

Establishment of Average Body Measurement of Male Adolescents in Benue State, Nigeria

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Abstract

The study established average body measurement of male adolescents in Benue State. Survey research design was used for the study. A sample of three hundred (300) male adolescents were proportionally selected from secondary schools. Measurements were taken from 17 parts of adolescents body using none stretch tailors' tape. Major findings of the study include identification of body characteristics of adolescents and establishment of mean body measurement in 3 size categories of small, medium and large.

Key Words: Establishment, Average, Measurement, Male, Adolescents, Characteristics.

Introduction

Adolescent is a young male or female between the ages of 12-17 years. Male and female adolescents have different physical characteristics. Males have wider shoulders, narrow hips than females. Also muscles and bones are more prominent in males because they typically have less body fat than females (Ogla and Adams 2010). UNDP (2011), noted that body sizes and shapes can vary drastically among

adolescents, by race and ethnicity as well. It follows that there are diversities in body types. (Anikweze, 2013).

Adolescents form the largest group in the population of any nation including Benue State. The period of adolescents begins with onset of puberty and ends with the stage of becoming adults. During this period, adolescents undergo several mental, biological, social, psychological and physical changes (Anyakoha, Iloje

2003). Physical changes occur in height, weight and body shape. At this point, clothing becomes very important to adolescents because they use clothes to protect, adorn and modify the body (Aldrich 2006).

In Benue State garment makers rely on individual measurements before garment construction. The accurate measurement of individual determine the pattern size needed for garment construction (Akubue 2004). The size of adolescents vary according to their body type. Choi and Powell (2005) classified adolescent sizes as small, medium and large. It is necessary that body measurements are take accurately in the correct positions and with an equal amount of tension on the tape. Inaccurate measurements will necessitate series of ammendments after the garment is tacked together (Shailong an Igbo 2009).

Agbo and Nasara (2015) stated that, there should be general observarion of the shape of adolescents before taking body measurements in order to note any variations from normal, such as unusually sloping or square shoulders and note the posture of adolescents, whether normal, erect or stooping. Authors further noted that the side view as well as the front and back views should be checked as these give a better indication of the posture and proportion (Keith 2011). It is necessary to carry out the measurement process

carefully and pay attention to details. For instance, it is not easy to define the exact location of the waist line of obess adolescents, before starting to take measurement, tie a piece of string around the waist so that accurate measurement may be taken from the tape. This is very necessary especially at the back. Measurements may be taken over a close fitting dress or under garment. There should be no ease added when measuring as this is allowed later when drafting the pattern (Jeanette 2012).

Michael (2012) stated that bust measurement is usually taken first as it gives an indication of the measurements to expect if the adolescents is in good proportion. The author noted that the tape should be slightly raised at the back to cover shoulder blades. If the tape is allowed to slip down, the measurement may be too small by 2.5cm to 5.0cm. Measurements should be rounded to a whole number for beginners as this is easier to work with during drafting of patterns (Rodwell 2010).

In Benue State, socio-cultural activities have increased the need for adolescent clothing. There are also increased demands for school uniforms and sport wear. In order to meet these demands, there is need to provide patterns that will facilitate the production of clothes for adolescents. This calls for research on the

establishment of average body measurement of adolescents in the state. The measurements provided the necessary data required to produce size charts for small, medium and large categories of adolescents. The size charts could be used for production of garments for different categories of adolescents.

Objectives of the study

The main objective of this study was to establish the average body measurement of male adolescents in Benue State, Nigeria. Specifically, the study:

1. identified body characteristics of adolescents.
2. Took the body measurements of adolescents
3. Categorized adolescents based on their sizes into small, medium and large categories.
4. established average body measurements of the adolescents.

Methodology

The Design of the Study: The survey research design was used for the study. Survey was used to establish the body measurements of the adolescents in the selected government approved schools.

Area of the Study: The study was carried out in Makurdi Benue State, Nigeria. Benue State lies between longitudes 6-10° East and latitudes 6-8° North. There are three tribes Tiv,

Idoma and Igede. The town has River Benue, market, and international market. The state has three universities, university of Agriculture, state university and university of Mkar, Gboko.

Population for the Study: This comprise all male adolescents in government approved secondary schools in Benue State. The total target population was 844.

Sample for the Study: Random sampling was used to select educational zones in Makurdi, Otukpo and Gboko. This was done in form of balloting with a total of 73 secondary schools. Proportionate random sampling was used to select 300 male adolescents in the study. Sampling was done based on male adolescent ratio to the population in each school.

Instrument for Data Collection: Questionnaire was used for determining body characteristics of adolescents. Body measurement chart (BMC) was developed based on review of literature on the essential body measurements. Body measurement chart (BMC) was validated and used in recording data obtained from areas of body measurement.

Data Collection: The researcher and two trained research assistants took the body measurement. The measurement guide was used to train the assistants on how to identify the points of the body where measurements could be

taken and how to take each measurement.

Data Analysis: Different methods were adopted for data analysis based on the type of instrument used for study. Body characteristics were analyzed

using frequency and percentages while body measurement were analyzed using means and standard deviations.

Results

Table 1: Perception of respondents on Body characteristics of adolescents

S/N	Body characteristics	Frequency	Percentage %
1	Adolescents of average body build, neither tall nor short	33	11
2	Adolescents with bow legs or k-legs	12	4
3	Short and thin adolescents	27	9
4	Short and stout adolescents	21	7
5	Adolescents with large shoulder and chest	30	10
6	Adolescents with short legs or very long legs	14	4.7
7	Adolescents with short neck or with long neck	46	15.3
8	Adolescents that are lean or slim	53	17.7
9	Adolescents with more muscle body physique	33	11
10	Adolescents with robust body physique	31	10.3
	Total	300	100

Table 1 reveals that majority of adolescents are lean and slim which has the highest frequency (53) of body characteristics representing 17.7% of the respondents. This was followed by

adolescents who had short necks and long neck with frequency of 46(15.3%). Adolescents with bow leg or k-legs had the lowest frequency of 12 representing 4%.

Table 2: Categories of adolescents body measurement based on small, medium and large (Height 130 - 150cm).

Body measurement	Small	Medium	Large
Neck	31.7	35.3	37.0
Chest	79.8	86.9	91.2
Scye depth	19.6	22.5	24.4
Natural waist	39.9	44.9	46.8
Half back	15.8	18.2	20.3
Length	64.6	69.5	79.8
Arm circumference	33.8	36.1	38.9

Wrist	18.9	21.2	22.3
Under arm	42.1	45.1	48.1
Hip/seat	71	92	81.9
Waist	56	76	77.4
Body rise/crotch	17	22	28.7
Inside leg	58	81	72.3
Ankle	32	40	43.4
Knee length	38	56	66.2
Full length	76	102	105.1
Thigh	41	58	60.7

Table 2 reveals that the widest distribution values of body categories among the three size groups of adolescent males are found on the chest width, hip, natural waist and length. The least range from the Table is the wrist measurement which had a minimum of 18.9cm to maximum of 22.3cm.

Table 3: Average body measurement of adolescents

Measurements	Minimum		Maximum		Mean		SD
	Inches	Cm	Inches	Cm	Inches	Cm	
Chest	26	66	33	78	30	72	±3.78
Waist	23	58	25	64	24	61	±4.8
Neck size	11	28	12	31	10	26	+0.7
Half back	13	33	15	39	11	29	±3.6
Length	19	48	23	59	20	51	±1.2
Over-arm	16	41	19	49	18	46	±4.7
Under arm	11	28	14	36	15	39	±10
Arm circumference	9	23	11	28	10	26	±0.9
Wrist circumference	6	15	8	21	7	18	±4
Waist	20	51	23	59	22	56	±3.74
Hip/seat	26	67	28	72	27	69	±4.4
Ankle	12	31	14	36	14	36	±1.8
Crotch	5	13	7	18	6	15	±1.5
Inside leg seam	20	51	24	61	22	56	+4.8
Thigh	14	34	16	41	15	38	+1.6
Length	21	54	25	64	23	59	±5

Table 3 shows the average body measurements required for sizes of male adolescents. The table revealed the analysis of maximum and minimum measurements and the standard deviations which indicates the range for alterations to achieve good values.

Discussion of Results

The findings on the body characteristics of adolescents revealed that adolescents with slim or thin bodies had the highest rating by the respondents representing 17.7%. This was followed by adolescents with bow legs or k-legs. The bow or k-leg was prominent in adolescents because they have not attained final growth. This findings is in agreement with Aldrich (2006), that the average boy starts growth at the age of thirteen and grows rapidly until the age of fifteen, then more slowly until he is seventeen. The finding suggests that at this growth spurt, adolescents become thinner but gain more muscle.

The body build of adolescents which include tall and short in table 1, shows that the ethnic groups studies have notable variations in body dimensions, as noted by (Nwabah, Iginaduwa, Chigbu 2015). Comparing the different characteristics of adolescents, showed similar dimension relative to short neck and robust body physique. Adolescents with large shoulder and chest also has more

muscle physique. This finding was in agreement with the findings of (Davis 2011).

Table 2, shows that the widest distribution values of body characteristics of adolescents in sizes of small, medium and large is chest hip and leg length. The value of chest measurement was the highest with small size adolescent having 79.8cm, medium 86.9cm and large 91.2cm. The result of the finding conforms to Keith (2011) which stated that chest measurement should be taken first because it gives an indication of the expected measurements in relation to other body proportion of adolescents. Hip measurement was the second highest value and it is called the seat. Myoungok and Injoo (2014) documented that when the hip measurement is large in relation to the bust and waist, note the position of the excess, either at the back, called large seat or at the side, called prominent hip.

Table 3 revealed that the widest distribution values of body categories among the three size groups of adolescent males are found on the chest width, hip, natural waist and leg length. The range for chest measurement had a range 79.8 to 91.2cm. The least range is the wrist which had a minimum of 18.9cm to 22.3cm. The finding was in support of Nwakwasi (2013), that measurements

in value of ranges can be used to upgrade or down grade styles during pattern alteration.

Conclusion

In the objective one, it was found out that adolescents with slim or thin body characteristics were the highest. This signifies that the adolescents have not yet attained final growth. Body proportions of individuals are not static as a result of changes in shape and development. The shape of human beings vary from one geographical location to another. The body type also vary among different ethnic groups and race. Constant field studies on body measurement is necessary as it enables the dress makers to construct garments that fit individual based on current fashion trend.

The clothing for children is different from teenagers, adolescents and adults. From the findings. The areas of body categories of adolescents that have high range of body measurements include chest, hip, natural waist and leg length. The older the adolescents, the more matured body because of muscle development. Garments tends to fit a more developed body shapes that the less developed. Good fitted garments depends on the accurate body measurement by individual, professional pattern drafting and good tailoring techniques.

Recommendation

The following recommendation were proffered based on the findings of the study:

- i. The established mean body measurements should be used by students of fashion design, clothing and textile to help them in pattern drafting and alteration courses.
- ii. Experienced tailors can use the size categories for pattern grading system.

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