

# ABSTRACT

This study examined the relationship between height and heart beat of male and female students in Delta State University, Abraka. The objective seeks to find out the relationship between height against the heart beat of male and female students. Calibrated stadiometer and Pulse Auximeter was used to obtain the height and heart beat measurement of randomly selected 90 volunteers made up of 45 male and 45 female students. Total height of the individuals were measured in centimeters while pulse rate were obtained based on the number of times of beat of the heart. Statistical analyzing were conducted using mean, student t-test and Spearman rank. Results obtained from this study revealed that there is significant difference between Height of male and female students, there is a significant difference between heartbeat of male and female students, the spearman correlation showed that there is a relationship between the Height and heartbeat of male student ( $r = 0.026$ ), the spearman correlation showed that there is a relationship between the Height and heartbeat of female student ( $r=0.134$ ) and also the result further showed significant relationship between height and heartbeat for male student.

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background to the Study

Variations in the values of the measurement of the size and proportions as well as the normal functioning of the human body parameters are often considered as sign of good health. Variations such as; heart rate, respiratory rate, peripheral blood flow, systolic blood pressure (SBP), diastolic blood pressure (DBP), and so on vary from one individual to the other as result of control of function by autonomous nervous system. Changes in physiological function occur during adolescent spurt. For many years the relationship that exists between different parts of the body and height has been of great interest to anthropologist and physicians (Ozaslan *et al.*, 2003; Fessler, 2005).

Human height or stature is the distance from the bottom of the feet to the top of the head in a human body standing erect. It is measured using a stadiometer usually in centimetres when using the metric system or feet and inches when using the imperial system (Carter, 2008). Growth has long been recognized as a measure of the health of individuals, hence part of the reasoning for the use of growth charts. For individuals, as indicators of health problems, growth trends are tracked for significant deviations and growth is also monitored for significant deficiency from genetic expectations. Genetics is a major factor in determining the height of individuals, though it is far less influential in regard to differences among populations.

According to Mohanty *et al.* (2012) height is a fundamental unit used in assessing an individual's growth and nutrition as well as calculating their body surface. It constitutes an essential element in the description of the human population. Average difference height is relevant to the measurement of the health and wellness (standard of living and quality of life) of populations (Bolton-Smith, 2000; Ali *et al.*, 2000; Mohanty *et al.*, 2001).

In every human, the heart rate reflects the speed of the heartbeat measured by the number of contractions of the heart per unit of time that is, beats per minutes (BPM). This heart rate can vary considerably depending on the body's physical needs, including the need to absorb oxygen and excrete carbon dioxide.

Activities that can provoke change include; physical activities, sleep, anxiety, stress, illness, ingesting, and drugs. Marked changes in heart rate (HR) reaction occur during physical exercise and during physical training interventions among different sex of individuals. The changes in HR are primarily due to alterations in autonomic tone: parasympathetic tone slows down the HR, and sympathetic stimulation increases it (Tapanainen *et al.* 2002).

The regular practice of physical exercises is an important factor to reduce morbidity and mortality rates of cardiovascular function and all other conditions (Myers *et al.*, 2002). However, there also seems to have further and independent benefits from the practice of physical exercises and improvement of the aerobic condition as noted by Williams, (2001). According to Jokinen *et al.* (2003) the measurement of heart rate reaction has become a widely used tool for assessing the cardiovascular autonomic function in various physiological settings. This is because, regular physical activity programme and good physical fitness are widely accepted as factors that improve a number of health outcomes and reduce all-cause mortality (Laukkanen *et al.* 2001).

Body height and heart rate of an individual are important variables in the determination of the health condition of an individual. Certain studies have shown that height is a factor in overall health while some suggest tallness is associated with better cardiovascular health and shortness with longevity (Samaras and Elrick 2002). There are, however, various diseases and disorders that cause growth abnormalities.

Gender has been reported to influence autonomic nervous functions in relation to heart rate reaction in physical activity. In cross-sectional studies, women have been reported to show higher vagal modulation of heart rate reaction as compared with men (Ryan *et al.* 1994). Several mechanisms or reasons may explain the controversial results or sex differences in heart rate reaction after aerobic training. This could result from a complex combination of biochemical, structural, metabolic, humoral and neural factors (Furlan *et al.* 1993). The measurement of human height and heart rate across various sex groups has often been used as major component for estimating growth and has proven to be important strategy in assessing antecedents of diseases such as; risks of overweight/obesity, diabetes, hypertension, low bone density, CHD, as well as other human pathologies that could result in morbidity and death. Hence, this study seeks to examine the sex difference in heart rate reaction to a specified training programme.

## 1.2 Statement of the Problem

Data on the relationship between human height and heart beat in Abrakato be non-available to this study environment. Therefore, there is need to conduct a research of this kind so as to provide certain anthropometric information on variations in heights and heartbeats of male and female students in the study area.

## 1.3 Purpose of the Study

The main purpose of this study is to examine the relationship between height and heart beat of male and female students. Specifically, the study seeks;

- to find out if there is any significant relationship between the average heights of male and female students in DELSU

- to find out if there is any significant relationship between the average heart beat of male and female students in DELSU

- to determine the relationship between height and heart beat of male students in DELSU

- to determine the relationship between height and heart beat of female students in DELSU

## 1.4 Significance of the Study

The obesity incidence has increased in developed, developing and under development countries and such fact cannot be only attributed to genetic factors since the human genes have not modified lately. Habitual physical activities among humans are complex characteristics which are determined by the interaction of biological and psychosocial factors as well as the physical environment. Among the younger population, physical activity plays an important role in normal growth, maturation and development. In fact, physical activity is a central concept in ensuring physical fitness towards eliminating various risks of type II diabetes, hypertension and other chronic diseases in progressively younger individuals including children and adolescents of various sex groups. Hence, this study will be useful in educating students, educators, athletes, parents, government and the society at large on the benefit of regular exercise in enhancing heart rate reaction and reducing the risk of chronic metabolic and cardio respiratory diseases as regular physical activity for long periods may protect the body against the development of chronic diseases.

## 1.5 Scope of the Study

The study is delimited in Scope to Abraka and its environment in Ethiopia East Local Government Area of Delta State. The variables considered were; height and heart beats as they relate to male and female students. A target sample size of 150 subjects was measured and data obtained was statistically analyzed using chi-square technique.

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