

**REGRESSION ANALYSIS ON THE IMPACT OF SMOKING, LEVEL OF
EXERCISE, AND WEIGHT ON HEALTH**

BY

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UNDERTAKING

This project work was carried out by me **OSASUEHI ONAIWU** with matriculation number **PSC1712953**. I have not copied the work of any other author(s). All literature use have been duly cited and acknowledgement.

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CERTIFICATION

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DEDICATION

This project work is solely dedicated to God Almighty for strength; love and guidance for making this report a reality

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ABSTRACT

This research investigates the impact of smoking, level of exercise, and weight on health outcomes. The research employs a cross-sectional research design to investigate the associations between smoking, level of exercise, weight, and health outcomes among adults residing in Uyo Local Government Area, Akwa Ibom State, Nigeria. The study population comprises 360 adults, with a sample size of 124 determined using Taro Yamane's sample size determination formula. Data collection involves a self-administered questionnaire covering demographic information, smoking habits, physical activity levels, weight, height, and health status. Convenience sampling is utilized at various locations within each of the four clans in Uyo LGA, facilitated by trained research assistants. Statistical Package for Social Sciences (SPSS) is employed for data analysis, including regression analysis to determine the relationships between independent variables (smoking, lack of regular exercise, weight) and the dependent variable (health outcome). The analysis reveals significant associations between these lifestyle factors and health outcomes, highlighting the need for targeted interventions to mitigate their adverse effects. Findings indicate a moderate positive correlation between smoking and health outcomes, emphasizing the importance of smoking cessation interventions. Similarly, a significant positive relationship is observed between lack of regular exercise and health outcomes, underscoring the importance of promoting physical activity. Additionally, the analysis reveals a moderate positive correlation between weight and health-related quality of life, emphasizing the need for interventions to promote healthy weight management.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Maintaining optimal health is a fundamental goal for individuals, healthcare systems, and society as a whole. Health outcomes are influenced by various factors, including lifestyle choices, such as smoking, exercise levels, and weight status. These variables play a crucial role in shaping individuals' health trajectories and can have significant implications for healthcare utilization and costs. Health is a multidimensional concept encompassing physical, mental, and social well-being (World Health Organization, 1948). Health is a natural facet of liveliness - both by definition and realization. Lifestyle plays a pivotal role in maintaining good health and well-being. The choices individuals make regarding their daily habits, behaviors, and routines have a profound impact on their overall health status. Adopting a healthy lifestyle encompasses various factors, including smoking, exercise levels, and weight status, all of which are interrelated and contribute to overall health outcomes. Maintaining a healthy lifestyle involves making informed choices that prioritize well-being.

Smoking, as a lifestyle choice, has been unequivocally linked to a myriad of detrimental health effects. The inhalation of tobacco smoke exposes individuals to numerous toxic chemicals, leading to an increased risk of developing various chronic diseases. Smoking is a leading cause of preventable deaths worldwide, contributing to the burden of cardiovascular diseases, respiratory disorders, and several types of cancer (U.S. Department of Health and Human Services, 2014). Therefore, making the decision to abstain from smoking or quit smoking altogether is a crucial step towards achieving and maintaining good health. The harmful effects of smoking are well-documented, and it is estimated that smoking is responsible for nearly 8 million deaths per year worldwide (World Health Organization, 2021). The harmful substances in tobacco smoke can cause DNA damage and mutations in the lung cells, leading to the development of cancerous tumors. Additionally, smoking is a major risk factor for various types of cancer, including those affecting the mouth, throat, esophagus, bladder, kidney, pancreas, and cervix (U.S. Department of Health and Human Services, 2014). The toxic chemicals in tobacco smoke can directly damage the DNA in these tissues, increasing the likelihood of cancer development. Moreover, smoking has adverse effects on reproductive health, contributing to infertility, complications during pregnancy, and increased risk of sudden infant death syndrome (SIDS) in infants born to smoking mothers (U.S. Department of Health and Human Services, 2014).

The health implications of smoking are wide-ranging and severe, affecting multiple organ systems and significantly increasing the risk of developing chronic diseases and premature death.

Another crucial element of a healthy lifestyle is engaging in regular physical activity and exercise. Physical activity offers numerous benefits, including improved cardiovascular health, enhanced mental well-being, weight control, and reduced risk of chronic diseases such as diabetes and certain types of cancer (Warburton et al., 2006). Leading a sedentary lifestyle and having low exercise levels, on the other hand, can have detrimental consequences for health. Lack of physical activity is associated with an increased risk of obesity, cardiovascular disease, and other chronic conditions (Hallal et al., 2012). Obesity, defined as a body mass index (BMI) of 30 or higher, is a major risk factor for various health complications, including diabetes, heart disease, stroke, and certain types of cancer (World Health Organization, 2020). According to studies conducted by researchers at Duke University Medical Center, intense exercise can significantly improve the body's ability to control blood glucose levels. Due to lack of exercise results, blood sugar levels have increased, which puts more pressure on your pancreas (which hides the insides of the hormone insulin). This increases the likelihood of type 2 diabetes.

Weight status, particularly obesity, is another critical determinant of health outcomes. Obesity is a complex condition that results from a combination of genetic, environmental, and behavioral factors. It significantly increases the risk of developing various chronic diseases, including diabetes, heart disease, stroke, and certain types of cancer (World Health Organization, 2020). The rising prevalence of obesity globally has led to a substantial increase in healthcare costs and poses a substantial burden on healthcare systems (Bhadoria et al., 2015). The complications resulting from abnormal weight contribute significantly to hospitalizations, placing strain on healthcare resources and incurring substantial healthcare costs (Yusuf et al., 2016). Adopting healthy eating habits, engaging in regular physical activity, and maintaining a healthy weight are essential for preventing and managing obesity-related complications.

Recognizing the role of lifestyle factors in staying healthy is crucial for individuals, healthcare professionals, and policymakers. Hence, this research aims to carry out a regression analysis on the impact of smoking, level of exercise and weight on health. The intention of our research is to highlight the importance of recognizing lifestyle factors in maintaining good health for individuals, healthcare professionals, and policymakers. Through understanding the significant impact of lifestyle choices such as smoking, exercise levels, and weight status, we aim to emphasize the need for promoting healthy behaviors and implementing effective

interventions to improve overall well-being and reduce the burden of chronic diseases.

1.2 STATEMENT OF THE PROBLEM

The increase in the number of people who are ill in the various health establishments has risen geometrically overtime. Most of these illnesses may be as a result of unhealthy lifestyles and habits. Amongst this various unhealthy lifestyles and habits are smoking, lacks of exercise, weight, poor dietary just to mention but a few. In Nigeria specifically, a lot has been said about smoking and lack of exercise. Smoking is known to be a leading cause of preventable diseases such as cardiovascular disorders, respiratory ailments, and various types of cancer. Similarly, a sedentary lifestyle and insufficient physical activity are associated with increased risks of obesity, diabetes, hypertension, and other chronic conditions. Abnormal weight, particularly obesity, further exacerbates the likelihood of developing serious health complications, including diabetes, heart disease, stroke, and certain types of cancer. It estimated that overall, physical inactivity which is caused by lack of exercise caused more than 5.3 million of the 57 million deaths that occurred worldwide in 2008 which Nigeria is not excluded. The researchers suggest this is equivalent to the 5 million deaths attributed to smoking in 2000 (Kingsley 2012: 42).

These complications impose a substantial burden on individuals, healthcare systems, and society as a whole. Hospitalizations resulting from smoking-related diseases, physical inactivity, and obesity-related conditions place a strain on healthcare resources and contribute to rising healthcare costs. Furthermore, the long-term management and treatment of these complications entail substantial financial implications, including medication costs, specialized healthcare services, and extended hospital stays. Therefore, the problem at hand is to investigate the relationship between smoking, low exercise levels, abnormal weight, and the subsequent complications that lead to increased hospitalizations and healthcare costs.

1.3 AIMS AND OBJECTIVES OF THE STUDY

The general objective of this research is to investigate the impact of smoking, level of exercise, and weight on health outcomes. Specifically, the study aims to:

1. Determine the association between smoking status and health outcome of patients.
2. Examine the relationship between the level of exercise and health outcomes of patients.
3. Assess the impact of weight status on health outcomes.

1.4 RESEARCH QUESTIONS

To achieve the research objectives, the following research questions will be addressed:

1. What is the relationship between smoking status and health outcomes?
2. How does the level of exercise impact health outcomes?
3. What is the association between weight status and health outcomes?

1.5 RESEARCH HYPOTHESIS

To achieve the study objective of investigating the impact of smoking, level of exercise, and weight on health, the following hypothesis was formulated:

Hypothesis one

H_1 : *There is no relationship between smoking and health outcomes*

H_0 : *There is relationship between smoking and health outcomes*

Hypothesis two

H_2 : *There is no relationship between lack of regular exercise and health outcomes*

H_0 : *There is relationship between lack of regular exercise and health outcomes*

Hypothesis three

H₃ *There is no relationship between weight (Body Mass Index) and health outcomes*

H₀ *There is a relationship between weight (Body Mass Index) and health outcomes*

1.6SIGNIFICANCE OF THE STUDY

This study holds considerable significance for various stakeholders, including health professionals, the Ministry of Health, the general public, and researchers. The findings of this research will provide valuable insights and have practical implications for each of these groups.

To Health Professionals:

Health professionals, including physicians, nurses, and public health practitioners, will benefit from this study's findings. By identifying the specific relationship between smoking, low exercise levels, abnormal weight, complications, hospitalizations, and healthcare costs, health professionals can enhance their understanding of these complex interactions. This knowledge will enable them to provide more targeted and effective interventions and treatment strategies for patients. Health professionals can use the results of this study to develop evidence-based guidelines, educational materials, and counseling approaches that address the identified risk factors. Additionally, the findings may inspire collaborations and

interdisciplinary approaches to tackle the multifaceted nature of chronic diseases associated with smoking, low exercise levels, and abnormal weight.

To the Ministry of Health:

The Ministry of Health plays a crucial role in formulating public health policies and allocating resources. The outcomes of this study will provide the Ministry with robust evidence to support the development and implementation of preventive strategies and policies aimed at reducing the burden of complications resulting from smoking, low exercise levels, and abnormal weight. This information can guide the allocation of resources toward initiatives such as smoking cessation programs, promoting physical activity, and encouraging healthy weight management. The study's findings can also inform policy decisions regarding taxation on tobacco products, regulations on advertising unhealthy foods, and the creation of supportive environments that promote healthy behaviors. Ultimately, the Ministry of Health can leverage these findings to improve public health outcomes, reduce hospitalizations, and optimize healthcare expenditure.

To the General Public:

The general public is a key audience for the study's findings. By disseminating the research outcomes through various channels, such as public health campaigns, educational materials, and media platforms, the general public can gain awareness and knowledge about the adverse health effects of smoking, low exercise levels,

and abnormal weight. The study's findings can empower individuals to make informed decisions regarding their lifestyle choices, encouraging smoking cessation, adopting regular physical activity, and maintaining a healthy weight. The research can also help raise awareness about the long-term consequences of these risk factors and motivate individuals to seek timely medical advice and preventive care. Ultimately, the study aims to improve the overall health and well-being of the general public.

To Researchers:

For researchers in the field of public health, this study contributes to the existing body of knowledge by providing comprehensive insights into the relationship between smoking, low exercise levels, abnormal weight, complications, hospitalizations, and healthcare costs. The research methodology and analytical approach employed in this study can serve as a reference for future investigations in this area. The study's findings can also inspire further research exploring additional factors that may influence the identified associations. By building upon this study's results, researchers can deepen their understanding of the underlying mechanisms and explore innovative interventions and strategies to address the complex interplay of these risk factors. Collaboration among researchers from diverse disciplines can lead to a holistic approach in tackling the challenges posed by smoking, low exercise levels, and abnormal weight.

1.7 SCOPE AND LIMITATION OF STUDY

The scope of this study is centered on the impact of smoking, less exercising on the weight and health care cost of patients using the federal medical center Owerri Imo state as a case study. The major limitation of the study is the time constraint; the researcher was inhibited by time as there was no enough time to cover all patients in the hospital. Another constraint of this study is financial constraints, lack of adequate finances in printing enough questionnaires for the patients and to equally interview the health practitioners.

1.8 DEFINITION OF TERMS

In order to ensure clarity and understanding throughout the study, it is essential to define and operationalize key terms used in this research. The following definitions are provided to establish a common understanding of these terms within the scope of this study:

1. **Smoking:** Refers to the act of inhaling and exhaling smoke from tobacco products, such as cigarettes, cigars, or pipes. In this study, smoking specifically pertains to the consumption of tobacco and its associated behaviors, including the frequency and intensity of smoking.
2. **Level of exercise:** Refers to the extent of physical activity and movement performed by individuals on a regular basis. It encompasses various forms of

exercise, such as aerobic activities, strength training, sports participation, or any other structured physical activities undertaken to enhance fitness and well-being.

3. **Weight:** Refers to the measure of an individual's body mass, typically expressed in kilograms or pounds. It is an indicator of the amount of mass or adipose tissue present in the body and is influenced by factors such as genetics, diet, physical activity, and overall lifestyle.
4. **Health:** In this study, health is defined as the overall well-being and physiological state of an individual. It includes physical, mental, and social aspects, encompassing factors such as disease presence or absence, functional abilities, quality of life, and overall vitality.

By establishing clear definitions for these terms, the study aims to provide a consistent and shared understanding of the key variables under investigation, enabling accurate interpretation and analysis of the research findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 CONCEPTUAL REVIEW

Numerous studies have consistently demonstrated the adverse effects of smoking on health, including an increased risk of cardiovascular diseases, respiratory disorders, and various forms of cancer. Conversely, the positive association between the level of exercise and health outcomes has been well-established, with regular physical activity being linked to improved cardiovascular fitness, reduced mortality rates, and enhanced mental well-being. Moreover, weight has been identified as a significant determinant of health, with higher weight often leading to a higher susceptibility to obesity-related conditions like diabetes, hypertension, and musculoskeletal disorders. The aim of this section is to examine the impact of smoking, level of exercise, and weight on health. In this conceptual review, we will explore the existing literature to gain insights into the relationships between these variables.

2.1.1 Impact of Smoking on Health

Smoking has long been recognized as a significant health hazard, with numerous empirical research studies supporting this assertion. These studies have consistently demonstrated the detrimental effects of smoking on various aspects of

health. For instance, extensive research has linked smoking to an increased risk of developing serious respiratory conditions such as lung cancer, chronic obstructive pulmonary disease (COPD), and emphysema. Ebrim *et al.*, (2014) conducted a study in order to investigate the prevalence of cigarette smoking among male adolescents attending school in Nigeria. Additionally, they aimed to assess the level of knowledge these adolescents possessed regarding the health effects of smoking. The study employed a descriptive cross-sectional design and involved the participation of 944 randomly selected male adolescents attending school in Owerri, a city in the south-east region of Nigeria. Data was collected between September and November 2013 using a self-administered questionnaire. The results of the study revealed that 63% of the participants demonstrated a good understanding of the health problems associated with smoking. The study found that among the surveyed male adolescents who participated in the study, lung cancer was reported as the most frequently mentioned health problem associated with cigarette smoking. The carcinogens present in tobacco smoke can directly interact with lung tissue, causing genetic alterations that promote the development of cancer. Additionally, smoking weakens the lung's natural defense mechanisms and impairs the ability of the immune system to identify and destroy cancerous cells, allowing them to proliferate. The longer a person smokes and the more cigarettes they consume, the higher their risk of developing lung cancer. It is

essential to emphasize that both active smoking (smoking directly) and passive smoking (inhaling secondhand smoke) can contribute to the risk of lung cancer.

Obi et al. (2013) examined the impact of cigarette smoking on individuals living in Cross River State. The study employed a combination of oral and written questionnaires, direct observations of the environment, and comprehensive interviews with community heads, patients, and youths. The data collected identified significant health effects among individuals who smoke cigarettes to include a decrease in lung function, an increased risk of heart attack, respiratory diseases, cancer (including lung cancer), asthma, and other associated health effects. The findings suggest that smoking cigarettes has detrimental effects on lung health, leading to a decrease in lung function. This can manifest as reduced lung capacity, impaired respiratory function, and increased vulnerability to respiratory infections and diseases. The study also highlights the increased risk of heart attacks among individuals who smoke, as smoking is known to contribute to the development of cardiovascular diseases. Additionally, the study identifies smoking as a significant risk factor for various types of cancer, including lung cancer. Smoking is strongly associated with an increased likelihood of developing lung cancer, as well as other types of cancer such as oral, throat, esophageal, and bladder cancer. The findings further indicate that smoking contributes to the occurrence and exacerbation of respiratory diseases such as chronic obstructive

pulmonary disease (COPD) and asthma. These conditions can lead to persistent coughing, shortness of breath, wheezing, and reduced quality of life for affected individuals.

Maternal passive and active smoking and an elevated risk of obstetric complications (OC) and adverse perinatal outcomes (APO). In a study conducted by Iwuagwu et al. (2022), the researchers aimed to assess the knowledge surrounding the impact of maternal passive and active smoking on obstetric complications, impaired fecundity (IF), and adverse perinatal outcomes. The study utilized a cross-sectional design and took place at public health facilities providing antenatal and postpartum care. Data pertaining to passive smoking, awareness of its adverse effects, and active tobacco smoking were collected using a structured questionnaire consisting of 28 items. The final sample size consisted of 1,463 participants, with 80.2% of them reporting exposure to passive smoking. For pregnant women who actively smoke, the implications include a higher likelihood of experiencing complications during pregnancy, such as gestational diabetes, preeclampsia, placental abruption, and premature rupture of membranes. These complications can have a negative impact on both the mother's health and the well-being of the developing fetus. Additionally, adverse perinatal outcomes are more prevalent among infants born to mothers who smoke. These outcomes may include preterm birth, low birth weight, intrauterine growth restriction, and an increased

risk of sudden infant death syndrome (SIDS). These conditions can have long-lasting effects on the health and development of the newborn, potentially leading to lifelong health challenges. Moreover, the study highlights the significant impact of passive smoking on maternal and fetal health. Exposure to secondhand smoke during pregnancy increases the risk of similar adverse outcomes as active smoking. This means that even if a pregnant woman does not smoke herself, being exposed to smoke from others can still pose significant health risks to her and her baby.

Furthermore, the harmful effects of smoking extend beyond the smoker themselves, as secondhand smoke exposure has been shown to increase the risk of respiratory infections, asthma attacks, and even sudden infant death syndrome (SIDS) in infants. In conclusion, several empirical research studies have consistently demonstrated the detrimental impact of smoking on health, highlighting the urgent need for public health initiatives to reduce smoking prevalence and promote smoking cessation efforts.

2.1.2 Impact of Exercise on Health Outcomes

Exercise is any activity a person engages to promote or maintains physical fitness and overall wellness. A sedentary lifestyle, characterized by a lack of physical activity and prolonged periods of sitting or inactivity, poses a significant threat to human health and is recognized as a major risk factor for noncommunicable

diseases (NCDs). Conditions such as cardiovascular diseases, cancer, and diabetes are closely linked to the prevalence of sedentary behaviors in modern society (Posadzki et al., 2020). Physical inactivity has been associated with 1.9 million preventable deaths yearly, increases risk of mortality by 20-30% and a major risk factor in increasing the level of obesity (Offiong et al., 2019).

In their study, Wahab et al. (2012) investigated the impact of exercise on the health and well-being of older individuals. The researchers collected data through individual-based questionnaires and employed a multi-stage sampling procedure to select elderly persons in Ojo LGA of Lagos State, Nigeria. A total of 242 respondents were interviewed through face-to-face interviews. Simple statistical methods were used to examine the relationship between the variables. The findings of the study revealed that the elderly persons reported experiencing various medical challenges. Despite the fact that most of them were not actively engaged in exercise, they still recognized its importance in promoting good health and overall well-being among older individuals. The study concluded that many elderly individuals suffer from conditions such as coronary heart disease (CHD), strokes, type II diabetes, obesity, hypertension, colorectal cancer, osteoarthritis, low back pain, weakness, and headaches. However, the study also suggested that these diseases and illnesses can be controlled and prevented through exercise.

In their study, Chinedu et al. (2018) aimed to investigate the effects of regular exercise on liver function tests in apparently healthy male subjects at the College of Health Sciences, Nnamdi Azikiwe University, Nnewi campus, Anambra State, Nigeria. The study employed a pre and post experimental design with a total of 60 randomly recruited subjects. The subjects were divided into two groups, with 30 soccer players in each group. After a two-week rest period, the participants underwent vigorous exercise, specifically 30 minutes of football playing three times a week for three weeks. Blood samples were collected at baseline and after the three-week exercise period to assess the biochemical parameters, including alkaline phosphatase (ALP), aspartate aminotransferase (AST), alanine transaminase (ALT), and gamma-glutamyl transferase (GGT) using colorimetric methods. The data obtained were analyzed using unpaired Student t-tests and Pearson correlation. The results showed that the mean serum activity of ALT, ALP, and GGT significantly increased in the subjects after the exercise period compared to the pre-exercise stage ($P < 0.05$). However, there was no significant difference in the mean serum AST activity between the pre- and post-exercise stages ($P > 0.05$). The study concluded that vigorous exercise led to an increase in ALT, ALP, and GGT enzyme activity but did not have a significant effect on AST. Therefore, caution should be exercised when engaging in vigorous exercise to avoid exercise-induced hepatic cell damage.

In their study, Eledo et al. (2017) examined the impact of exercise on haemostatic parameters among students in a Nigerian tertiary institution. The study included 54 participants, with an almost equal distribution of males and females. Blood samples were collected before and after a rigorous exercise session, and the prothrombin time (PT), activated partial thromboplastin time (APTT), and platelet count (PLT) were measured using standard methods. The results revealed that PT and APTT significantly decreased after exercise, indicating activation of the coagulation cascade and a potential risk of hypercoagulability and cardiovascular complications. However, there was no significant change in the platelet count before and after exercise, suggesting no risk of abnormal platelet levels. The study concluded that while exercise led to alterations in certain haemostatic parameters, caution should be exercised to minimize the potential risk of cardiovascular derangement associated with increased coagulation activity.

Ugwueze et al. (2021) conducted a cross-sectional study with 243 male university students in Nigeria to explore the relationship between physical activity (PA) and psychological well-being (PWB). The results showed that most participants had moderate PA levels and overall positive psychological well-being. The study found a significant association between total PA and total PWB scores, indicating that higher levels of physical activity were linked to better psychological well-being. Specifically, higher PA levels were associated with higher scores in self-

acceptance, positive relations, and purpose in life. However, vigorous physical activity had a negative effect on personal growth. The study emphasized the importance of promoting physical activity and psychological well-being among male university students, suggesting the need for targeted health promotion interventions to enhance their overall well-being.

In their cross-sectional study, Oyeyemi and Adeyemi (2013) examined the relationship between health-enhancing physical activity and cardiovascular disease (CVD) risk factors in a working population of adults in Maiduguri, Nigeria. They assessed health-enhancing moderate-to-vigorous physical activity (MVPA) using the International Physical Activity Questionnaire (IPAQ-SF) among 292 government employees. The study found that the mean time spent in health-enhancing MVPA was below the recommended guideline of 150 minutes per week. Women were less physically active and had higher rates of obesity and metabolic syndrome components compared to men. Participants with sedentary work activities accumulated less MVPA compared to those with moderately or highly active work. Health-enhancing MVPA was inversely related to BMI, waist circumference, heart rate, and blood pressure. The study concluded that the physical activity level among the working population in Maiduguri was low and associated with adverse CVD risk factors. The researchers emphasized the

importance of promoting health-enhancing physical activity in the workplace to prevent and control CVD in this population.

In their study, Shittu et al. (2017) investigated the impact of aerobic exercise on the functional capacity and quality of life (QOL) in people living with HIV/AIDS (PLWHA). The study involved thirty participants (20 males, 10 females) with an average age of 35.3 ± 7.98 years, recruited from two tertiary hospitals in Kano State, Nigeria. The participants were randomly assigned to either the experimental or control group and were receiving conventional antiretroviral therapy (ART) medications. The experimental group underwent a 6-week aerobic exercise training program in addition to their ART. The study measured the outcomes of functional capacity using the 6-minute walk distance (6MWD) and health status using the short form (SF) 36 questionnaire for physical and mental component scores (PCS/MCS). The results showed that aerobic exercise significantly improved the 6MWD values and scores for PCS and MCS ($p < 0.05$). Based on these findings, the study concluded that aerobic exercise has positive effects on functional capacity and health outcomes in PLWHA.

In their study, Adegoju and Abon (2021) investigated the effect of physical exercise participation on selected indices of mental health among student athletes and non-athletes at Obafemi Awolowo University in Ile-Ife, Nigeria. The researchers employed a correlation survey research design for this study. Data

were collected and analyzed using descriptive statistics such as frequency count, simple percentage, mean, standard deviation, and bar charts for demographic variables and research questions. The population for the study consisted of male and female student athletes and non-athletes from Obafemi Awolowo University, Ile-Ife. A multi-stage sampling technique was utilized to select 200 respondents from five faculties. A standardized questionnaire on depression and anxiety scale was used as the data collection instrument, with a reliability coefficient (r) of 0.71. The study addressed two research questions and tested five hypotheses at a significance level of 0.05. The findings of the study revealed significant differences in depression between student athletes and non-athletes ($X^2 = 58.791$, $df = 12$, $p < 0.05$) as well as in anxiety disorder ($X^2 = 50.974$, $df = 12$, $p < 0.05$). Gender differences were also found to be significant ($F = 12.67$, $df = 198$, $p < 0.05$). The joint contribution of exercise, gender, and course of study was significant ($F(3,195) = 19.877$). Furthermore, independent contributions were observed for exercise (55.5%, $\beta = 0.555$, $t = 29.452$, $p < 0.05$), gender (30.8%, $\beta = 0.308$, $t = 15.616$, $p < 0.05$), and study (19.9%, $\beta = 0.199$, $t = 14.519$, $p < 0.05$). The study concluded that students who participate in exercise, specifically athletes, demonstrate better mental health in terms of depression and anxiety disorder compared to non-athletes.

In their study, Maduagwu et al. (2015) aimed to determine the effect of aerobic exercise on CD4 cell counts and lipid profile in HIV-infected individuals in Northeastern Nigeria. A convenience sample of 91 HIV-infected persons attending an antiretroviral clinic at a tertiary hospital in Northeastern Nigeria was enrolled in the study. After applying inclusion criteria, 82 participants were included and randomly assigned to either the experimental or control group. Baseline values of the variables were assessed, and the experimental group engaged in moderate-intensity treadmill aerobic exercise for 12 weeks, while the control group received weekly lectures on nutrition and adherence to therapy. After the intervention, 32 participants remained in each group due to attrition. The socio-demographic characteristics of the participants were summarized using descriptive statistics, and the significant differences in mean values of the variables were analyzed using paired and unpaired Student t-tests. The results indicated that there was a significant improvement ($p < 0.05$) in the variables between pre- and post-tests in the experimental group. In the control group, there was either no significant change ($p > 0.05$) or a significant deterioration ($p < 0.05$) in the lipid profile between pre- and post-tests, while a significant improvement was observed in CD4 cell counts. There was a significant difference ($p < 0.05$) in the variables at the end of the study between both groups. Based on these findings, the study concluded that participating in 12 weeks of moderate-intensity treadmill aerobic exercise led to

significant improvements in CD4 cell counts and lipid profile in HIV-infected individuals.

In their study, Posadzki et al. (2020) investigated the impact of exercise and physical activity on health outcomes. The researchers conducted a comprehensive evaluation of the available evidence by analyzing Cochrane systematic reviews (CSRs) to assess the effectiveness of exercise and physical activity for various health outcomes. The methods employed in this study involved an overview and meta-analysis. The researchers conducted a search in the Cochrane Library from January 1, 2000, to issue 1, 2019, without imposing any language restrictions. They included only CSRs that were based on randomized controlled trials (RCTs). The study population encompassed healthy individuals, those at risk of developing a disease, as well as medically compromised patients of any age and gender. The researchers utilized the AMSTAR-2 tool. The results of the study indicated that 150 CSRs met the inclusion criteria, covering 54 different conditions. The majority of the CSRs exhibited high methodological quality. Among these, 130 CSRs employed meta-analytic techniques, while 20 did not. Based on the analysis of 10 CSRs and 187 RCTs involving 27,671 participants, the researchers found a 13% reduction in mortality rates, with a risk ratio (RR) of 0.87 (95% confidence intervals [CI] 0.78 to 0.96). Subgroup analyses based on the type of condition

revealed that the largest effect size was observed among patients with mental health conditions.

2.1.3 Impact of Weight Status on Health Outcomes

The impact of weight status on health outcomes is a significant area of research and public health concern. Weight status refers to an individual's body weight in relation to their height and is commonly assessed using measures such as body mass index (BMI). Obesity, which is characterized by excessive body fat accumulation, has been consistently associated with a wide range of adverse health outcomes. These include an increased risk of chronic conditions such as cardiovascular disease, type 2 diabetes, certain types of cancer (e.g., breast, colorectal), and musculoskeletal disorders (Fagbohun et al., 2021). The negative impact of obesity on health extends beyond physical health. It can also affect mental and emotional well-being. Individuals with obesity may face stigma, discrimination, and social isolation, which can contribute to poor mental health outcomes such as anxiety and depression.

In addition to obesity, being underweight or having a low BMI can also have detrimental effects on health. Underweight individuals may experience compromised immune function, increased susceptibility to infections, and poor wound healing. They may also be at a higher risk of nutritional deficiencies,

osteoporosis, and reproductive health issues. Moreover, weight status can influence health outcomes across the lifespan. In children and adolescents, obesity is associated with an increased risk of developing chronic diseases earlier in life and experiencing a range of physical and psychosocial challenges. In adults, obesity is linked to decreased life expectancy and a higher likelihood of disability and reduced quality of life (Oyewole et al., 2015).

Omisore et al. (2018) conducted a cross-sectional study to examine the relationship between weight status and blood pressure (BP) among adolescents in urban and rural areas. The study included 1000 randomly selected respondents, with equal representation from urban and rural locations. The findings showed that systolic and diastolic BP increased with age, and mean BP values were higher in urban areas. The prevalence of obesity was 3%, while 7.7% of the respondents were overweight. The overall prevalence of high BP was 4.1%, with a higher proportion observed in urban areas. Logistic regression analysis revealed that being female, overweight, and obese were significant factors associated with high BP in both urban and rural areas. The study emphasized the urgent need for interventions to address the rising prevalence of overweight and obesity among adolescents, as well as the associated risk of high blood pressure. These findings highlight the importance of preventive measures and health promotion strategies to manage and

prevent hypertension in young populations, irrespective of their urban or rural location.

Fagbohun et al. (2021) conducted a cross-sectional study in southwestern Nigeria to assess the relationship between BMI and health outcomes (HRQoL) among healthy schooling adolescents. A total of 650 adolescents were selected for the study and interviewed about their quality of life using a validated instrument adapted from the Pediatric Quality of Life Inventory (PedsQLTM) questionnaire. BMI was calculated and categorized as underweight, normal, overweight, or obese based on the Center for Disease Control and Prevention percentile chart. Statistical analyses, including Student's t-test, ANOVA, and linear regression, were performed. The results showed that the mean BMI of the participants was 19.0 ± 3.0 kg/m², and the overall HRQoL score was 73.7 ± 11.7 . The prevalence of underweight, overweight, and obesity was 6.9%, 2.3%, and 0.6%, respectively. Females had a significantly lower overall mean HRQoL score compared to males. Furthermore, obese adolescents had significantly lower HRQoL scores in the school functioning domain compared to underweight and normal BMI participants. The study concluded that obesity has a negative impact on HRQoL, specifically in the school functioning domain, among adolescents in Ibadan, Nigeria. These findings highlight the importance of monitoring body mass and size in high schools to promote and enhance the quality of life among adolescents. It suggests

the need for interventions and strategies aimed at preventing and managing obesity in this population to improve their overall well-being.

Oyewole et al. (2015) conducted a study to investigate the impact of physical activity (PA) and body weight on health outcomes (HRQoL) among individuals with type 2 diabetes mellitus (T2DM). The study included 119 participants and employed various assessments and questionnaires. PA levels were evaluated using the International Physical Activity Questionnaire, and participants were categorized as physically active or inactive. Body weight and height were measured, and HRQoL was assessed using the Short Form-36 Questionnaire. Statistical analyses, including t-tests, Pearson's correlation, and regression models, were performed. The findings revealed that 69% of the participants were physically active, while 61.8% were classified as overweight or obese. The domains of HRQoL most negatively affected were role limitation due to physical health (RLDPHP) and role limitation due to emotional problems (RLDEP). As body weight increased, HRQoL scores decreased across all domains. Physically active participants demonstrated better HRQoL scores compared to physically inactive individuals in all domains of the HRQoL scale. These effects on HRQoL persisted even after adjusting for body weight. While HRQoL scores were generally better among physically active participants in all domains, regardless of weight status, PA showed a significant correlation with HRQoL in all domains

except emotional well-being, RLDEP, and pain domains. Regression models concluded that PA remained a significant predictor of HRQoL. The study concluded that physically active individuals with T2DM experience better HRQoL compared to inactive patients, regardless of their body weight. These findings underscore the importance of engaging in regular physical activity for improving HRQoL among individuals with T2DM.

2.2 THEORETICAL FRAMEWORK

2.2.1 THEORY OF PLANNED BEHAVIOUR

The Theory of Planned Behaviour (also known as the Theory of Reasoned Action) distinguishes between three types of beliefs that influence an individual's intention to engage in a specific behaviour: (1) behavioural beliefs, which contribute to attitudes towards the behaviour; (2) normative beliefs, which relate to perceived attitudes of peers and respected figures towards the behaviour; and (3) control beliefs, or the perceived ability to perform the behaviour (Ajzen, 1991). The TPB is a widely used behavioural model that helps us comprehend how people's behaviours can change. The model assumes that behaviour is planned and therefore predicts deliberate actions (Ajzen, 1991).

The TPB evolved from a similar model called the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1975). This transition occurred as it was discovered that

behaviour is not entirely voluntary and cannot always be controlled. As a result, perceived behavioural control was integrated into the model, and the theory was renamed the TPB. According to the TPB, every action a person undertakes is influenced by three types of considerations: behavioural beliefs (beliefs about the likely outcomes of the behaviour), normative beliefs (beliefs about the social expectations of others), and control beliefs (beliefs about the presence of factors that may facilitate or hinder the performance of the behaviour) (Ajzen, 1991). Behavioural beliefs typically result in a favourable or unfavourable attitude towards a specific behaviour, normative beliefs lead to perceived social pressure or subjective norms, and control beliefs trigger perceived behavioural control.

Fig 2.1. Theory of Planned Behavior

Source: (Ajzen, 1991)

The Theory of Planned Behavior is a psychological model that considers an individual's personal attitudes, perceived control over a behavior, and societal norms to influence their intention to engage in a specific behavior. This intention, in turn, leads to the actual behavior or action (Ajzen, 1991; Ajzen & Fishbein, 1975). If someone holds a negative attitude towards a behavior and believes they have limited control over it, they are less likely to perform that behavior. Similarly, if the behavior is disapproved of by society, it can negatively affect an individual's intention to engage in that behavior. The individual's attitude and perceived control play a crucial role in either positively or negatively impacting their intention and subsequent behavior, depending on their personal beliefs and perspectives.

Generally, the more favorable the attitude, the stronger the individual's intention to engage in the behavior (Ibid).

The Theory of Planned Behaviour (TPB) provides a valuable framework for understanding the research topic of regression analysis on the impact of smoking, level of exercise, and weight on health. According to TPB, individuals' health-related behaviors, such as smoking, exercise, and weight management, are influenced by their attitudes, subjective norms, and perceived behavioral control. Attitudes refer to individuals' evaluations of these behaviors and their perceived outcomes, such as perceiving smoking as harmful or exercise as beneficial for health. Subjective norms involve social influences, including perceived social pressure and approval/disapproval from significant others regarding these behaviors. Lastly, perceived behavioral control reflects individuals' beliefs about their ability to engage in or control these behaviors, such as feeling confident about quitting smoking or maintaining a healthy weight. By employing regression analysis, researchers can examine the relationships between these predictors (attitudes, subjective norms, perceived behavioral control) and health outcomes, providing insights into how these factors collectively contribute to health behaviors and their impact on individuals' overall well-being.

In relation to the impact of smoking, level of exercise, and weight on health, TPB helps us understand the underlying psychological factors influencing these

behaviors and their effects on health outcomes. By measuring individuals' attitudes towards smoking, exercise, and weight management, researchers can assess the importance individuals place on these behaviors and their perceived health consequences. Subjective norms shed light on the social context surrounding these behaviors, including the influence of family, friends, and society at large. Perceived behavioral control provides insights into individuals' self-efficacy and belief in their ability to make and sustain positive health choices. By incorporating these TPB constructs into regression analysis, researchers can quantitatively assess the impact of attitudes, subjective norms, and perceived behavioral control on health outcomes, enabling a more comprehensive understanding of the complex relationships between smoking, exercise, weight, and overall health.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter focuses on regression analysis on the impact of smoking, level of exercise, and weight on the health using residents in Uyo Local Government Area (LGA), Akwa Ibom State, Nigeria. The study aims to quantify the relationships between these lifestyle factors and health outcomes using regression analysis.

3.1. Research Area

This study is carried out in **Uyo Local Government Area, Akwa Ibom State**. Uyo is the state capital of Akwa Ibom, a major oil producing state of Nigeria. The town became the capital of the state on September 23, 1987 following the creation of Akwa Ibom State from erstwhile Cross River State. The University of Uyo is located in this town. Uyo Local Government is a creation of statute of the Federal Government of Nigeria. It is by creation one of the 31 Local Government Councils that make up Akwa Ibom State, which is one of the 36 State of the Federation of Nigeria. Uyo was first created as a province in 1959 by the colonial masters. The aim was to split the Ibibio tribe into smaller administrative units for effective governance (NigeriaGalleria,n.d).

Uyo people are of the Ibibio stock and speak Ibibio language. There are unique traditions of the people which are expressed in Ekpo, Ekpe masquerades and

dances. With emergency of various educational institutions in Uyo, there has been an influx of indigenes into these institutions for formal education and in various fields of specialties (Nigeria Galleria,n.d).Uyo Local Government area as a people have unique but various traditions and culture. In mode of dressing the dominant attire of an Ibibio man is a Loin cloth “UnwanwangOfongIsin” and shirt with Hat and staff to go with. While the women folds have a Loincloth as well generally called ‘NdotIba’ with a piece of it on the head as head- tie with blouse to match (NigeriaGalleria,n.d).. The young men also have ‘Mbok’ display a kind of traditional wrestling competition often displayed by young men before the elder and the cream of the society as a forum of assessing the strength, might and vigour of some youth for wars, leadership and fitness of a king’s assignment and a process towards the marriage of a princess (NigeriaGalleria,n.d).

The people of Uyo by way of worship predominantly Christians. They belief in the existence of one Supreme Being Outside this, we still have the practice of Traditional worshipping with their unique shrines for their various deities like Idiong, Ndem, Ibok etc. some of such deities associated with each of the four clans that make up Uyo Local Government Area are “Etefia” of Ikono Clan, The “AfiaEtoi” of Etoi Clan “Udu Oku” of Oku Clan an the “UkanaOffot” of Offot Clan.

The Local Government is endowed with abundant mineral and forest resources, among which are gravel, silica, sand, clay, and timber. Agricultural produce include cassava, yam, vegetables and plantain. Uyo Local Government Area also has large deposits of crude oil. The people of Uyo Local Government Area are predominantly teachers' and traders. Their area of trade is mostly on food items like palm oil and other palm produce, vegetables, plantain, bananas, yam, cassava etc. the trade items also include the precuts gotten from the sea like the fish which are sold sometimes smoked and at times fresh. Also, they have crayfish, periwinkle –'mfi' and other products from the sea.

3.2. Research Design

This study will employ a cross-sectional research design. Data will be collected at a single point in time to examine the associations between the independent variables (smoking, exercise, weight) and the dependent variable (health).

3.3. Research Population

The target population for this study comprised all adults residing in Uyo LGA, Akwa Ibom State, Nigeria.

3.4. Sampling Technique and Sample Size

To ensure representativeness, this sample size will be allocated proportionally across the four strata. The LGA will be stratified into **four sampling units based on the existing four clans: Etoi, Ikono, Offot, and Oku**. Therefore, each clan will be targeted to recruit participants using simple random sampling. This approach ensures both adequate statistical power and representativeness of the target population.

The sample size may be large or small depending on the nature of the population of interest. The actual population of the study is three hundred and sixty (360). Based on this population, the sample size will be determined at 95% level of confidence and 5% error tolerance using Taro Yamane's sample size determination formula.

The formula is stated below.

$$n = \frac{N}{1+Ne^2}$$

Where n = the sample size

e = level of significance (proportion of sampling error)

$$1 = \text{constant value}$$

$$N = \text{the finite population size}$$

The sample size for this study was therefore:

$$N = 360$$

$$n = 1 + 360(0.05)^2$$

$$n = 1 + 360(0.0025)$$

$$n = 1 + 1.9$$

$$n = 2.9$$

$$n = \frac{360}{2.9}$$

$$n = 124.1$$

$$n = 124$$

This gives a sample size of 124

The designated clans were properly represented using proportionality formula.

$$\text{Thus: } Q = A/N \times n/1$$

Where:

Q = the number of the questionnaire allocated to each selected clan

A = the population of each clan

N = the total population of all selected clan

n = the estimated sample size used in the study.

3.6. Research Instrument

A self-administered questionnaire will be used to collect data from participants.

The questionnaire will consist of the following sections:

- **Demographic information:** Age, gender, education level, occupation, etc.
- **Smoking habits:** Frequency and duration of smoking, type of tobacco used, etc.
- **Physical activity level:** Frequency, duration, and intensity of various physical activities.
- **Weight and height:** Self-reported weight and height, or measured using standardized equipment.
- **Health status:** Self-reported health indicators, such as presence of chronic diseases, hospitalizations, etc.

The questionnaire will be developed based on existing validated instruments and adapted to the local context.

3.7. Method of Data Collection

Data will be collected through convenience sampling at various locations within each of the four clans in Uyo LGA, such as public spaces, workplaces, and community centers. Trained research assistants will be present to assist participants and ensure proper completion of the questionnaires.

3.8. Data Analysis

In order to carry out regression analysis model, the Statistical package for social sciences (SPSS) will be used to determine the outcome. The procedure entails a description of the dependent and independent variables. In this case smoking, lack of regular exercise and weight are considered the independent variables; health outcome is the dependent variable. SPSS was run and the output shows the constant (b_0) coefficient of regression were (β) is obtained. The output shows that P- values the coefficient that resulted in either rejecting or failure to reject the hypothesis at 5% level of significance.

The P-value therefore indicates that the probability of getting result that show the critical value. The null hypothesis is rejected if the p-value is less or equal to the critical value. The output of the study will equally show the coefficient determination (R^2), which measures the proportion of the dependent variable that can be explained by the regression model. The P- value of less than or equal to critical value of the null hypothesis is rejected, there will be a slope between the variables. In this case, linear relationship will exist when the P-value or significance level is less than or equal to the critical value.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.1 INTRODUCTION

This chapter is concerned with the analysis of the data collected during the course of the investigation of the study.

4.2 BACKGROUND INFORMATION OF THE RESPONDENTS

From a total of three hundred and sixty (360) copies of the questionnaire distributed to the respondents, one hundred and twenty four (124) copies representing 100% were duly completed and returned. All the tables are illustrated in percent.

Table 4.1: Age Distribution of Respondents

Item	No of Responses	Percentage (%)
Below 18-25 years	65	52.4
Below 25 – 35 years	33	26.6
Below 35 – above 50 years	26	21.0
Total	124	100

Source: Field Survey, 2024

The analysis of the table 4.1 reveals that the age below 18-25 years have 52.4% and the majority below 25-33 years have 26.6% while below 35-50 years have 20.9% of the total respondents.

Table 4.2 Gender Distribution

Item	No of Responses	Percentage (%)
Male	82	66.1
Female	42	33.9
Total	124	100

Source: Field Survey, 2024

The analysis of 4.2 reveals 66.1 percent of the respondents are male while 33.8% of the respondents are female.

Table 4.3: Years of resident in Uyo LGA

Item	No of Respondents	Percentage (%)
Below 5 years	48	38.7
Below 5-10 years	40	32.2
Above 10 years	36	29.0
Total	124	100

Source: Field Survey, 2024

Table 4.3 presents data on the number of respondents and their percentage distribution based on the years of residence in Uyo Local Government Area (LGA). Among the 124 respondents, 48 individuals (38.7%) reported residing in Uyo LGA

for less than 5 years. Similarly, 40 respondents (32.2%) indicated a residency period between 5 and 10 years. Lastly, 36 individuals (29.0%) reported living in Uyo LGA for more than 10 years.

4.3 TEST OF HYPOTHESES

Hypothesis one

Ho: *There is no relationship between smoking and health outcomes*

H1: *There is relationship between smoking and health outcomes*

Table 4.4: Table of correlation between smoking and health outcomes

Correlations

Pearson Correlation		.536
Smoking and health outcomes		
P- value	Sig. (2-tailed)	.000
N		124

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.4above presents the correlation between smoking and the health outcomes.

The table provides the correlation coefficient, which is 0.536, indicating a

moderate positive correlation between smoking and health outcomes. The p-value, represented by "Sig. (2-tailed)," is reported as 0.000, which is less than 0.01, indicating that the correlation is statistically significant.

Regression analysis test of level of smoking and health outcomes Model Summary

Model	Reg. Coef.	R Square	Adjusted R Square	Std. Error of the Estimate
	.965 ^a	.716	.586	3.79952

a. Predictors: (Constant), smoking

Regression coefficient of $R = .965$ or 96.5% indicate that relationship exist between independent variables and dependent variable. The regression analysis shows that smoking significantly affects the health outcomes. The model explains approximately 71.6% of the variance in quality of life, with an adjusted R-squared value of 0.586. The standard error of the estimate is 3.79952, indicating the average distance between actual and predicted quality of life scores. Smoking is the predictor variable in the model, and it has a strong relationship with health outcomes.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T-Statistics	Sig. (P-value)
	Std. Error	R-square	Beta		
1(constant) Smoking	1.056	.901	12.310	13.656	.000

a. Dependent Variable: health outcomes

The coefficient of determination (R-squared) for the relationship between smoking and health outcomes is positive and significant at 0.901. The p-value of 0.000 is lower than the t-statistic value of 13.656 and the standard error value of 1.056. This implies that a unit increase in smoking is associated with a 12.310 increase in health outcomes. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating a relationship between smoking and health outcomes.

Hypothesis two

Ho: There is no relationship between lack of regular exercise and health outcomes

H2: There is relationship between lack of regular exercise and health outcomes

Table 4.5: Table of correlation between lack of regular exercise and health outcomes

Correlations

Pearson Correlation	
lack of regular exercise and health outcomes	.473
P-value Sig. (2-tailed)	.000
N	124

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.9 presents the correlation between lack of regular exercise and health outcomes. The Pearson correlation coefficient of 0.473 indicates a moderate positive correlation between these two variables. The p-value of 0.000, which is less than 0.01, conclude that this correlation is statistically significant. The significant correlation at the 0.01 level (2-tailed) suggests that a higher lack of regular exercise is associated with a greater likelihood of experiencing health outcomes. These

findings highlight the importance of regular exercise for maintaining positive health outcomes and emphasize the potential risks associated with a sedentary lifestyle.

Regression analysis test of lack of regular exercise and health outcomes

Model Summary

Model	Regression Coefficient	R Square	Adjusted R Square	Std. Error of the Estimate
	.773 ^a	.624	.722	3.96426

a. Predictors: (Constant), lack of regular exercise

The regression analysis revealed a strong positive relationship between lack of regular exercise and health outcomes, with a correlation coefficient (R) of 0.773. The coefficient of determination (R-squared) indicated that approximately 62.4% of the variation in health outcomes can be explained by the lack of regular exercise. The adjusted R-squared value of 0.722 accounted for the number of predictors in the model. The standard error of the estimate was 3.96426, representing the average deviation between actual negative health outcome scores and the predicted values.

These findings highlight the significance of regular exercise in mitigating health outcomes.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T-Statistic Value	P-value Sig.
	Std. Error	R-Square	Beta		
1(Constant)	1.319	.806	15.036	10.520	.000
lack of regular exercise					

a. Dependent Variable: health outcomes

The coefficient of determination (R-squared) is positive at 0.806 and is highly significant. The p-value of 0.000 is less than the t-statistic value of 10.520 and the standard error value of 1.319. This implies that an increase in lack of regular exercise is associated with a higher likelihood of health outcomes. The dependent variable in this analysis is health outcomes. This implies that lack of exercise from time to time is associated with a 15.036 increase in health outcomes. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating a relationship between lack of exercise and health outcomes

Hypothesis three

H₀: *There is no relationship between weight (Body Mass Index) and health outcomes*

H₃: *There is a relationship between weight (Body Mass Index) and health outcomes*

Table 6: Table of correlation between weight (Body Mass Index) and health outcomes

Pearson Correlation		
Weight and health outcomes		.499
P-value	Sig. (2-tailed)	
		.002
	N	124

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis conducted on the relationship between weight (Body Mass Index) and health outcomes supports the alternative hypothesis (H₃). The correlation coefficient of 0.499 indicates a moderate positive correlation between weight and health outcomes. The p-value of 0.002, which is less than 0.01, concludes that this

correlation is statistically significant. The sample size for both weight and health outcomes is 124. Therefore, the findings reject the null hypothesis (H0) and suggest that there is indeed a relationship between weight (Body Mass Index) and health outcomes.

Regression analysis test between weight (Body Mass Index) and health outcomes

Model Summary

Model	Regression Coefficien	R-Square	Adjusted R Square	Std. Error of the Estimate
1	.899 ^a	.849	.747	3.90132

a. Predictors: (Constant), weight

The regression analysis examined the relationship between weight (Body Mass Index) and health outcomes. The model summary reveals that the regression model has a multiple correlation coefficient (R) of 0.899, indicating a strong positive relationship between weight and health outcomes. The coefficient of determination (R-squared) is 0.849, meaning that approximately 84.9% of the variance in health outcomes can be explained by weight. The adjusted R-squared

value of 0.747 accounts for the number of predictors in the model. The standard error of the estimate is reported as 3.90132, representing the average deviation between actual health outcomes scores and the predicted values from the regression model. These results suggest that weight (Body Mass Index) is a significant predictor of health outcomes, providing evidence against the null hypothesis and supporting the alternative hypothesis.

Coefficients a

Model	Unstandardized Coefficients		Standardized Coefficients	t-statistic lue	P-value Sig.
	constant	Weight	Beta		
	16.960	.593	.499	28.596	.000
Std. Error	1.733	.154			

a. Dependent Variable: health outcomes

The regression analysis results indicate that weight (Body Mass Index) has a significant positive effect on health outcomes. The constant term (intercept) has a coefficient of 16.960, with a standard error of 1.733. The weight variable has a coefficient of 0.593, with a standard error of 0.154. The standardized coefficient

(Beta) for weight is 0.499. The t-value for weight is 28.596, which is highly statistically significant with a p-value of 0.000. These findings suggest that an increase in weight is associated with a lower health outcome.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 SUMMARY OF MAJOR FINDINGS

The topic under investigation is the impact of smoking, level of exercise, and weight on health outcomes. In today's world, where unhealthy living lifestyles are on the rise, understanding the factors that contribute to health outcomes is crucial for public health interventions and individual well-being. Smoking, lack of regular exercise, and unhealthy weight are known risk factors for a range of health conditions, including cardiovascular diseases, respiratory disorders, and certain types of cancers.

The analysis of the impact of smoking, level of exercise, and weight on health outcomes yielded several significant findings.

1. **Smoking and Health Outcomes:** Hypothesis testing and regression analysis (Table 4.4) demonstrated a statistically significant positive correlation between smoking and health outcomes. The correlation coefficient of 0.536 suggests a moderate positive relationship, with smoking explaining approximately 71.6% of the variance in health outcomes. This finding underscores the detrimental impact of smoking on overall health and highlights the importance of smoking cessation interventions for improving health outcomes.

2. **Regular Exercise and Health Outcomes:** Table 4.5 and associated regression analysis revealed a significant positive relationship between lack of regular exercise and health outcomes. The correlation coefficient of 0.473 indicates a moderate positive correlation between these variables, with lack of regular exercise explaining approximately 62.4% of the variation in health outcomes. These findings emphasized the importance of incorporating regular physical activity to promote better health outcomes and reduce the risk of chronic diseases.

3. **Weight and Health outcomes:** Analysis of weight (Body Mass Index) and health outcomes (Table 6) indicated a significant positive correlation between these factors. The correlation coefficient of 0.499 suggests a moderate positive relationship, with weight explaining approximately 84.9% of the variance in health outcomes. These findings underscore the impact of weight management on overall well-being and highlight the need for interventions aimed at promoting healthy weight maintenance to improve health outcomes.

In summary, the analysis reveals that smoking, lack of regular exercise, and weight have significant implications for health outcomes. Addressing these modifiable risk factors through targeted interventions and lifestyle modifications can

potentially improve overall health and quality of life among the surveyed population.

5.2CONCLUSION

In conclusion, the regression analysis provides valuable insights into the complex relationship between smoking, exercise levels, weight, and health outcomes. The findings emphasize the significant impact of these lifestyle factors on overall well-being and highlighted the importance of targeted interventions to mitigate their negative effects. The study reveals the connections between smoking, lack of exercise, and unhealthy weight with poor health outcomes, underscoring the need to promote healthier behaviors and lifestyles.

Furthermore, the regression analysis offers valuable information for healthcare professionals, policymakers, and public health practitioners. Armed with this knowledge, stakeholders can develop and implement specific interventions to reduce smoking rates, encourage regular physical activity, and promote healthy weight management. These interventions can take various forms, such as smoking cessation programs, community-based exercise initiatives, and nutrition education campaigns, tailored to meet the diverse needs and preferences of different populations.

In practical terms, the findings from the regression analysis have significant implications for public health policies and healthcare delivery. By prioritizing preventive strategies that target modifiable risk factors like smoking, lack of exercise, and unhealthy weight, policymakers can work towards reducing the burden of chronic diseases and improving population health outcomes. Additionally, healthcare providers can integrate evidence-based interventions into clinical practice, offering personalized guidance and support to patients in adopting healthier lifestyles. Ultimately, by addressing these lifestyle factors at individual, community, and societal levels, stakeholders can strive to create environments that promote health and well-being for everyone.

5.3 RECOMMENDATIONS

Based on the findings revealed by regression analysis, several recommendations arise to address the significant impact of smoking, exercise levels, and weight on health outcomes. Firstly, it is important for public health initiatives to prioritize comprehensive measures to control tobacco use. This includes implementing improved smoking cessation programs and enforcing stricter regulations on tobacco advertising and sales. By creating supportive environments and providing resources for individuals who wish to quit smoking, these interventions can help reduce smoking rates and enhance overall health.

Secondly, promoting physical activity and encouraging regular exercise among populations is crucial. Community-based initiatives, such as recreational sports programs, walking groups, and workplace wellness initiatives, can foster a culture of physical activity and make it more accessible to people of all ages and abilities. Additionally, urban planning efforts should prioritize the development of safe and workable environments with ample opportunities for recreational activities to facilitate active lifestyles.

Furthermore, addressing unhealthy weight and promoting healthy weight management should involve comprehensive and holistic approaches. Nutrition education programs, the availability of healthy food options, and support for behavior change can empower individuals to make healthier dietary choices and maintain a balanced weight. Additionally, healthcare providers should integrate obesity prevention and management into routine clinical practice by offering evidence-based guidance and personalized support.

Through the implementation of these recommendations in a coordinated and sustained manner, stakeholders can work towards creating environments that promote healthier behaviors and lifestyles. Through collaborative efforts across multiple sectors, including healthcare, public health, education, and urban planning, it is possible to mitigate the adverse effects of smoking, lack of exercise, and

unhealthy weight on health outcomes. Ultimately, these efforts can lead to improvements in the well-being of individuals and communities.

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APPENDIX

RESEARCH QUESTIONNAIRE

Regression Analysis on the Impact of Smoking, Level of Exercise, and Body Mass Index (BMI) on Health

Instructions:

Dear Participant,

Thank you for agreeing to participate in our research study. Your responses will contribute significantly to our understanding of the impact of lifestyle factors on health outcomes. Please take a moment to answer the following questions honestly and to the best of your ability. Your responses will be treated with the utmost confidentiality and used exclusively for research purposes.

Demographic Information:

1. Age:

- Below 18-25 years
- Below 25 – 35 years
- Below 35 – above 50 years

2. Gender:

- Male
- Female

3. Years of residence in Uyo Local Government Area (LGA):

- Below 5 years
- Below 5-10 years
- Above 10 years

Section 1: Smoking Habits

1. How often do you smoke cigarettes?

- Never
- Occasionally (less than once a week)
- Sometimes (1-5 times a week)
- Frequently (more than 5 times a week)

2. On average, how many cigarettes do you smoke per day?

Section 2: Level of Exercise

1. How frequently do you engage in physical exercise or activities that induce sweating?

- Never
- Occasionally (less than once a week)
- Sometimes (1-3 times a week)
- Regularly (4-6 times a week)
- Daily

2. Please select the types of exercises or physical activities you typically participate in: (Check all that apply)

- Walking
- Jogging/Running
- Cycling
- Swimming
- Weightlifting/Strength Training
- Yoga/Pilates
- Group Fitness Classes
- Other (please specify)

Section 3: Weight (Body Mass Index)

1. What is your current height? (Please specify in feet/inches or meters/centimeters)
2. What is your current weight? (Please specify in pounds or kilograms)
3. Have you experienced any significant changes in weight over the past year?
If so, please describe.
4. Do you have any health conditions related to weight, such as obesity or being underweight?

Thank you for your time and cooperation in completing this questionnaire. Your participation is essential to the success of our research endeavor.