social Science (SPSS) version 24.

Findings of the Study

The study determined 12 average body measurements of the subjects needed for drafting basic bodice block for three categorized sizes. These include; bust measurements for 1X size category (124 ± 11.48), 2X size (136 ± 11.67), 3X size (148.79 ± 11.79). The chest measurements for 1X size (113.80 ± 10.67), 2X size (115.89 ± 10.77) 3X size (117.98 ± 8.12) and waist measurements for 1X size (110.29 ± 10.50), 2X size (120.55 ± 10.98), 3X size (132.13 ± 11.49) among others.

Variations in the mean body measurements of the subjects in the different size categories, indicating that differences exist in shape and figure of women with large bust lines. This implies that average body measurements obtained from each size category will facilitate the drafting of basic bodice patterns that will provide good fit to women with large bust lines, since all sizes within each category is considered.

Table 1: Mean and standard deviation of body measurements of 1X, 2X and 3X size categories of women with large bust lines required for drafting of basic bodice block.

S/N	Body Parts	1X (n_1=80)		2X (n_2=93)		3X (n_3=52)	
		$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_3$	SD_3
1.	Bust	124	11.48	136.24	11.67	148.79	11.79
2.	Waist	110.29	10.50	120.55	10.98	132.13	11.49
3.	Back width	52.66	7.26	55.17	7.43	60.12	7.75
4.	Chest	113.80	10.67	115.89	10.77	117.98	8.12
5.	Shoulder	13.63	3.69	14.29	3.78	14.88	3.85
6.	Dart	17.98	4.24	19.44	4.41	21.46	4.63
7.	Top arm	40.12	6.33	41.87	6.47	42.40	6.27
8.	Wrist	22.44	4.74	24.00	4.89	25.53	5.05
9.	Nape to waist	41.40	4.25	43.89	6.43	46.83	6.83
10.	Front shoulder to waist	44.56	6.68	48.31	6.95	52.07	7.22
11.	Armhole Depth	50.59	7.11	52.80	7.25	54.63	7.39
12.	Sleeve length	61.01	7.81	61.25	7.83	63.48	7.97

1X = extra large size category, 2X = extra – extra large size category, 3X = extra – extra – extra large size category. n_1 = number of 1X size – based subjects, n_2 = number of 2X size - based subjects, n_3 = number of 3X size - based subjects, $\bar{X}_1$ = Means of 1X size - based subjects, $\bar{X}_2$ = means of 2X size – based subjects, $\bar{X}_3$ = means of 3X size – based subjects, SD_1 = Standard deviation of 1X size – based subjects, SD_2 = standard deviation of 2X size – based subjects, SD_3 = Standard deviation of 3X size – based subjects,

Table 1 shows the mean body measurements of 1X, 2X and 3X size categories of women with large bust lines required for the drafting of basic bodice block. It presents the highest and lowest mean body measurement and standard deviation for the three categorized sizes. The result reveals that the highest means obtained are for bust, chest and waist while the lowest means are for the shoulder and wrist across all sizes.

Discussion

The result of the findings identified 12 mean body measurements of women with large bust lines required to draft basic bodice patterns. The following body measurements were taken, bust, waist, back width, chest, shoulder, dart, top arm, wrist, nape to waist, front shoulder to waist, armhole depth and sleeve length.

Generating body measurements of the target group serve as the first step in clothing design. This stance agreed with Aldrich (2002), that standardized rules of obtaining body measurements facilitate a comprehensive measuring of all the body parts necessary for the fit of clothing items, which eventually must fit three – dimensional body shape from which the measurements were taken. Ashdown and Dunne (2006), supported this view by maintaining that since the body is three-dimensional, the measurements obtained from it must be accurately taken and must be representative of the characteristics of the body shape critical to the fit of clothing. Jungiang, Guolian and Bugau (2015), stressed that the measurements of the varied body shapes can only be accurate, consistent and representative if they are taken accurately by employing correct methods, instrument and techniques. Iloeje and Anyakoha (2009), opined that a perfectly fitted garment begins with accurate measurement.

Results of the study shows that the means for each of the body measurement progresses with size. The bust measurements for instance for 1X size category was (124 ± 11.48), 2X size (136.24 ± 11.67) and 3X size (148.79 ± 11.78), showing high variability. This is an indication that there are differences in figure type, size and proportions of women with large bust lines. This supports the views of Sawyer (2014), that physical variations exist among individuals in posture and stance which must be understood before the development of dress patterns.

Conclusion

The study determined average body measurements of women with large bust lines required for drafting of basic bodice blocks for three categorized sizes of 1X (extra-large),

2X (extra-extra large) and 3X (extra-extra-extra large). Clothing and textile lecturers need master patterns to teach their students basic and advanced pattern drafting, thereby equipping the students with the necessary skills for promoting the clothing industries in Nigeria. The data generated from this study provides a baseline data for subsequent researches on body measurements for other categories of women with disproportionate figures.

Recommendations

The following recommendations were made based on the study.

- The findings of the study should be made available to garment producers in Nigeria with the aim of helping them to use information in this study to gain insight on pattern drafting that will lead to better design, prediction of fit and ultimately the production of well fitted garments for the larger society.
- Organizing special training for clothing and textile lecturers and students in pattern making for different categories of people. Patterns designed could be commercialized to serve as good substitute for banned imported patterns. This will generate income and contribute to economic development of the country.

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