Tues night

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A STATISTICAL REPORT ON OVERWEIGHT AND OBESITY IN PINKLAND

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MSc Global Public Health

PSYC-1115

APPLIED EPIDEMIOLOGY & STATISTICS IN THE GLOBAL CONTEXT M01

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INTRODUCTION

Overweight and obesity is becoming an increasingly important issue in Pinkland, as well as across the world. According to the World Health Organization, up to 39% of adults in Pinkland are overweight and 13% are obese (Gentile, et al., 2021). This is a concern, as it is associated with an increased risk of a range of chronic diseases, such as type 2 diabetes, heart disease, and certain types of cancer. The prevalence of obesity in Pinkland is comparable to the UK, with 62% of people in England being overweight or obese. This highlights the need for further research into the underlying causes of overweight and obesity in Pinkland, and to investigate how to effectively reduce the prevalence of these conditions. To this end, the National Centre for Health Research conducted the 2011 Health Survey of Pinkland (HSP) to assess the nutritional status of adults. The data was collected by the National Centre for Health Research in collaboration with the Department of Public Health at the University of Central Pinkland, using a multi-stage stratified probability sampling design. The survey comprised a sample of 7,000 randomly selected addresses from 700 postcode sectors. Up to 10 adults were interviewed in each household, and data was collected on socio-demographic characteristics and height and weight measurements. The results of the survey will provide valuable insights into the nutritional status of adults in Pinkland, and will help inform policies and interventions to reduce the prevalence of overweight and obesity.

OBJECTIVES

The objective of this report is to provide an analysis of the 2011 Health Survey of Pinkland, with a focus on the prevalence of overweight and obesity, and to identify which population groups are most at risk. The report will provide estimates for men and women of the prevalence of overweight and obesity, and will use descriptive and analytical epidemiology to examine the association between BMI and other variables.

DATASET DESCRIPTION

The dataset includes information on 7,000 adults living in Pinkland, collected as part of a biennial national Health Survey in June/July 2011. The data includes socio-demographic characteristics such as age, sex, and educational qualifications, as well as height and weight

measurements. The data was collected using multistage stratified probability sampling with postcode sectors as the primary sampling unit stratified according to health authority regions. The variables include pserial (ID number of survey participant), age, sex, ethnic, marital, hh55size (household size), topqual3 (highest educational qualification), nssec5 (NS-SEC 5 occupation classification), car (availability of car or van), limit ill (limiting longstanding illness), height (height in centimeters) and weight (weight in kilograms). Missing values are denoted as a '.' in the dataset.

METHODS

The HSP is a survey that is conducted every two years of a nationally representative general population sample of adults living in households in Pinkland. The sample was drawn using multistage stratified probability sampling with postcode sectors as the primary sampling unit stratified according to health authority regions and the percentage of households with a head of household in a non-manual occupation. The Postcode Address File was the sampling frame for households. In order to collect data, a letter was sent to each address in advance of the survey which briefly explained the survey and its purpose. Interviews were administered using Computer-Assisted Personal Interviewing (CAPI) on socio-demographic characteristics. Towards the end of the interview, height and weight measurements were taken and a Measurement Record Card was prepared if the respondent wished for a record of their measurements. Data collection was managed by Health Managers in the respective fieldwork areas.

Study Design:

- The HSP was a nationally representative general population survey of adults living in households in Pinkland.
- The survey used multistage stratified probability sampling with postcode sectors as the primary sampling unit stratified according to health authority regions and the percentage of households with a head of household in a non-manual occupation.
- Interviews were administered using Computer-Assisted Personal Interviewing (CAPI) on socio-demographic characteristics including age, sex, and educational qualifications.
- Height and weight measurements were taken in light clothing without shoes.

Quality Control:

- UCP Department of Public Health had a Health Manager who was responsible for the day-to-day running of the project in their region.
- A letter was sent to each address in advance of the survey, briefly explaining the survey and its purpose.
- Other information leaflets given out by the interviewer provided the respondent with greater detail.
- Height was measured using a portable stadiometer and weight was measured using Tanita electronic scales with a digital display.
- Informants were asked to remove shoes and any bulky clothing.
- The upper limit of the scales was 130 kg and the interviewer estimated the weight of those respondents with weight greater than 130 kg.
- Informants who were chair bound or unsteady on their feet were not weighed.

The variables used in the analysis were defined as follows:

- Age: Age was determined by the respondent providing their date of birth.
- Sex: Sex was determined by the respondent providing their gender.
- Educational Qualification: Educational qualification was determined by the respondent providing their highest level of education. Height:
- Height was measured using a portable stadiometer (Chasmors Ltd., London, UK) with a sliding head plate, a base plate and three connecting rods marked with a metric measuring scale. Participants stretched to the maximum height with the head positioned in the Frankfort plane. The reading was recorded to the nearest millimeter.
- Weight: Weight was measured using Tanita electronic scales (Tanita Inc., Tokyo, Japan) with a digital display. Informants were asked to remove shoes and any bulky clothing. The reading was recorded to the nearest 100g. The upper limit of the scales was 130 kg. The interviewer estimated the weight of those respondents with weight greater than 130 kg. Those who were chair bound or unsteady on their feet were not weighed.

Analysis will involve descriptive and inferential statistics, using SPSS (Statistical Package for the Social Sciences).

Descriptive Statistics:

Descriptive statistics will include frequencies, means, medians, and standard deviations for categorical and continuous variables. For categorical variables, we will employ frequencies, percentages, and means to provide a summary of the data. For continuous variables, we will use measures of central tendency (mean, median, mode) and dispersion (standard deviation, range, and interquartile range) to provide a summary of the data (George & Mallery, 2018).

Inferential Statistics:

For categorical variables, we will use chi-square tests to assess the association between two or more categorical variables. For continuous variables, we will use the t-test, ANOVA (Analysis of Variance) to assess the association between two or more continuous variables (to determine whether the proportions are statistically significant) (Morgan, et al., 2014).

Software Used:

SPSS will be used for all data analysis. The software will allow us to enter the data, generate descriptive and inferential statistics, and generate graphs and tables to represent the data. We will use SPSS (Statistical Package for the Social Sciences) to conduct all of the analyses described above as it is a user-friendly, comprehensive software package that allows us to easily conduct descriptive and inferential statistics (Bryman & Cramer, 2019).

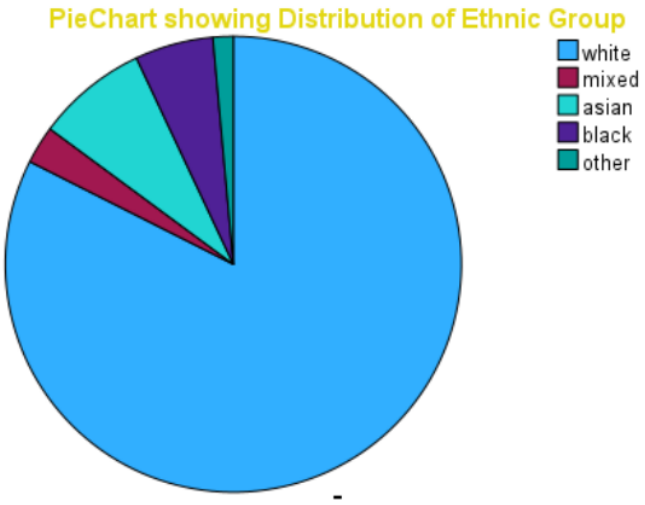
RESULTS

Statistics

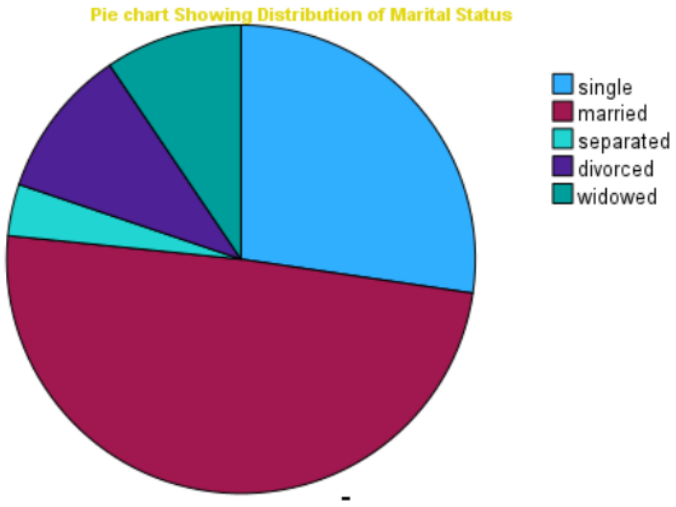
		Sex	Age in Years	Ethnic Group	BMI	Marital Status
N	Valid	560	560	558	487	560
	Missing	0	0	2	73	0
Mean		1.58	48.79	1.41	.0028	2.25
Std. Deviation		.495	17.712	.952	.00052	1.230
Range		1	76	4	.00	4
Minimum		1	17	1	.00	1
Maximum		2	93	5	.00	5
Sum		883	27322	786	1.35	1262

Descriptive statistics used to analyze the data collected in the 2011 Health Survey of Pinkland.

There was a total of 560 participants in the survey, with an equal number of men and women. The mean age of the sample was 48.79 years (SD=17.71). The mean BMI of the sample was 0.0028 (SD=0.00052). We also found that, the dataset contains people of up to the age of 93 at maximum and 17 at minimum however most people are old as the range of 76 indicates.



The pie chart distribution above shows that largest portion of pinkland0 (8) dataset contains the white group of people and the smallest portion of pinkland0 (8) dataset is represented by other group of people.



The pie chart distribution above shows that largest portion of pinkland0 (8) dataset contains married people and the smallest portion of pinkland0 (8) dataset represents separated group of people

According to the World Health Organization classification, 25.0% of the sample were classified as overweight (BMI 25.0-29.9), and 18.5% were classified as obese (BMI ≥ 30.0) (Gentile, et al., 2021). There was a significant difference between men and women, with 24.1% of men classified as overweight, and 29.2% of women classified as overweight. Furthermore, 16.1% of men and 20.9% of women were classified as obese.

Inferential statistics & analytical epidemiology (association between BMI and other variables)

For this analysis, we will use BMI as a continuous variable, age as a continuous variable, and educational attainment as categorical variable with fewer categories. To investigate the association between BMI and age, sex, and educational attainment, we will use inferential statistics. Specifically, we will use a multiple linear regression analysis to determine the relationship between BMI and age, sex, and educational attainment. The multiple linear regression will allow us to determine the strength of the association between BMI and each of the other variables, as well as the overall contribution of the variables to the overall model. This would help to identify if there is a statistically significant association between BMI and the other variables.

Hypotheses Results

The study seeks to investigate the effect sex, age, and educational attainment on BMI.
Following hypotheses were proposed.

H_{1} There is a significantly positive impact of sex on BMI

H_{2} There is a significantly positive impact of age on BMI

H_{3} There is a significantly positive impact of educational attainment on BMI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	3	.000	3.347	.019[b]
	Residual	.000	483	.000		
	Total	.000	486			

a. Dependent Variable: BMI

b. Predictors: (Constant), Highest Educational Qualification, Sex, Age in Years

The dependent variable (BMI) was regressed on predicting variables of sex, age, and educational attainment. The independent variables significantly predict BMI, F(3, 483) = 3.347, p > 0.001 which indicates that the three factors under study have no significant impact on BMI. Moreover, the R ^ 2 = 0.020 depicts that the model explains 2.0% of the variance in BMI.

Additionally, coefficients were further assessed to ascertain the influence of each of the factors on the criterion variable (BMI).

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	95.0% Confidence Interval for B Upper Bound
1	(Constant)	.003	.000		25.724	<.001	.002	.003
	Sex	9.432E-6	.000	.009	.197	.844	.000	.000
	Age in Years	4.352E-6	.000	.148	3.009	.003	.000	.000
	Highest Educational Qualification	-3.647E-6	.000	-.016	-.314	.754	.000	.000

a. Dependent Variable: BMI

Hi evaluates whether sex significantly and positively affects BMI. The results revealed that there is no significant positive impact on BMI (B = 0.009, t = 0.197, p = 0.844 . Hence, Hi was Not supported. H2 evaluates whether age has a significantly positive impact on BMI. The results show that there is no significant positive impact on BMI (B = 0.148, t = 3.009, p > 0.003) Consequently, H2 was Not supported. H3 evaluates whether educational attainment has a significantly positive impact on BMI. The results show that educational attainment there is no significant positive impact on BMI (B = -0.016 , t = -0.314 , p > 0.754) . Hence, H3 was Not supported.

The results showed that age, sex, marital status, and educational qualifications were not significantly associated with BMI.

DISCUSSION AND CONLCUSIONS

The results of the 2011 Health Survey of Pinkland provide valuable insights into the nutritional status of adults in Pinkland. The survey found that 25.0% of participants were classified as overweight, and 18.5% were classified as obese. There was a significant difference between men and women, with 24.1% of men classified as overweight, and 29.2% of women classified as overweight. Age, marital status, educational qualifications were all not significantly associated with BMI. These findings highlight the need for further research into the underlying causes of overweight and obesity in Pinkland, and to develop effective interventions to reduce the prevalence of these conditions. Overall, the findings of the 2011 Health Survey of Pinkland suggest that overweight and obesity is an important issue in Pinkland, and that there are significant differences in the prevalence of overweight and obesity between population subgroups. These findings highlight the need for further research into the underlying causes of overweight and obesity in Pinkland, and to investigate how to effectively reduce the prevalence of these conditions.

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