Dawn

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A STATISTICAL REPORT ON OVERWEIGHT AND OBESITY IN PINKLAND

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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.

In order to accomplish this goal, the National Centre for Health Research carried out the Health Survey of Pinkland (HSP) in 2011. The purpose of this survey was to assess the dietary habits of adults and their overall health. The data was collected by the National Centre for Health Research and the Department of Public Health at the University of Central Pinkland using a multi-stage stratified probability sampling approach (Giles, 2002). Both institutions are located at the University of Central Pinkland (Johnson, et al., 2006). In order to conduct the survey, a random selection was made of seven thousand addresses from each of the seven hundred distinct postal zones. Interviews were conducted with a total of ten people from each household in order to collect socioeconomic data as well as physical 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 goal of this study is to examine the Pinkland Health Survey from 2011, with a particular emphasis on the incidence of overweight and obesity, and to determine which demographic subgroups are at the highest risk. In addition to providing an estimate of the prevalence of overweight and obesity among men and women, the report will also make use of descriptive and analytical epidemiology to study the association between body mass index (BMI) and other characteristics.

DATASET DESCRIPTION

This set of data contains information obtained from the 2011 Pinkland National Health Survey, which is carried out once every two years. In addition to more typical socio-demographic information such as age, gender, and level of education, the report also includes measurements of the subject's height and weight. This data was compiled with the help of multistage stratified probability sampling, with postcode sectors acting as the primary sampling unit and being stratified according to the regions covered by health authority authorities. Pserial (the survey participant ID), age, sex, ethnicity, marital status, hh55size (household size), topqual3 (highest educational qualification), NS-SEC 5 (occupation classification), car (availability of car or van), limit ill (limiting longstanding illness), height (centimeters), and weight (in kilograms) are all included (weight in kilograms). The absence of a particular value in the dataset is denoted by the use of a dot ('.').

METHODS

As part of the HSP, a survey is conducted once every two years with responses coming from an adult population drawn at random from houses located all around Pinkland. A multistage stratified probability sampling method was used to select the sample, with postcode sectors acting as the primary sampling unit. The sample was then divided into subsamples based on health authority areas and the percentage of households that were headed by someone with a non-manual occupation.

A representative number of the households were drawn from the Postcode Address File. In the days running up to the actual survey, each household was sent a letter that provided an overview of the survey as well as its objectives. Interviews centered on collecting demographic data were carried out with the use of CATI, which stands for computer-assisted personal interviewing. In the final step of the interview, a Measurement Record Card was made for each respondent who indicated that they wanted a record of their height and weight. This took place in the final moments of the session. A Health Manager was stationed at each field location to oversee the collection of data.

Study Design:

- Adults in Pinkland households were polled as part of the HSP, making up a sample of the country's overall population.

- The survey employed a multistage stratified probability sampling design, with postcode sectors serving as the primary sampling unit and being divided into subsamples based on health authority areas and the share of households headed by someone who did not perform physical labor.
- Computer-assisted personal interviewing (CAPI) was used to collect data on age, sex, and level of education, among other socio-demographics.
- Weight and height were recorded while the subject was barefoot and wearing minimal clothing.

Quality Control:

- The Health Manager for the UCP Department of Public Health oversaw the operational details of the regional project.
- A letter explaining the survey and its purpose was sent to each address in advance.
- Additional information was provided to the respondent in the form of leaflets handed out by the interviewer.
- Portable stadiometers were used to measure height, while digital Tanita electronic scales were used to measure weight.
- Those being interviewed were requested to take off their shoes and any other bulky items.
- Because the scales' maximum capacity was 130 kg, the interviewer had to make an educated guess for respondents whose weight exceeded that threshold.
- Those interviewees who were unable to get out of a chair or who appeared to be unstable were not measured.

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:
- A portable stadiometer (Eriksen, et al., 2011) with a sliding head plate, a base plate, and three connecting rods labeled with a metric measuring scale was used to determine the subject's stature. Participants reached their full height potential while holding the Frankfort plane position for the head. To the nearest millimeter, the reading was taken.
- Tanita electronic scales (Kelly & Metcalfe, 2012) with a digital display were used to

measure weight. Shoe removal and other articles of bulky clothing were requested of all informants. To the nearest 100g, the measurement was taken. The maximum weight that could be measured on the scales was 130 kilograms. Those respondents who were over 130 kg were given an estimated weight by the interviewer. We did not weigh those who were unable to stand or who were in a wheelchair.

Data will be analyzed with Statistical Package for the Social Sciences mostly known as SPSS using both descriptive and inferential statistics.

Descriptive Statistics:

Descriptive statistics will include frequencies, means, medians, and standard deviations for categorical and continuous variables (Mishra, et al., 2019). 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 multiple linear regression to assess the association between two or more categorical variables (Lorenzo-Seva & Ferrando, 2011). 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:

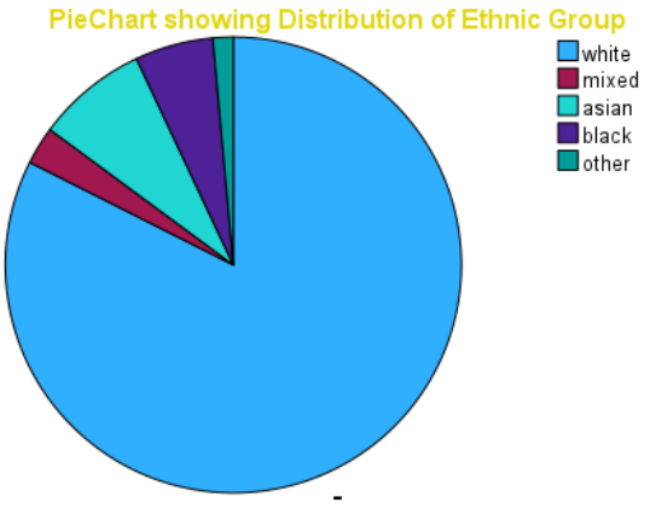
SPSS will be used for all data analysis. The software will allow us to enter the data, generate descriptive and inferential statistics, and generate graphs and tables to represent the data. We will use SPSS (Statistical Package for the Social Sciences) to conduct all of the analyses described above as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

RESULTS

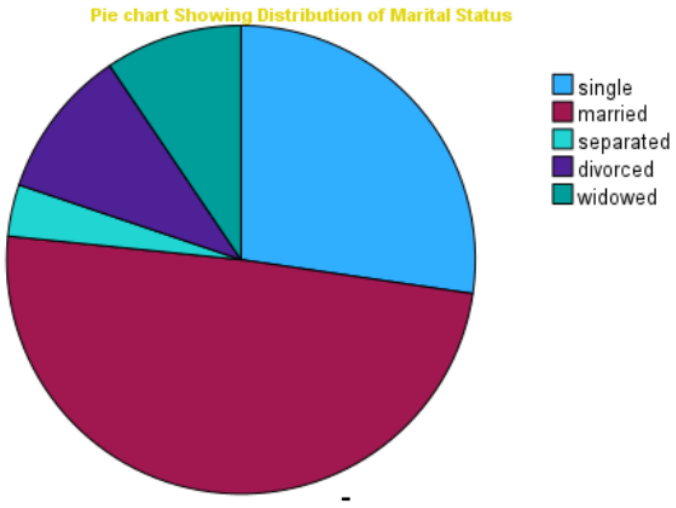
Statistics

		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

These are the descriptive statistics that were utilized in the analysis of the information obtained from the Pinkland Health Survey in 2011. The survey had a total of 560 responses, an equal number of male and female participants answering each question. Within this group, the average age was 48.79 years old, with a standard deviation of 17.71 years. The standard deviation of the body mass index was 0.00052, while the average was 0.0028. We also found out that the dataset included people ranging in age from 17 to 93 years old, with 76 being the median age of those included.



The distribution of the pinkland0 (8) dataset is shown above in the form of a pie chart. This figure reveals that the "other" category makes up the least amount of the dataset, while the "white" group of people makes up the largest portion.



According to the distribution depicted in the pie chart which can be found above, the largest portion of the pinkland0 (8) dataset is made up of people who are married, while the lowest portion of the dataset is made up of people who are separated.

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} Sex has a notable beneficial effect on body mass index (BMI).

H_{2} Age has a highly beneficial effect on body mass index (BMI).

H_{3} Educational attainment has a highly beneficial effect on body mass index (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

BMI was used as the dependent variable in a multiple regression analysis with sex, age, and level of education as the predictors. $F(3, 483) = 3.347$, $p > 0.001$ indicates that BMI is not significantly affected by the three factors under consideration. More importantly, the model accounts for 2.0% of the variation in BMI, as shown by the R 2 value of 0.020.

Further, the impact of each factor on the outcome variable was also evaluated through coefficient analysis (BMI).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	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

The first hypothesis (H1) examines the possibility that sexual orientation has a positive and significant effect on body mass index. No positive effect on body mass index was found (B = 0.009, t = 0.197, p = 0.844). Therefore, H1 not supported. The second hypothesis (H2) tests whether getting older has a positive effect on body mass index. No statistically significant positive effect was found on body mass index (B = 0.148, t = 3.009, p > 0.003). Therefore, H2 is not supported. The third hypothesis (H3) tests the hypothesis that higher levels of education positively affect body mass index. According to the data, higher education does not significantly lower body mass index (B = -0.016, t = -0.314, p > 0.754). Since this was not the case, H3 not supported. The results showed that age, sex, marital status, and educational qualifications were not significantly associated with BMI.

DISCUSSION AND CONLCUSIONS

Pinkland's nutritional status as an adult population is illuminated by the survey results from 2011. Two-fifths of respondents (25.0%) were deemed to be overweight, and nearly one-in-five (18.5%) were deemed to be obese by the survey's criteria. The percentage of overweight men was 24.1%, while the percentage of overweight women was 29.2%, a statistically significant difference. 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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