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BODY MASS INDEX + DYSMENORRHEA

Among Adolescent Female Undergraduate Students In Nigeria

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Full Length Research

Body Mass Index and dysmenorrhea among adolescent female undergraduate students in Nigeria

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Dysmenorrhoea is a common problem among adolescent females with serious impacts on their quality of life and future health status. The present crave for bodily fashion among adolescent females also have impacts on the body size index which scholars have often correlated with menstrual disorders including dysmenorrhoea. This present study investigated the relationship between body mass index and dysmenorrhoea as well as the strength and direction of their relationship. To achieve these objectives, a total of 421 adolescent female undergraduate students of Enugu campus of the University of Nigeria were purposively sampled to participate in the study following informed consent. Data were collected using a structured questionnaire, Numeric Pain Rating Scale (NRS) and Quality of Life (QOL) rating scale, etc. Data collected were collated and analyzed with frequency distribution and Pearson correlation tests and presented in figure and table respectively. Findings of the study generally reveal that there exist a non-significant relationship between body mass index and dysmenorrhoea at different strengths and directions. Recommendations on the basis of these findings include curriculum innovation, behavior change communication, counseling,.

Key words: Body Mass Index, dysmenorrhoea, adolescent females, body mass index

INTRODUCTION

Body mass index (BMI) or quetelet index is a statistical measure which compares a person's height and weight. BMI is defined as the individual's bodyweight divided by the square of his height. Studies have highlighted the relationship between BMI and several health reproductive characteristics. Wang (2002) argues that Body Mass Index (BMI) is related to an earlier onset of puberty and menarche. He posits that age of menarche tends to be lower in obese and higher in underweight compared to girls with normal weight which may have implications for subsequent reproductive problems. BMI is the most widely used diagnostic tool to identify obesity problems within a population.

The period of adolescence is transition from childhood to adult life characterized by pubertal development and sexual maturation. During puberty, hormonal, psychological, cognitive and physical changes occur simultaneously. The period of adolescence for a girl is a period of physical and psychological transformation for motherhood. One of the major physiological changes that take place in adolescent girls is the onset of menarche. Within this course, many girls suffer problems of irregular

menstruation, excessive bleeding, and dysmenorrhea. Of these, dysmenorrhea is one of the common problems experienced by most of the adolescent girls commonly defined as a painful or cramping sensation in the lower abdomen often accompanied by other biological symptoms, including fatigue, dizziness, sweating, headache, backache, nausea, vomiting, diarrhoea, all occurring just before or during the menses.

There are 2 types of dysmenorrhea: Primary dysmenorrhea refers to pain with no obvious pathological pelvic disease and almost always first occurs in women 20 years or younger after their ovulatory cycles become established. Secondary dysmenorrhea is caused by underlying pelvic conditions or pathology and is more common in women older than 20 years. Dysmenorrhea is considered the most common symptom of all menstrual complaints and poses a greater burden of disease than any other gynecological complaint in developing countries. Among women of reproductive age worldwide, dysmenorrhea is more prevalent than the other 2 common types of chronic pelvic pain, namely, dyspareunia and noncyclical chronic pelvic pain. Being a

debilitating condition for many women, it has a major impact on health-related quality of life, work productivity, and health-care utilization. As a result, dysmenorrhea is responsible for considerable economic losses due to the costs of medications, medical care, and decreased productivity (Impey and Child, 2012). It is in this light that the National health policy (2002) describes the adolescent as an underserved vulnerable group that needs to be addressed especially by the provision of information on reproductive health.

Statement of the Research Problem

Menstrual disorders represent a major health problem among adolescent girls because they influence not only future fertility, but also mental health and quality of life. Dysmenorrhea, defined as painful uterine cramps that precede and accompany menses is a common menstrual disorder experienced by adolescents. The etiology of primary dysmenorrhea includes an excess or imbalance in the amount of prostaglandin secretion from the endometrium during menstruation. The common symptoms of dysmenorrhoea including pain, adversely affects daily quality of life and performances for future adult life. In fact, dysmenorrhea is the leading cause of recurrent short-term school absenteeism among female adolescents (Mohammed, 2012).

Dysmenorrhoea is a painful or cramping sensation in the lower abdomen often accompanied by other biological symptoms, including fatigue, dizziness, sweating, headache, backache, nausea, vomiting, diarrhoea, all occurring just before or during the menses. It is well known that Body mass Index correlates with different health risks, including gynecological-endocrine problems such as hyperinsulinemia, insulin resistance, hyperandrogenism, anovulation, polycystic ovary syndrome (PCOS), and infertility and in case of achieving pregnancy- following obstetric risks (Speroff, Mark and Fritz (2005). Unfortunately, the adolescent female market is bedeviled by double attractions of artificial weight gain and or loss as a modern physiological fashion..

Objectives of the Study

- 1.To investigate the correlation between BMI and dysmenorrhea
- 2.To examine the strength of the relationship between BMI and dysmenorrhea among adolescent female undergraduate students
- 3.To find out the direction of the relationship between BMI and dysmenorrhea among adolescent female undergraduate students

MATERIALS AND METHODS

Assessment and Tools

Menorrhagia and Quality of Life (QOL)

A modified scale on gradation of pain, that is, Numeric Pain Rating Scale (NRS) and QOL based on the

American Chronic Pain Association (ACPA) was used to measure pain of dysmenorrhoea and QOL.

- 1.Semi-structured self-administered questionnaire.
- 2.Numeric Pain Rating Scale (NRS) and Quality of Life (QOL) rating scale.
- 3.Stand meter (England).
- 4.Measuring tape (Non stretchable).

Anthropometric Indices

The following indices were computed:

Body mass index (Quetelet's index): It gives the ratio of body weight (W) to height (H) squared ($BMI=W/H^2$). It is often used to assess obesity and under nutrition. The subjects were divided into three groups according to the old definition of obesity by Nippon Himan Gakkai (Hirata et al, 2002). Underweight group ($BMI < 19.8$), normal group ($BMI > 19.8$ or < 24.2) and overweight group ($BMI \geq 24.2$).

Waist Hip Ratio: Waist-hip ratio or waist-to-hip ratio (WHR) is the ratio of the circumference of the waist to that of the hips. This was calculated as waist measurement divided by hip measurement (W/H).

Research Design

The study is descriptive and cross-sectional survey aimed at investigating menstrual disorders among adolescent female undergraduate students and its impacts on their academic performance.

Study Area

The research was carried out in University of Nigeria, Enugu campus. The University is located in the eastern part of Nigeria. The study area covers the following faculties in the University: Faculty of Medical Sciences, Health Sciences and Technology and Management Sciences. The subjects were all second year students (2013/14 academic session) of the following department: Medicine & Surgery, Nursing Sciences, Radiography, Medical Laboratory Science, Medical Rehabilitation, Accounting and Business Administration.

Study Population

Four hundred and twenty one (421) post-menarcheal female undergraduates (200 Level) volunteers of the Faculties of Medical Sciences (UNEC) Health Sciences & Technology and Management Sciences (UNEC) were recruited for this study.

Inclusion Requirements

Post menarcheal 200 level students of Faculties of Medical, Health Sciences & Technology and Management Sciences.

Students with menarcheal age of two years and above.

Exclusion Requirement

Students who are mothers

Students with clinically established pelvic inflammatory

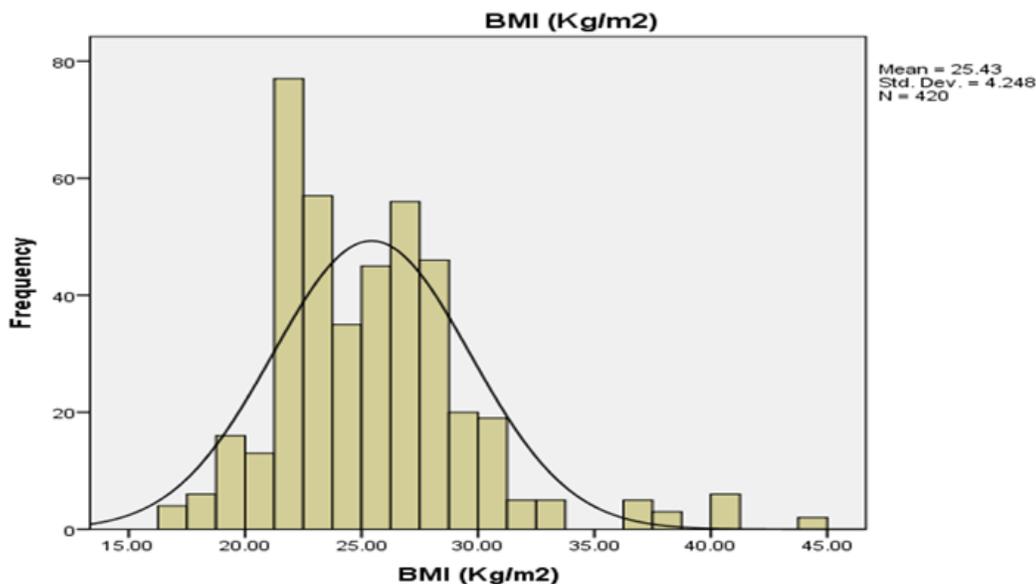


Figure 1: Frequency Distribution of BMI (kg/m²).

disease.

Ethical Consideration

Ethical Clearance and permission was obtained from the Health Research Ethics Committee.

The purpose of the study was explained to all the participants and informed consent was obtained from all the willing subjects.

Presentation and Analysis of Data

The data was analyzed using descriptive and inferential statistics through the application of SPSS version 20. While histogram was used to analyze the various anthropometric indices used in the study, Pearson's correlation coefficient was used to evaluate relationship between body size indicators (BSI) and dysmenorrhoea.

Guide on coefficient (r) according to Khan, (1989).

0.0-.20 = Negligible relationship

0.20-.40 = Low

0.40-.60 = Moderate

0.60 - .80 = Substantial

0.80-1.00 = High- very high.

Direction :

-1.00 = Negative relationship

+ 1.00 = positive relationship

0 = No relationship

Figure 1 shows histogram of the frequency distribution and the mean of BMI (kg/m²). BMI ranges from 17.36 to 44.9 with a mean BMI of 25.43 and the modal BMI of 28.40. This figure therefore reveals that the average BMI of the study group is higher than normal.

Appendix 1 shows the correlations between BSI and dysmenorrhoea. In general terms, the correlation of the total indices of BSI used in the study with dysmenorrhoea

reveals a pearson r. value of -033. In specific terms, the correlation between dysmenorrhoea and height reveals a correlation value of -004 while correlation with weight reveals a value of 0.20. in the same manner, correlation between dysmenorrhoea and waist circumference (WC) reveals a pearson value of .041 while that of hip circumference reveals a value of 0.14.

DISCUSSION OF FINDINGS

Finding from the study reveals that the average BSI value of the study group is higher than normal. This is a living testimony to lifestyles that are oriented toward increase in body mass among adolescent undergraduate students. There is a deliberate and rising tide of the use dieting and sedentary lifestyle as model for gaining or checking weight for the purpose of physiological fashion. Unfortunately, studies have revealed a relationship between BSI and gynecological challenges including dysmenorrhoea. However, finding on the relationship between Body Size Index and dysmenorrhoea reveals an r. value of -33 denoting the strength of their relationship is a low one. This explains that there is no significant relationship between body size index and dysmenorrhoea among adolescent female undergraduate students in Naigeria. This finding is contrary to Mohammed (2012) who reports the existence of a significant relationship between body size index and dysmenorrhoea.

In another dimension, the relationship index of -033 between BSI and dysmenorrhoea is indicative of a negative relationship. This explains that the higher the BSI, the lower the incidence of dysmenorrhoea and the lower the BSI, the higher the incidence of dysmenorrhoea. This therefore implicates artificial models for weight loss as an attraction for dysmenorrhoea among adolescent female undergraduate

students in Nigeria.

This study has revealed that the relationship between height and dysmenorrhoea has a correlation value of -0.004 . This is indicative of a highly negligible relationship.

However negligible, it also suggests a negative relationship meaning that the higher the height the lower the incidence of dysmenorrhoea and the lower the height the higher the incidence of dysmenorrhoea among adolescent female undergraduate students in Nigeria. In a similar trend, the study finding shows that the relationship between weight and dysmenorrhoea has an r . value of 0.20 . This is also indicative of a weak relationship; however, the relationship is a positive one suggesting that the higher the weight, the higher the incidence of dysmenorrhoea and the lower the weight, the lower the incidence of dysmenorrhoea. This finding is in harmony with other studies which report the relationship between obese adolescents and menstrual disorders including dysmenorrhoea.

Finding on waist circumference also reveals a correlation index of $.041$ portraying a low to moderate relationship. It therefore suggests a non significant relationship; however, the direction of their relationship is a positive one. Therefore; this study reveals that the higher the waist circumference, the higher the incidence of dysmenorrhoea and the lower the waist circumference; the lower the incidence of dysmenorrhoea among female undergraduate students in Nigeria.

Finally, study finding on the relationship between hip circumference and dysmenorrhoea reveals a correlation index of $.014$. This finding is an evidence of a negligible but positive relationship. Hence, there is no significant relationship between hip circumference and dysmenorrhoea among adolescent female undergraduate students in Nigeria. The finding also reveals that despite the negligible status of their relationship, they tend to move on a positive direction. Hence, adolescent females with higher hip circumference are more correlated with dysmenorrhoea than their counterparts with lower hip circumference.

CONCLUSION

This study is an exploration of the relationship between body size index and dysmenorrhoea in the contexts of strength and direction among adolescent female undergraduate students in Nigeria. Findings of the study reveal a low relationship between BSI and dysmenorrhoea and a negligible to low relationship between dysmenorrhoea and all indices of BSI used in the work. This study therefore reveals a non significant relationship between BSI and dysmenorrhoea including all its indices explored in this work. However, the direction of their relationships as found in this study attracts policy recommendations.

Recommendations

The study therefore recommends the adoption of lifestyle

education in to the curriculum of university students specially directed towards orienting female students towards positive lifestyles in the contexts of present and future reproductive health and well-being. Also behavior change communication strategies in the context of adolescent menstrual health should be adopted by government and non-governmental organizations towards addressing current trend of artificial physiological fashion. Counseling and health services should be made available and accessible to all adolescent female undergraduate students in Nigerian universities.

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