*Asian Journal of Advanced Research and Reports*

***Volume 18, Issue 7, Page 67-82, 2024; Article no.AJARR.118442***
***ISSN: 2582-3248***

# Association between Physical Activity Levels and Perceived Barriers among Overweight and Obese Adults at Lagos University Teaching Hospital

**Samuel Sogo, Adeyemi [a*]**

[a] *Lagos University Teaching Hospital (LUTH), Nigeria.*

***Author's contribution***

*The sole author designed, analyzed, interpreted and prepared the manuscript.*

***Article Information***

DOI: https://doi.org/10.9734/ajarr/2024/v18i7686

**Open Peer Review History:**
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/118442

***Original Research Article***

***Received: 02/04/2024***
***Accepted: 06/06/2024***
***Published: 10/06/2024***

## ABSTRACT

**Background:** Physical inactivity is a major global health issue and a major risk factor for death, accounting for over 3.2 million deaths annually. Obesity is linked to low levels of physical activity and runs a vicious cycle with physical inactivity**.**
**Research Aim:** The study examined the association between level of physical activity and perceived barriers to physical activity among Overweight and Obese adults attending General Out-Patient Clinic (GOPC), Lagos University Teaching Hospital (LUTH).
**Research Methods:** The study included Overweight and Obese adults aged 18-64 years attending the GOPC who gave consent to participate in the study. Based on their BMI, participants were classified as overweight (25.0-29.9 kg/m2) and obese (≥ 30 kg/m2). The sample size for the study was a total of 285 Overweight and Obese adults attending general (GOPC), (LUTH). The sample was recruited through systematic random sampling. Data was collected by means of a pre-tested,

**Corresponding author: Email: adeyemisamuelsogo@gmail.com;*

***Cite as:*** *Adeyemi, Samuel Sogo,. 2024. "Association Between Physical Activity Levels and Perceived Barriers Among Overweight and Obese Adults at Lagos University Teaching Hospital". Asian Journal of Advanced Research and Reports 18 (7):67-82. https://doi.org/10.9734/ajarr/2024/v18i7686.*

semi-structured questionnaire. Data was analysed using Chi-square and Fischer exact test to assess the association between categorical variables. Multiple binary logistic regression was used to determine the independent predictors of low physical activity and high level of barriers to physical activity among the respondents.

**Results:** The study discovered that there is an association between physical activity levels and the levels of perceived barriers to physical activity among the respondents. Also, high levels of perceived barriers to physical activity significantly and independently predicted physical inactivity among the Overweight and Obese adults in this study. This suggests that obese people perceive more barriers to physical activity than others due to their lower levels of physical activity. The study recommended that awareness should be created by health organisations, Non-Governmental Organisations and health professionals on the relevance of active participation in physical activity especially among Overweight and Obese adults.

*Keywords: Physical activity; perceived barriers; overweight and obese adults.*

## 1. INTRODUCTION

Physical inactivity is becoming more and more of an epidemic that has to be addressed, along with its contributing factors such perceived barriers [1]. Adequate physical exercise not only aids in weight loss and maintenance but also lowers the risk of comorbidities like osteoarthritis, diabetes mellitus, hypertension, coronary artery disease, and malignancies linked to obesity and overweight [2]. According to Tremmel [3], obesity is linked to low levels of physical activity and creates a vicious cycle with inactivity. The World Health Organization (WHO) states that physical inactivity is a major global health issue and a major risk factor for death, accounting for over 3.2 million deaths annually. The World Health Organization [4] recommended physical activity levels for health worldwide are only met by 1 in 4 persons. By 2025, the World Health Organization and its member states aim to reduce the percentage of people who do not get enough physical activity by 10%. Physical inactivity is thought to be the primary cause of roughly 21-25% of the burden of breast and colon cancer, 27% of diabetes cases, and roughly 30% of cases of ischemic heart disease [5]. According to McIntosh [6], perceived obstacles to physical activity are those that keep people from engaging in enough physical activity for their health. Internal hurdles like being overweight, unfit, having health issues, getting hurt, or not enjoying life are some examples of these barriers. Lack of drive and outside obstacles such time constraints, information gaps, inclement weather, and conflicting expectations [2,6]. Those who are overweight or obese engage in less physical activity than the average population. Reduced levels of physical exercise and increased body weight are closely related [7]. According to Adaja [8], obesity raises the risk of a sedentary lifestyle, which is further exacerbated by perceived obstacles to physical activity such as a lack of time, social pressure, energy, motivation, fear of injury, lack of skills, lack of resources, weather, travel, family responsibilities, and retirement years. Overweight and Obese people perceive higher hurdles to physical activity than those of normal weight do. Perceived internal and external impediments to physical exercise are inversely correlated with levels of physical activity; thus, Concerning the possibility of decreased levels of physical activity, Overweight and Obese people are a category that needs to be taken very seriously [9]. Physical activity levels are significantly influenced by perceptions of impediments to physical activity, and there is an inverse relationship between these two variables [9]. The two most often mentioned obstacles to physical activity are lack of time and lack of motivation [7]. To design effective intervention programs, it is necessary to investigate Overweight and Obese adults' perceived barriers to physical activity and their levels of physical activity. In order to suggest effective interventions acceptable for primary care physicians, this study aims to evaluate the levels of physical activity and its main predictor (perceived barriers) in Overweight and Obese patients. The study will provide answer to the research question: is there an association between the levels of physical activity and the perceived barriers among Overweight and Obese patients attending the GOPC, LUTH? In order to provide answer to the research question, the stated null hypothesis will be tested: There is no significant association between the levels of physical activity and perceived barriers among Overweight and Obese patients attending the GOPC, LUTH.

**Physical Activity:** The World Health Organization (WHO) states that persons who

want to be physically active should engage in moderate-intensity exercise for 150 minutes or vigorous-intensity exercise for 75 minutes each week [10]. 600 metabolic equivalent (MET)-minutes are the equivalent of this recommendation. Numerous advantages of physical activity for personal health and wellbeing include lowered risk of non-communicable diseases, enhanced mental and physical wellbeing, better sleep, and enhanced cognitive performance [11]. Moreover, physical activity contributes significantly to the 2030 Sustainable Development Goals and has wider social and environmental advantages [12].

### 1.1 Perceived Barriers to Physical Activity

Features that a person perceives as preventing them from engaging in physical exercise are known as perceived barriers to physical activity [13]. In addition to being obstacles to physical activity, being overweight or obese is often accompanied by co-morbidities that may further restrict physical activity [14]. They fall into two categories: external and internal barriers. According to Herazo‐Beltran [9], external barriers are related to the environment, such as infrastructure, and internal barriers are related to personal characteristics, such as attitudes and preferences. Physical obstacles can include being overweight, being unfit, or having an injury. Inadequate physical fitness has also been found to be a barrier to getting enough exercise since it causes Overweight and Obese adults to tire out quickly when exercising. Physical activity barriers might also arise from health issues or injuries [6]. Adults who are overweight or obese have been observed to experience difficulties to physical activity due to co-occurring osteoarthritis and migraines. Obese people frequently sustain injuries when exercising, which may deter them from doing so [6].

### 1.2 Obesity and Overweight

Binsaeed [15] noted that Body Mass Index (BMI) of 30 or higher and 25 or higher, respectively, indicate excessive fat accumulations that are health-risky in obesity and overweight. According to the Centers for Disease Control [16], obesity is the word used to describe the excessive range of weight for a person of a certain height that is linked to negative health impacts. Adult definitions of overweight and obesity are predicated on predetermined thresholds that are closely linked to a person's body mass index (BMI, which is calculated by dividing weight in kilograms by height in meters squared). The World Health Organization (WHO) defines overweight as having a body mass index (BMI) of ≥25 kg/m2, while obesity is defined as having a BMI of ≥30 kg/m2 [10]. This definition requires a significant level of body fat to be correlated with a high degree of body weight. The BMI is useful in identifying mortality risk since it has a good correlation with total body adiposity, one of the gold standard body measurements. Lean and fat mass cannot be distinguished by it, but [17,18]. Additionally, anthropometric measures including the Waist-Hip Ratio (WHR) and WC have been identified as indicators of adult obesity [18]. Skinfold thickness, waist-to-thigh ratio, and waist-to-height ratio (WHtR) are further anthropometric metrics. These other metrics are more challenging to understand and haven't proven to be any more accurate in predicting the risk of obesity-related diseases than BMI, WC, and WHR [17,18].

### 1.3 Causes of Obesity and Overweight

According to Chukwuonye [19], there are three levels of obesity determinants in the theoretical framework for adult obesity: individual variables (genetic, ethnicity, socioeconomic, etc.), environmental factors, and lifestyle/behavioral/social factors. Individuals' development of obesity is impacted by changes in the risk variables at these several systemic levels [20]. According to reports, there are a number of risk factors for obesity in Nigeria, including age, gender, living in an urban area, being less physically active, having a high income, gender, and diet [21,22]. Increased intake of meals high in energy, high in fast food with high levels of refined sugar and saturated fats, as well as sedentary lifestyles, are acknowledged as contributing factors to Nigeria's rising obesity epidemic [23]. There are several other factors that contribute to being overweight or obese, such as physical activity and diet; genetic factors, such as parental obesity; underlying medical conditions and medication use; and demographic factors, such as age, gender, place of residence, income, and educational attainment [24]. These days, consuming foods high in fat, sugar, and frequently large portions leads to overeating; this, along with sedentary behavior, watching television, and reducing physical exercise, contributes to the global rise in obesity [25].

## 1.4 Global Prevalence/Trend in Obesity

Over the past few decades, there has been a steady increase in the incidence of obesity, which has become a global public health concern with important implications for healthcare systems and human well-being [26]. In the United States alone, the prevalence of obesity was 38% in 2016 and is predicted to rise to 51% by 2030, with the prevalence of overweight people reaching 64.2% [26,27]. According to reports, 39% of individuals worldwide were overweight or obese in 2016, and that number is projected to increase to 58% by 2030 [28]. Between 1975 and 2016, the WHO European Region had a steady rise in the prevalence of overweight and obesity [29]. Nearly one in three school-age children (29% of boys and 27% of girls) and nearly 60% of adults (63% of males and 54% of females) in the European region suffered from overweight or obesity in 2016 [10]; NCD Risk Factor Collaboration, 2017). Changes in dietary habits have led to an increase in calorie overconsumption in Europe and around the world. Significantly, there has been a significant rise in the use of highly processed foods, which are frequently rich in energy and high in sugar, salt, saturated fats, and additives. even after accounting for general eating habits, there is a trend associated with weight increase and obesity [30,31]. The prevalence of obesity among adult Europeans has been found to be significantly correlated with the availability of ultra-processed meals in households [32]. Furthermore, diets heavy in ultra-processed food items are commonly consumed by young children in Europe [33]. Recent crises in Europe have also had an impact on food consumption; in certain countries, the COVID-19 pandemic, for instance, led to a spike in the consumption of unhealthy foods [34]. Dietary habits among the populace also reveal socioeconomic disparities. For instance, food consumption tends to be less healthful in lower SEP groups and healthier in higher SEP groups. Children who consume ultra-processed foods, such as sugary drinks, are more likely to live in households with multifaceted socioeconomic disadvantages in Europe [35,36]. Furthermore, in high- and middle-income European nations, children whose parents have poor educational attainment have been found to consume fewer fruits and vegetables [35].

## 1.5 Health Issues Related to Obesity

Comorbidities and mortality that impact different body areas are linked to obesity [37,38]. Central nervous system: Body dysmorphic disorder, depression, idiopathic intracranial hypertension, migraines, strokes, and low self-esteem [37,38]. Cardiovascular system: Dyslipidemia, phlebitis, venous stasis, hypertension, coronary heart disease, left ventricular hypertrophy, heart failure, and metabolic syndrome [37,38]. Asthma, pulmonary embolism, hypoventilation syndrome, and obstructive sleep apnea are among the respiratory system conditions [37,38]. Gastrointestinal system: Acute pancreatitis, gall stones illness, alcohol-free fatty liver, and gastroesophageal reflux disease [37,38]. Metabolic syndrome and type 2 diabetes are endocrine system disorders [38,37]. Urogenital system: Irregular menstruation, stress urine incontinence, early puberty, polycystic ovarian disease, and stillbirth [37,38]. Low back discomfort, pes planus, gout, and osteoarthritis are among the musculoskeletal conditions [37,38]. The dermatology subsystem includes stretch marks, cutaneous moniliasis, and intertrigo. Additional adverse effects related to overweight include cancers of the oesophagus, pancreas, colon, kidney, breast, uterus, ovary, as well as prostate; social stigma; hernias (diaphragmatic and abdominal); complications during and after surgery; decreased quality of life; and decreased access to care [37,38]. The primary factor contributing to a condition known as obstructive sleep is obesity, which narrows the respiratory tract lumen due to fat deposition in the respiratory tract lowers chest compliance as a result of decreased muscle activity, which can result in episodes of hypoxia and apnea [39].

The Health Belief Model (HBM) is one of the most well-known and reputable models of health behavior [40]. In 1950, public health specialists in the United States (US) developed the Health Belief Model (HBM), a psychological model aimed at modifying health-related behaviors. The model's goal was to encourage people to adopt healthier lives [41]. Six elements of the Health Belief Model (HBM) forecast or explain why people will take action to prevent, control, or test for a disease: considered vulnerability perceived urgency, perceived benefit, perceived barriers, cues to action, and self-efficacy [42]. People's actions toward preventing certain diseases are determined by their level of belief in their susceptibility to certain diseases and their understanding of the advantages of doing so. The severity of the illness in terms of its effects, the barriers that prevent people from getting sick, and the information available about how to treat and prevent the illness all work together to

influence the precautions that a person will take to stay healthy [43]. Regarding obesity, a lot of adults know how important it is to maintain physical fitness, that they are prone to obesity, and they know what steps to take to avoid being overweight or obese, but they let obstacles to overcoming obesity get in the way [44]. A person won't have a healthy weight until they take on the duty of making sure they engage in activities that aid in weight loss. Therefore, it takes awareness to persuade adults to adopt good weight-maintenance behaviors like exercise and dieting.

Shah [45] assessed patients undergoing bariatric surgery's perceived degree of physical activity as well as its enablers, barriers, and beliefs. Every study participant fell short of the suggested daily physical activity level. Environmental obstacles were determined to be least significant, while the physical, psychological, and interpersonal domains constituted the majority of barriers as perceived by survey participants. 72.92% of research participants were ignorant of the function of physical therapy before to bariatric surgery. In Singapore's adult population, Koh [13] investigated the frequency of perceived barriers to physical activity and their relationships to both physical activity and sedentary behavior. When respondents mentioned age, lack of time, or bad weather as obstacles, their level of leisure-related physical activity was greater; but, when safety concerns were raised, it was higher. Those who mentioned age, expense, or exhaustion as obstacles were less likely to engage in leisure-related physical activity, whereas those who mentioned the weather were more likely to do so. Sedentary behavior was inversely correlated with safety concerns and positively correlated with employment and restricted access to fitness centers. Physical inactivity prevalence was 72.6% according to a cross-sectional study by Samir [46] on perceived impediments to physical exercise among obese individuals in Malaysia. Of the obese individuals who were not active, 75%, >50%, 50%, and 25% said they lacked some skills. Lack of motivation or lack of support from spouse and children, the existence of any sickness, and the absence of support from other family members—apart from the husband and children—all serve as obstacles to physical activity. Other cited challenges in this study included lack of time, difficulty of access to/cost of facilities, and lack of a safe outside setting. Perceived barriers to physical activity in relation to body weight status among adult men in Malaysia were examined in another cross-sectional study conducted by Ibrahim [47]. The most common barrier was the belief that other recreational activities with family and friends are more enjoyable than exercise. The weather, a lack of self-control, and a shortage of spare time came next. Lack of friends, money, or both were experienced by over 25% of the participants. The least common impediments were perceptions that physical activity was harmful (5.5%) and feelings of shame (6.7%). Ibrahim [47] also discovered a positive correlation between perceived impediments to physical exercise and a higher BMI, marital status, low educational attainment, and inactivity. Rech [48] Studied interpersonal barriers (such as a poor body image, a lack of confidence in one's ability to engage in physical exercise, and others) that prevent overweight adults in Brazil from engaging in physical activity. Time constraints, financial constraints, and medical conditions were the most often mentioned obstacles. Environmental obstacles such as inclement weather, a lack of security, and a dearth of areas for physical exercise were also mentioned. The most common interpersonal barrier that people mentioned was a lack of social support, whereas the most common environmental barrier was a lack of safety from crime. According to a cross-sectional study by Awotidebe [49] on physical inactivity among women in Nigeria, individuals who scored highly on the Exercise Benefit and Barrier Scale (EBBS) barrier part were less likely to engage in physical exercise.

### 1.6 Literature Gap

While some authors [13,47] looked at perceived barriers to physical activities among adults, Awotibe [50] looked at levels of physical inactivity among women, Shah [45] looked at a general population. Only [46] [48] focused on obese adult. No study examined the association between level of physical activity and perceived barriers to physical activity among Overweight and Obese adults. This study intends to fill this gap.

## 2. METHODS

### 2.1 Research Design

The study was a descriptive cross-sectional Hospital-based study.

### 2.2 Place of the Study

The study was carried out at the Lagos University Teaching Hospital (LUTH), Idi-Araba

in Surulere, Lagos state, at the General Outpatient Clinic (GOPC) of the Family Medicine Department (FMD). Lagos is the most populated metropolis in Africa and Nigeria, with an estimated population of 21 million. Southwest of the nation lies the metropolitan state of Lagos [51]. The LUTH FMD is situated on the final floor of the building housing the outpatient clinics. 39 doctors (6 consultant family physicians, 27 family medicine residents, and 7 medical officers) oversee the GOPC. Regardless of age, gender, or medical condition, all patients receive comprehensive, ongoing, and coordinated care from its GOPC. It is open Monday through Friday from 8:00 am to 16:00 pm. Every month, over 2,050 patients are seen, including 822 individuals between the ages of 18 and 64 who are overweight or obese.

## 2.3 Population of Study

Overweight and Obese persons (18–64 years old) who attend the GOPC of the FMD, LUTH during July and September 2019 are included in the study population. Over the course of the trial, 2,466 adult patients who were overweight or obese were determined to be part of the study population. This was predicated on data from past clinic visits, which showed an average of 822 Overweight and Obese individuals per month.

## 2.4 Sample Size and Sampling Techniques

The participants that fulfilled the selection criteria were chosen through a methodical sampling procedure. The 2,466-person study population was drawn over a three-month period, with a total of 285 patients. The sample size was determined by calculating the average monthly attendance of adult patients who were overweight or obese during the preceding quarter-year, using a proportions estimation procedure. The study selected the ninth participant who satisfied the inclusion criteria, utilizing the sample interval that was computed. The daily total of adult patients who were overweight or obese was: The study population (N) divided by the number of days is 2466/66, or roughly 37.36. Considering that there are 66 working days in total over three months—22 working days per month—The sample size divided by the total number of days is 285/66, or 4.31, or roughly 4. The average number of participants recruited each day was 4. Simple random selection was used to choose the first participant by voting. To do this, the first nine adults who arrived at the clinic overweight or obese were asked to choose blindly from nine sheets numbered one through nine. The person who selected one served as the day's index participant. The ninth overweight or obese person was then chosen based on the sequence in which they arrived at the clinic. The chosen person gave their informed consent, and if they satisfied the study's inclusion requirements, they were fully recruited as participants. The next eligible consenting patient was recruited if the chosen patient did not meet the inclusion and exclusion criteria for the study. To avoid duplication, an identifying sticker was applied to each patient's case file from the time of recruitment until the study's conclusion. Up until the sample size was reached, this was done.

## 2.5 Inclusion and Exclusion Criteria

Adults 18–64years old who are obese or overweight and have given permission to participate in the study are included in the study were included. Based on their BMI, these people were classified as overweight (25.0-29.9 kg/m2) and obese (≥ 30 kg/m2). Patients having ascites, other oedema types, or intra-abdominal masses from the physical examination and history were excluded because they could create a misleading increase in weight and BMI, which would result in the incorrect classification of weight status. Individuals had physical abnormalities of the limbs or spine that made it difficult or inconvenient for them to stand still or take correct weight or height measurements.

## 2.6 Data Collection Methods

**Instrument for measurement:** A pre-tested, semi-structured interviewer administered data was gathered using a questionnaire that included the following: the sociodemographic details of the research participants; medical, social, and lifestyle history; the International Questionnaire for Physical Activity— Short Form (IPAQ-SF) for Adults; and the task in order benefit and barrier scale (EBBS) barrier section. A standardized Accoson mercury sphygmomanometer, a Stadiometer—a standard height measuring device—a weighing scale (Seca®, model number 786 2021994, designed in Germany, made in China), and a measuring tape (constant tension, non-stretchable) are among the additional instruments.

**Data Collection and Procedure:** Two research assistants, newly graduated doctors were taught by the author to help with questionnaire administration and anthropometric assessment alongside the researcher at the start of the study at the Family Medicine Department (FMD) in LUTH. The study materials were used to instruct the subjects for two days within the FMD. The research assistants participated in a simulated exercise wherein the researcher and the assistants took turns administering the questionnaire. The two research assistants were properly corrected and instructed on how questions should be asked and answers recorded in order to lessen the inter-observer variability that was observed during the simulation. Additionally, they learned how to reliably measure clinical parameters (weight, height, blood pressure, WC, and WHR) using the clinical instruments. The FMD employees were also made aware of the project and asked for their involvement.

The study was brought up with patients during their routine pre-clinic health discussions. After their weight, height, and BMI were estimated, the selected participants who satisfied the inclusion criteria and were overweight or obese were advised of their right to anonymity and asked for their informed permission after being fully told about the study's specifics. Interviewing consenting individuals, the author and research assistants employed the pretested semi-structured questionnaires. The study assistants measured the individuals' height, weight, waist circumference, and hip circumference in the clinic. The researcher will label each case file and do clinical assessments to prevent the use of consenting people twice. The subjects' height and weight were recorded, and the BMI was computed using the following formula: Weight (kg) / Height (m2). The BMI was categorized as overweight (BMI 25.0-29.9 kg/m2) and obese (≥ 30.0 kg/m2) based on the WHO weight status categorization. The Seca weighing scale was set up on a level platform, calibrated to zero, and used to measure each participant's weight to the nearest 0.1 kg. The participants were weighed while standing upright, wearing loose clothing, emptying their pockets, and not wearing bulky jewelry or shoes. The Secca stadiometer was set up on a level surface and used to measure each participant's height to the nearest 0.01 meters. Participants were measured for height while standing straight, backing the stadiometer, gazing forward horizontally, and devoid of any headgear, shoes, or caps.

The flexible inelastic tape was used to measure the waist circumference in centimeters, which is the horizontal distance around the trunk at a level halfway between the uppermost portion of the iliac crest in the mid-axillary line and the lower border of the last perceptible rib. Using the WHO and NCEP-ATP III cut off standards of > 88 cm for women and > 102 cm for men, participants with abdominal obesity were identified. Participants with abdominal obesity were identified using the waist-hip ratio (WHR), which was calculated from the waist and hip circumferences. At the broadest point of the buttocks, the hip circumference was measured in centimeters using a flexible, inelastic tape. Participants who met the WHR cut-off criterion of 0.90 for males and 0.85 for women were considered to be abdominally obese.

## 2.7 Data Presentation and Analysis

Software known as the Statistical Package for Social Sciences (SPSS IBM) version 25 was used for data entry, cleaning, and analysis. Frequency and percentage were used to represent all categorical data, and means, standard deviation, or, in the case of skewed continuous variables, median and interquartile range, were used to describe them. The Kolmogorov-Smirnov test was employed to evaluate the normality of the data. The connection between categorical variables was evaluated using the Fischer exact test and chi-square analysis. The independent variables of the respondents' low levels of physical activity and high levels of barriers to physical activity were identified using multiple binary logistic regression. P-value < 0.05 (95% confidence interval) was designated as the statistically significant threshold.

# 3. RESULTS AND DATA ANALYSIS

A total of 285 Overweight and Obese adults aged 18 to 64 years were recruited through systematic random sampling.

## 3.1 Sociodemographic Information

Table 1 shows the socio-demographic characteristics of the respondents. The age range of the respondents was between 20 to 64 years. The mean age (±SD) of the respondents was 44.25± 14.3. The modal age group was 50-59 years with 77 (27.0%) respondents. This was followed by the age groups 30-39 and 20-29 years, which constituted 22.1% and 19.3% of the

respondents respectively. The least number of respondents were in the age range of ≥ 60 years comprising 15.4%. There were more females (55.4%) than males (44.6%) among the Overweight and Obese respondents with a male female ratio of 1:1.2. Concerning marital status, majority of the respondents were either currently married (52.5%) or single (29.1%). A minority of the respondents were either widowed (6.3%), separated (1.1%) or divorced (1.1%). Of the respondents (202) who had ever married (currently married, widowed, separated or divorced), majority (97.5%) of them were in a monogamous family setting while only 5 (2.5%) of them were in a polygamous family setting. Concerning ethnicity, majority (63.2%) of the respondents were of the Yoruba ethnic group. This was followed by the Igbo ethnic group and other ethnic groups constituting 31.9% and 4.9% of the respondents respectively. Majority (42.1%) of the respondents had completed some form of tertiary education. Those who had only primary school education was the least group constituting less than one- fourth (22%) of the respondents. In terms of current employment status, the number of respondents who were employed were 207 (72.6%) constituting a majority of the respondents. 58(20.4%) of them were unemployed while 20(7.0%) of them were retired. As regards the type of occupation, majority of the respondents were skilled (47.3%). This was followed by those who were unskilled (28.0%) and then those who were professionals (24.6%). The income range of the respondents was between 75,000 and 350,000 naira and the median income was 150,000 naira.

### 3.2 Medical and Lifestyle Characteristics of Respondents

Table 2 is a multiple response table that shows the medical and lifestyle characteristics of the respondents. Majority (60%) of the respondents had a co-morbid medical condition while 40% of them had no co-morbid medical condition. Hypertension was the leading co-morbid condition affecting 106 (37.2%) of the respondents. This was followed by diabetes and back pain, which affected 15.8% and 14.0% of the respondents respectively. Only 5 (1.8%) of the respondents currently smoked cigarette while 15 (5.3%) of them ever smoked cigarette. 49 (17.2%) of the respondents currently drank alcohol while 42 (14.7%) of them drank alcohol more than six months earlier.

### 3.3 Clinical Measurements among Respondents

Table 3 illustrates the clinical measurements among respondents. 167(69.1%) of the respondents were overweight while 88(30.9%) of them were obese. Concerning blood pressure measurements, the modal blood pressure category was pre-hypertension which comprised 169 (59.3%) of the respondents. 99(34.7%) of the respondents were hypertensive with 71(24.9%) of them in stage 1 and 28(9.8%) of them in stage 2. Only 17 (6%) of the respondents had a normal blood pressure. About three-fourth (75.1%) of the respondents had a high WC, while 90.9% of them had a high WHR with respect to sex.

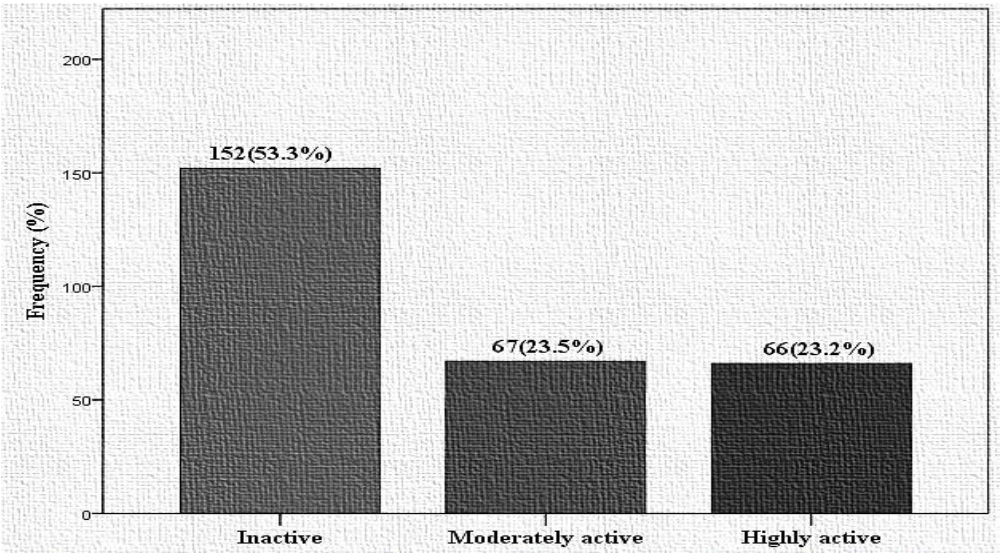


**Fig. 1. Physical activity levels among respondents (IPAQ-SF)**

**Table 1. Demographic characteristics of respondents**

| Variable | Frequency(%) |
|---|---|
| **[Total Number of Respondents (n)=285]** | |
| **Age group (Years)** | |
| 20-29 | 55(19.3) |
| 30-39 | 63(22.1) |
| 40-49 | 46(16.1) |
| 50-59 | 77(27.1) |
| ≥60 | 44(15.4) |
| Mean±SD | 44.25±14.3 |
| **Gender** | |
| Male | 127(44.6) |
| Female | 158(55.4) |
| **Marital status** | |
| Single | 83(29.1) |
| Currently married | 178(62.4) |
| Separated | 3(1.1) |
| Divorced | 3(1.1) |
| Widowed | 18(6.3) |
| **Ethnic group** | |
| Yoruba | 180(63.2) |
| Igbo | 91(31.9) |
| Others | 14(4.9) |
| **Highest level of education** | |
| Primary | 22(7.7) |
| Secondary | 54(18.9) |
| Tertiary | 120(42.2) |
| Postgraduate | 89(31.2) |
| **Current employment status** | |
| Unemployed | 58(20.4) |
| Employed | 207(72.6) |
| Retired | 20(7.0) |
| **Type of occupation (n=207)** | |
| Professional | 51(24.6) |
| Skilled | 98(47.4) |
| Unskilled | 58(28.0) |
| **Average income** | |
| ≥50,000 | 26(9.1) |
| 50,000-100,000 | 75(26.3) |
| 101,000-200,000 | 85(29.8) |
| >200,000 | 99(34.8) |
| Median (Q1, Q3) | 150 (75.0-350.0) |

*(%) – Percentage*

### 3.4 Physical Activity Levels among Respondents (IPAQ-SF)

Fig. 1 depicts the levels of physical activity among the Overweight and Obese respondents using the IPAQ-SF. Overall, over half (53.3%) of the Overweight and Obese adults were physically inactive. The number of respondents who were moderately active (67) and highly active (66) were almost the same and constituted 23.5% and 23.2% of the respondents respectively. The proportion of physically inactive respondents (53.3%) more than doubled those of respondents who were moderately active (23.5%) as well as those who were highly active (23.2%).

### 3.5 Levels of Perceived Barriers to Physical Activity among Respondents

Fig. 2 illustrates the levels of perceived barriers to physical activity among the respondents. Majority of the respondents (56.8%) were faced with a moderate level of

perceived barriers to physical activity. The proportion of the respondents who faced a low level of perceived barriers (21.4%) and that of those who faced a high level of perceived barriers (21.8%) was similar.

**Table 2. Medical and lifestyle characteristics of respondents**

| Variable | Frequency (%) |
|---|---|
| **[Total Number of Respondents (n)=285]** | |
| ***Co-morbid medical conditions** | |
| None | 114(40.0) |
| Hypertension | 106(37.2) |
| Diabetes | 45(15.8) |
| Asthma | 17(6.0) |
| Migraine | 16(5.6) |
| Depression | 4(1.4) |
| Arthritis | 20(7.0) |
| Back pain | 40(14.0) |
| **Currently smoke** | |
| Yes | 5(1.8) |
| No | 280(98.2) |
| **Ever smoke in the past** | |
| Yes | 15(5.3) |
| No | 270(94.7) |
| **Description of alcohol intake** | |
| Never | 194(68.1) |
| Previously drank alcohol >6 months ago | 42(14.7) |
| Currently drinking alcohol | 49(17.2) |

**Multiple response, (%) – Percentage*

**Table 3. Clinical measurements of respondents**

| Variable | Frequency (%) |
|---|---|
| **[Total Number of Respondents (n)=285].** | |
| **BMI class** | |
| Overweight | 197(69.1) |
| Obese | 88(30.9) |
| **Blood pressure status** | |
| Normal | 17(6.0) |
| Pre-hypertension | 169(59.3) |
| Stage 1 hypertension | 71(24.9) |
| Stage 2 hypertension | 28(9.8) |
| **Waist circumference** | |
| High | 214(75.1) |
| Normal | 71(24.9) |
| **Waist hip ratio** | |
| High | 259(90.9) |
| Normal | 26(9.1) |

*(%) Percentage*

**Table 4. Association between perceived barriers to physical activity and physical activity**

| | Inactive (n=152) | Moderately Active (n=67) | Highly Active (n=66) | $X^2$ | p-value |
|---|---|---|---|---|---|
| **Levels of barrier** | | | | | |
| Low | 26(42.6) | 12(19.7) | 23(37.7) | 15.831 | **0.003*** |
| Moderate | 83(51.3) | 42(25.9) | 37(22.8) | | |
| High | 43(69.3) | 13(21.0) | 6(9.7) | | |

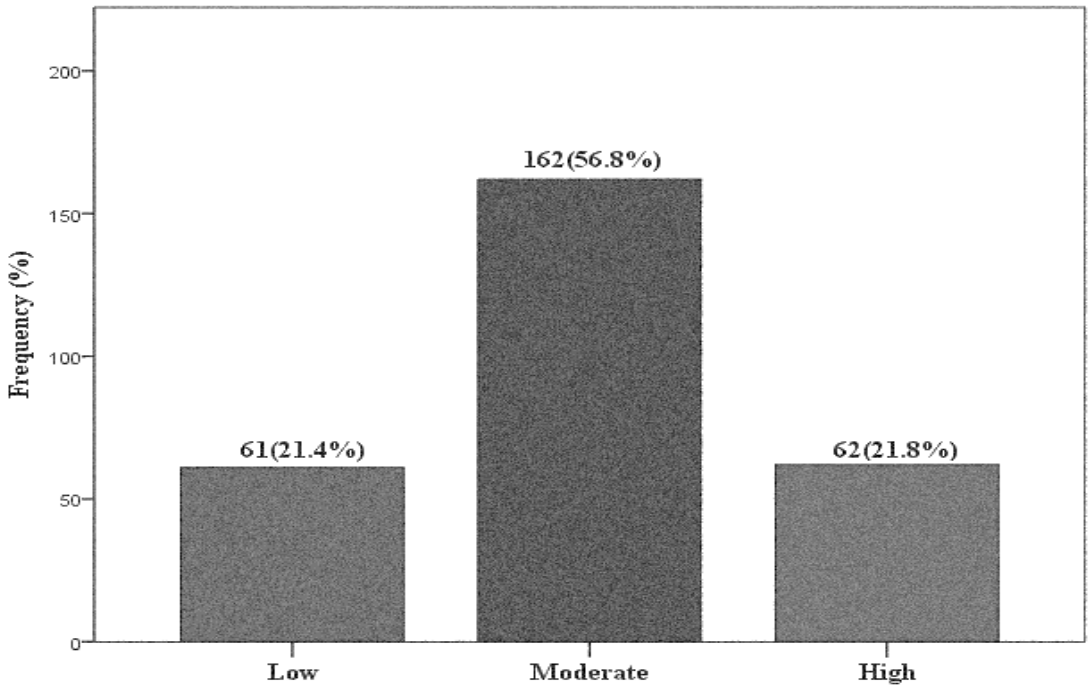


**Fig. 2. Levels of perceived barriers to physical activity among respondents**

### 3.6 Association between Perceived Barriers to Physical Activity and Physical Activity among Respondents

Table 4 shows the relationship between perceived barriers to physical activity and physical activity among the obese and overweigh respondents. There is a statistically significant association between perceived barriers to physical activity and physical activity among the respondents ($p = 0.003$).

## 4. DISCUSSION OF FINDINGS

This cross-sectional study, conducted in a hospital, examined the relationship between the degree of physical activity and the perception of barriers to physical activity in people who were Overweight and Obese and were visiting the General Outpatient Clinic, Lagos University Teaching Hospital. There is an association between physical activity levels and the levels of perceived barriers to physical activity among the respondents. Also, high levels of perceived barriers to physical activity significantly and independently predicted physical inactivity among the Overweight and Obese adults in this study. Consistent with the results of this investigation, several studies have discovered an association between physical inactivity and high levels of barriers to physical activity [50,49]. Obese or overweight adults perceive more barriers to physical activity, which is likely, a significant factor in their inactivity [48]. The study results reported by Awotibe [50] amongst Nigerian women using the same instruments (IPAQ and EBBS) were consistent with those of [9] in their cross-sectional investigation of predictors of perceived barriers to physical activity among adult Brazilians. High barriers to exercise were shown to be strongly linked with and predictive of physical inactivity in Nigerian women. The [50] study only included women who have a greater likelihood to be physically inactive and who think there are major barriers to physical activity. In the current study, there were significantly more women than men in terms of physical inactivity. Additionally, women showed a higher gender difference in physical inactivity. Physical activity was also strongly connected with high levels of perceived impediments in both this study and the [50]. These similarities may account for the same outcomes in both experiments. In a second study, Awotibe [50] used the same instruments (IPAQ and EBBS) and found a strong inverse relationship between the levels of perceived barriers to physical activity and the levels of physical activity among Nigerian undergraduates. The same finding by

Awotibe [50] among younger participants may indicate that physical activity and perceived barriers have a negative connection that is independent of age. The majority of respondents in our survey were between the ages of 50 and59; this is likely because individuals in this age range People between the ages of 30-39 63 (22.1%) may be too busy to participate in physical activities like exercise, and they are less likely to be interested in physical activities because they may find it stressful. Belay [52] Discovered a correlation between aging and insufficient physical activity. One explanation for this could be because the majority of the study's older age groups were retired, and one of their habits after retirement was to lead a sedentary lifestyle. Moreover, older adults are less likely to engage in physical activity because they believe that high blood pressure weakens their body, deters them from engaging in regular exercise, and makes them feel exhausted. However, this runs counter to a prior US study [53] that found that compared to young hypertensive patients, individuals over 65 engaged in appropriate physical activity. According to the study's findings, 71 (24.9%) of the participants had stage 1 hypertension, which could account for their poor participation in physical activity. Similarly, health-related issues were discovered to be a significant factor influencing the behavior of physical activity by Katanolli [54]. According to Belay [52], individuals with poor self-rated health who also had hypertension had a 5.91-fold higher likelihood of being physically inactive compared to those with good self-rated health who also had hypertension. It is corroborated by earlier, related research done by Ma [55] the study participants' perception of painful experiences acquired from patients over the course of their disease may be the reason for the similarities. The majority of study participants were married, which could potentially operate as a deterrent to physical exercise and low levels of engagement. Al-Baho [56] Discovered, in contrast to this presumption, that physical activity levels among Kuwaiti adults were correlated with single status. This is presumably due to the fact that singles have more time to take care of themselves than married people do, who are preoccupied with employment, raising a family, etc. In keeping with the findings of [52], our investigation found no significant association between alcohol use, body mass index, or cigarette smoking. Similarly, the majority of study participants were obese, which may account for their low level of physical activity. Previous research has identified pain or physical discomfort, limited self-management skills, time constraints, and injury anxiety as obstacles to physical activity among individuals with obesity [57,58]. In light of these consistent results, age, marital status, BMI, and perceived health status, must all be taken into account when creating future physical activity-focused health education programs. Health education programs can effectively encourage physical activity and enhance people's general health by targeting these aspects [59]. The research's conclusions have a number of applications for stakeholders, public health organizations, healthcare providers, and legislators. Therefore, focused interventions including advocating for workplace wellness initiatives, community-based physical activity initiatives, and easily accessible and reasonably priced exercise facilities should be used by public health programs to overcome these barriers. The targeted demographics may also benefit from more affordable and easily accessible exercise facilities through the implementation of legislative measures, such as public parks and leisure centers. In order to encourage physical activity and enhance mental health outcomes, healthcare providers may take into account the related elements when screening patients for pertinent mental health disorders and provide suitable therapies, such as counseling and therapy. The engagement in physical activity is significantly impacted by high levels of barriers hence further research should be done to determine the determinants of these levels.

## 5. CONCLUSION AND RECOMMENDATIONS

### 5.1 Conclusion

The study examined the relationship between the degree of physical activity and the perception of barriers to physical activity in people who were Overweight and Obese and were visiting the General Outpatient Clinic, Lagos University Teaching Hospital. The results of the study showed that there is an association between respondents' perceived barriers to physical exercise and their levels of physical activity. Furthermore, among the Overweight and Obese people in this study, high levels of perceived barriers to physical exercise significantly and independently predicted physical inactivity. Given their lower levels of physical activity, this shows that obese persons may experience more barriers to physical activity than other people. The physical activity level of Overweight and Obese individuals may also be significantly

influenced by other characteristics, such as age, marital status, and health status. To encourage physical fitness in individuals who are obese or overweight, a more thorough strategy that takes into account a number of variables is required.

### 5.2 Recommendations

Based on the findings of the study, we recommend the following:

- Awareness should be created by health organisations, Non- Governmental Organisations and health professionals on the relevance of active participation in physical activity.
- Overweight and Obese adult should seek the guidance of a healthcare provider before starting a new exercise program.
- Overweight and Obese adults should prioritize safety when participating in physical activities by studying the way their body responds to exercise especially if they are faced with a health condition.
- Since there may not be a training centre near residents, obese people should choose low impact activities like brisk walking, swimming, and start with short manageable sessions like twenty to 30 minutes and gradually increase the duration and intensity.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

## CONSENT AND ETHICAL APPROVAL

After completing the foundational course on Biomedical Research offered by the Collaborative Institutional Training Initiative (CITI) program, ethical approval was acquired from the Health Research and Ethics Committee of LUTH. The West African College of Physicians' Faculty of Family Medicine authorized this study as well. Participants received an explanation of the study's specifics and signed informed consent forms. No one was forced to take part in the study, and no one ever withdrew while it was underway. The study's output contained no personal data that might be used to identify participants and was only meant to be utilized for research. Participants' confidentiality was properly maintained, and none of the respondents suffered any negative effects from the study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Igboanusi CJC, Joshua IA, Henry J, Nmadu AG, Onoja-Alexander MO. The prevalence of overweight and obesity and associated factors among Adults in Goni Gora Kaduna State, Northwestern Nigeria. Ann African Med Res. 2018: 1(40):63–8.
2. Bauer C, Graf C, Platschek AM, Strüder HK, Ferrari N. Reasons, motivational factors, and perceived personal barriers to engagement in physical activity during pregnancy vary within the BMI classes: The prenatal prevention project Germany. Journal of Physical Activity and Health. 2018;15(3):204-211.
3. Tremmel M, Gerdtham UG, Nilsson PM, Saha S. Economic burden of obesity: A systematic literature review. Scuffham PA, editor. Int J Environ Res Public Health. 2017;14(4):435.
4. World Health Organization. Obesity and Overweight; 2017a.
   Available:https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight.
5. WHO. Global strategy on diet, physical activity and health. Physical inactivity: A global public health problem. Physical Activity and Health; 2017b.
   Available:http://www.who.int/dietphysicalactivity/factsheet_inactivity/en/
6. McIntosh T, Hunter DJ, Royce S. 'Barriers to physical activity in obese adults: A rapid evidence assessment. J Res Nurs. 2016;21(4):271–2s87.
7. WHO. Physical activity. Fact sheets; 2018.
   Available:https://www.who.int/news-room/fact-sheets/detail/physical-activity.
8. Adaja T, Idemudia O. Prevalence of overweight and obesity among health-care workers in University of Benin Teaching Hospital', Benin City, Nigeria. Ann Trop Pathol. 2018;9(2):150.

9. Herazo-Beltran Y, Pinillos Y, Vidarte J, Crissien E, Suarez D, García R. Predictors of perceived barriers to physical activity in the general adult population a cross-sectional study. Brazilian J Phys Ther. 2017;21(1):44–50.
10. World Health Organization. Regional Office for Europe. Monitoring non-communicable disease commitments in Europe 2021: are we on track to reach targets 10 years after the Moscow Declaration and First United Nations High-Level Meeting? Copenhagen: World Health Organization. Regional Office for Europe; 2021. Available:https://apps.who.int/iris/handle/10665/350457.
11. World Health Organization: WHO. Physical activity. World Health Organization; 2020. Available:https:// www.who.int/news-room/fact-sheets/detail/physical-activity.
12. Milton K, Gomersall SR, Schipperijn J. 'Let's get moving: The Global Status Report on Physical Activity 2022 calls for urgent action. J Sport Health Sci. 2023;12:5-6.
13. Koh Y, Sharani PV, Devi F, Roystonn K, Wang P, Vaingankar JA, Abdin E, Sum CF, Lee E, Müller-Riemenschneider F, Chong S, Subramaniam M. A cross-sectional study on the perceived barriers to physical activity and their associations with domain-specific physical activity and sedentary behavior. BMC Public Health. 2022;22:1051. Available:https://doi.org/10.1186/s12889-022-13431-2
14. Schmid D, Leitzmann MF. Physical Activity Epidemiology. In: Ahrens W, Pigeot I, editors. Handbook of Epidemiology: Second Edition. 2nd ed. Regensburg: Springer New York. 2014;1927–2002.
15. Binsaeed B, Aljohani FG, Alsobiai FF. Barriers and motivators to weight loss in people with obesity. Cureus. 2023;15(11). Available:https://doi.org/10.7759/cureus.49040
16. Centers for Disease Control and Prevention. Defining Childhood Overweight and Obesity; 2017. Available:http://www.cdc.gov/obesity/childhood/defining.html.
17. Adab P, Pallan M, Whincup PH. Is BMI the best measure of obesity? BMJ. 2018;1–2. Available:https://doi:10.1136/bmj.k1274.
18. Scafoglieri A, Clarys JP, Cattrysse E, Bautmans I. Use of anthropometry for the prediction of regional body tissue distribution in adults: Benefits and limitations in clinical practice. Aging Dis. 2014;5(6):373–393.
19. Chukwuonye II, Ohagwu KA, Ogah OS, John C, Oviasu E, Anyabolu EN. Prevalence of overweight and obesity in Nigeria: Systematic review and meta-analysis of population-based studies', PLOS Glob Public Health. 2022;2(6). Available:https://doi.org/10.1371/journal.pgph.0000515
20. Sartorius B, Veerman LJ, Manyema M, Chola L, Hofman K. Determinants of obesity and associated population attributability, South Africa: Empirical evidence from a national panel survey, 2008–2012', Plos One. 2015;10(6). Available:https://doi.org/10.1371/journal.pone.0130218
21. Ijoma UN, Chime P, Onyekonwu C. Factors associated with overweight and obesity in an urban area of south east Nigeria. Food Nutr Sci. 2019;10:735–49.
22. Chigbu CO, Parhofer KG, Aniebue UU, Berger U. Prevalence and sociodemographic determinants of adult obesity: A large representative household survey in a resource-constrained African setting with double burden of undernutrition and overnutrition. J Epidemiol Community Health. 2018;72(8):702–707. Available:https://doi.org/10.1136/jech-2018-210573
23. Chukwuonye II, Chuku A, Onyeonoro U. Body mass index, prevalence and predictors of obesity in urban and rural communities in Abia state south eastern Nigeria. J Diabetes Metab. 2015;6:570. Available:https://doi.org/10.4172/2155-6156.1000570
24. Kerkadi A, Sadig AH, Bawadi H, Thani AA, Chetachi W, Akram H. The relationship between lifestyle factors and obesity indices among adolescents in Qatar. Int J Environ Res Public Health. 2019;16: 4428.
25. Albuquerque D, Nóbrega C, Manco L, Padez C. The contribution of genetics and environment to obesity. Br Med Bull. 2017;123:159-73.
26. Wang Y, Beydoun MA, Min J, Xue H, Kaminsky LA, Cheskin LJ. Has the prevalence of overweight, obesity and central obesity levelled off in the United States? Trends, patterns, disparities, and

future projections for the obesity epidemic. Int J Epidemiol. 2020;49:810-23.
27. Panuganti KK, Nguyen M, Kshirsagar RK. Obesity, Stat Pearls. Stat Pearls Publishing, Treasure Island (FL); 2023.
28. Chew HS, Gao Y, Shabbir A. Personal motivation, self-regulation barriers and strategies for weight loss in people with overweight and obesity: A thematic framework analysis. Public Health Nutr. 2022;25:2426-35.
DOI: 10.1017/S136898002200043X
29. Vandevijvere S, De Pauw R, Djojosoeparto S, Gorasso V, Guariguata L, Løvhaug A, Mialon M, Van Dam I, Von Philipsborn P. Upstream determinants of overweight and obesity in europe. Current Obesity Reports; 2023.
Available:https://doi.org/10.1007/s13679-023-00524-1
30. Rauber C, Tiwari-Heckler S, Pfeiffenberger J, Mehrabi A, Lund F, Gath P, Mieth M, Merle U, Rupp C. SARS-CoV-2 seroprevalence and clinical features of COVID-19 in a German liver transplant recipient cohort: a prospective serosurvey study. InTransplantation proceedings 2021 May 1;53(4):1112-1117). Elsevier.
31. Dicken SJ, Batterham RL. The role of diet quality in mediating the association between ultra-processed food intake, obesity and health-related outcomes: A review of prospective cohort studies Nutrients. 2022;14(1):23.
32. Monteiro CA, Moubarac JC, Levy RB, Canella DS, Louzada ML, Cannon G. Household availability of ultra- processed foods and obesity in nineteen European countries. Public Health Nutr. 2018;21(1): 18–26.
33. Costa CS, Del-Ponte B, Assunçao MCF, Santos IS. Consumption of ultra-processed foods and body fat during childhood and adolescence: A systematic review. Public Health Nutr. 2018;21(1):148–59.
34. Drieskens S, Berger N, Vandevijvere S, Gisle L, Braekman E, Charafeddine R, De Ridder K. 'Demarest S. Short-term impact of the COVID-19 confinement measures on health behaviours and weight gain among adults in Belgium. Arch Public Health. 2021;22;79(1):22.
35. Fismen AS, Buoncristiano M, Williams J, Helleve A, Abdrakhmanova S, Bakacs M. 'Socioeconomic differences in food habits among 6- to 9-year-old children from 23 countries- WHO European Childhood Obesity Surveillance Initiative (COSI 2015/2017). Obes Rev. 2021;22(6).
36. Khandpur N, Neri DA, Monteiro C, Mazur A, Frelut ML, Boyland E. Ultra-processed food consumption among the paediatric population: An overview and call to action from the European Childhood Obesity Group. ANM. 2020;76(2):109–13.
37. Segula D. Complications of obesity in adults: A short review of the literature. Malawi Med J. 2014;26(1):20–24.
38. Upadhyay J, Farr O, Perakakis N, Ghaly W, Mantzoros C. Obesity as a disease. Med Clin North Am. 2018;102(1):13–33.
39. Jehan S, Zizi F, Pandi-Perumal SR, Wall S, Auguste E, Myers AK. Obstructive sleep apnea and obesity: Implications for public health. Sleep Med Disord. 2017;1:00019.
40. Saleh B, Ma E. Impact of Fast Foods and Snacks upon Adolescents' BMI at Secondary Schools in Baghdad City. Iraqi. Nat J Nurs Special. 2015;2(28):1-7.
41. Saadon M, Neaama M. Parents' efficacy for child healthy weight behavior in elementary schools in hilla city. Iraqi Nat J Nurs Special. 2020;33(1):53-62.
42. Bura'a LN, Younis NM. An interventional program on nurses knowledge and practice towards phototherapy in neonatal care units. Int J Memb Sci Technol. 2023;10(2):1428-32.
43. Al-Hassan YT, Fabella E, Estrella E. Utilizing the health belief model in determining the association between perceptions on obesity and exercise behavior of Saudi university students. TOPHJ. 2020;13:87–93.
44. Albasheer O, Hakami N, Abdelwahab SI. Utilisation of the health belief model to study the behavioural intentions relating to obesity management among university students: A cross-sectional study. BMJ Open. 2024;14.
Available:https://doi:10.1136/ bmjopen-2023-079783
45. Shah A, Berry AK. P'erceived barriers, enablers, beliefs and level of physical activity and awareness regarding role of physiotherapy in patients posted for bariatric surgery: A questionnaire based study. International Journal of Physiotherapy and Research, Int J Physiother Res. 2023;11(2):4476-75.
Available:https://dx.doi.org/10.16965/ijpr.2023.187
46. Samir N, Mahmud S, Khuwaja AK. Prevalence of physical inactivity and

barriers to physical activity among obese attendants at a community health-care center in Karachi, Pakistan. BMC Res Notes. 2011;4(174):1–7.

47. Ibrahim S, Karim NA, Oon N, Ngah WZW. Perceived physical activity barriers related to body weight status and sociodemographic factors among Malaysian men in Klang Valley. BMC Public Health. 2013;13(1):1–10.
48. Rech C, Camargo E, Almeida M, Bronoski R, Okuno N, Reis R. Barriers for physical activity in overweight adults. Rev Bras Atividade Física Saúde. 2016;21(3):272–279.
49. Awotidebe TO, Adeboyin RA, Adegbesan OA, Babaola JF, Olukuju IO, Mbada CE. Psychosocial correlates of physical activity participation among Nigerian university students. Int J Sport Sci. 2014;4(6):205–211.
50. Awotibe TO, Bisiriyu LA, Ativie RN, Oke KI, Adedoyin RA, Nabakwe EC. Prevalence of physical inactivity among Nigerian women: Do socio-demographic characteristics, women's personal attributes and psychosocial factors play any role? J Exerc Ther Rehabil. 2017;4(1):33–45.
51. Lagos State Government. About Lagos; 2017.
Available:http://governor.lagosstate.gov.ng/about-lagos/
52. Belay GJ, Fentanew M, Belay M. Physical activity and its associated factors among patients with hypertension at amhara region comprehensive specialised hospitals, Northwest Ethiopia: An institutional based cross- sectional study. BMJ Open. 2023;213.
DOI: 10.1136/ bmjopen-2023-073018
53. Bolin LP, Crane PB, Powell JR. Factors associated with physical activity in African Americans with hypertension. Appl Nurs Res. 2018;41:62–7.
54. Katanolli A, Hensch N, Obas K, Gerold J, Zahorka M, Jerliu N, Ramadani Q, Fota N, Merten S. Perceived barriers to physical activity behaviour among patients with diabetes and hypertension in Kosovo: A qualitative study. BMC Primary Care. 2022;23:257.
Available:https://doi.org/10.1186/s12875-022-01866-w
55. Ma C. The evaluation of physical activity for Community-Dwelling patients with hypertension. J Clin Nurs. 2017;26:2712–20.
56. Al-Baho AK, Al-Naar A, Al-Shuaib H, Panicker JK, Gaber S. Levels of physical activity among Kuwaiti adults and perceived barriers. The Open Public Health Journal. 2016;9(1):77– 87.
Available:https://doi.org/10.2174/18749445 0160901007
57. Baillot A, Chenail S, Polita NB, Simoneau M, Libourel M, Nazon E. Physical activity motives, barriers, and preferences in people with obesity: A systematic review. Plos One. 2021;16(6).
Available:https://doi.org/10.2196/36429
58. Hamer O, Larkin D, Relph N, Dey P. Fear-related barriers to physical activity among adults with overweight and obesity: A narrative synthesis scoping review. Obes Rev. 2021;22(11).
59. Goncalves A, Bernal C, Korchi K, Nogrette M, Deshayes M, Philippe AG, Charbonnier E. Promoting physical activity among university students during the COVID-19 pan- demic: Protocol for a randomized controlled trial. JMIR Research Protocols. 2022;11(6).
Available:https://doi.org/10.2196/36429



*Peer-review history:*
*The peer review history for this paper can be accessed here:*
*https://www.sdiarticle5.com/review-history/118442*