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Cholesterol, Glucose and Blood Pressure Levels of the Department of Education Employees towards Effective Health Care Monitoring System

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ABSTRACT

The researchers investigated the cholesterol, glucose and blood pressure levels of the employees of the Department of Education, Division Office of Cabanatuan City, the Philippines with the use of descriptive correlational design for effective monitoring of their health conditions. Specifically, it analyzed the Body Mass Index (BMI) of the respondents which relate to being overweight and obese and those associated health risks such as high cholesterol and glucose level and low or high blood pressure. The study found out that more than half of the respondents have normal BMI although there are 36% who are overweight and 6% who are obese. Fifty percent of the respondents have ideal and healthy and normal blood pressure levels and 50% have low blood pressure and high blood pressure. Seventy percent of the respondents have blood sugars that are on the normal level while 30% have blood sugar levels that are in the pre-diabetes and diabetes level. Regarding their cholesterol level, 70% have desirable cholesterol and the remaining 30% have borderline and high cholesterol levels. Older employees have high blood sugar levels and male respondents have higher BMI and blood pressure than female respondents. Likewise, respondents with high BMI and high blood sugar tend to have high blood pressure. Results have implications for health care management programs and monitoring systems of employees in the department and similar fields.

Keywords: Body Mass Index, blood pressure, blood sugar, cholesterol, health care system, employees, obese

Introduction

A healthy individual has a strong sense of self, the capacity for successful interpersonal functioning and the ability to function well occupationally.Essential to being a healthy individual is the capacity for effective interpersonal functioning. The healthy individual possesses the essential social skills to recognize, interpret, and respond constructively to emotions in oneself and others. This is reflected in the ability to understand and appreciate the mental state of others and to comprehend and appreciate the effects of one's actions on others [1] which are very important attributes of individuals especially those who are working in the academic community. "The level of health of a group of people in a particular area, such as in the academe, assessed by objective measures, especially when compared to other areas or with national data, is known as health status" [2]. There are findings in local researches that more and more Filipinos have poor health status and conditions. "A 2011 survey by the Food and Nutrition Research Institute (FNRI) showed that 22.3 percent of Filipino adults are overweight and 6.1 percent are obese. The prevalence of overweight Filipinos is expected to increase significantly. If this trend continues, it is highly likely that more will suffer from high-risk diseases. Obesity is the biggest risk factor for type 2 diabetes mellitus. It likewise aggravates hypertension and raises blood cholesterol levels which are major predisposing factors to the development of heart attacks and strokes. The factors leading to the unhealthy status of people in developing countries like the Philippines are numerous. One leading factor is increasing world and domestic food prices, forcing the increased purchase of unhealthy processed food over healthy and staple but expensive food" [3],(p.1).

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Based on the above synopses, this study was conceptualized. This aimed to investigate the health conditions and status of the executive employees of the Department of Education, Division Office of Cabanatuan City. Specifically, it looked into the BMI of the respondents which relate to being overweight and obese and those associated health risks such as high cholesterol and glucose level and low or high blood pressure. The findings served as the basis for the researchers to propose an effective healthcare monitoring system and program with the goals of improvement of health via the diagnosis, treatment, and prevention of disease and illness of the employees.

Methods

The descriptive correlational research design was utilized in this study [4]. The respondents of the study were 100 executive employees in the Department of Education, Division Office of Cabanatuan City in the Philippines. The result of the medical team's check-up reflected from the Health Card of the respondents was the data gathered by the researchers. These were tallied and tabulated using appropriate statistical tools such as frequency, percentage, Pearson's r, and Spearman's rho.

Results

1. Profile of the Respondents

In terms of sex, 72 (72%) of the respondents were females and 28(28.0%) were males. As to age, 40 (40.0%) belong to the age bracket 41 to 50, 36 (36%) belong to the age bracket 31 to 40, 20 (20.0%) belong to the age bracket 21 to 30 and another 20 (20.0%) are under the age bracket of 51 to 60, and 4 (4.0%) are aged 61 and above. With regards to civil status, 78 (78.0%) were married and 22 (22.0%) were single. This means that majority of the respondents working in the Division are females, are middle adults and with families.

2. Body Mass Index

Table 1 shows the results of the body mass index (BMI) of the respondents.

Body Mass Index (BMI)	Frequency	Percent
Underweight 17.0 - 18.4	0	0.0
Normal 18.5 - 24.9	58	58.0
Overweight 25.0 - 29.9	36	36.0
Obesity 30 to 39.9	6	6.0
Extreme Obesity - 40 and above	0	0.0
Total	100	100.0

It can be observed on the table that no respondents are either underweight or extremely obese. As to the normal BMI, 58.0% are under this range while there are 36% respondents who are overweight and 6.0% who are obese. This means that in terms of Health Status as to BMI, more than half of the respondents are normal although there are 36% who are overweight and 6% who are obese. This finding is similar to the 2011 survey by the Food and Nutrition Research Institute (FNRI) which showed that 22.3 percent of Filipino adults are overweight and 6.1 percent are obese [3]. This implies that less than half of the respondents need to lose weight through monitoring their calorie intake and focusing on more nutrient-dense food and that they

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need to get enough physical activities especially those who are in the obese level to avoid heart diseases, stroke, cancer, and other illnesses.

3.Blood Pressure

Table 2. shows the blood pressure level of the respondents.

Blood Pressure	Frequency	Percent
Low (90/60 or less)	16	16.0
Ideal and Healthy (More than 90/60 and less than 120/80)	34	34.0
Normal (120/80 to less than 140/90)	32	32.0
High (140/90 or higher)	18	18.0
Total	100	100.0

The table revealed that 16.0% and 34.0% or a total of 50.0% respondents are in the ideal and healthy and normal blood pressure level. The remaining 50% (32 low blood & 18 high blood) need to improve their health status as to their blood pressure. "Low blood pressure, although is unlikely to cause any symptoms and is normally nothing to worry about, if it drops too low, it can restrict the amount of blood flowing to the brain and other vital organs, which can cause unsteadiness, dizziness, or fainting" (NHS.UK, 2015). On the other hand, "high blood pressure (hypertension) readings that are consistently 140 over 90, or higher, over a number of weeks puts extra strain in the heart which increases the risk of a heart attack, stroke, kidney disease, and is closely linked to some forms of dementia" [5].

4. Blood Sugar

Table 3 shows the blood sugar of the respondents (plasma glucose test-fasting).

Blood Sugar (Plasma Glucose Test- Fasting)	Frequency	Percent
Normal (Below 108 mg/dl)	70	70.0
Pre-diabetes (108 to 125 mg/dl)	18	18.0
Diabetes (126 mg/dl or more)	12	12.0
Total	100	100.0

It can be observed from the table that 70.0% have blood sugars that are on the normal level. 18.0% have blood sugars that are considered to be in the pre-diabetes stage and 12.0% have blood sugar levels that are considered to have diabetes. This means that 30% of the respondents have high blood sugar levels since they are in the pre and diabetes levels. Pre-diabetes is a condition in which blood glucose levels are higher than normal, but not high enough to be classified as full-blown diabetes. Those with pre-diabetes are at a bigger risk of having type 2

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diabetes within a decade unless they adopt a better lifestyle that includes weight loss and more physical activity [6].

5. Cholesterol Level

Table 4 illustrates the cholesterol level of the respondents and it can be noted that 70.0% of respondents have desirablecholesterol levels, 24.0% have borderline high levels and 6.0% have high blood cholesterol levels.

Cholesterol	Frequency	Percent
Desirable (Less than 200 mg/dl)	70	70.0
Borderline High (200 to 239 mg/dl)	24	24.0
High (240 mg/dl and above)	6	6.0
Total	100	100

Having a high blood cholesterol level is very dangerous to one's health since it is a major risk factor for heart attack, heart disease and stroke [7]. Diet and lifestyle can affect the amount of fat in our blood and the way it circulates the body which leads to lowering of cholesterol level. Unhealthy habits such as eating food high in saturated fat being sedentary can either increase one's cholesterol level or affect the ratio of good to bad cholesterol.

6. Relationship Among the Profile of the Respondents and their BMI, Blood Pressure, Blood Sugar and Cholesterol Levels

Table 5 shows the relationship among the selected variables.

Correlations

Variables	BMI	Blood Pressure	Blood Sugar	Cholesterol
Age	-0.117	0.003	0.285*	0.115
Sex	-0.309**	-0.429**	0.155	-0.09
Civil Status	-0.057	0.012	0.014	-0.12
BMI	1	0.417**	0.07	-0.063
Blood Pressure	0.417**	1	0.283*	-0.019
Blood Sugar	0.07	0.283*	1	-0.149
Cholesterol	-0.063	-0.019	-0.149	1

***Correlation is significant @ 0.01 level, *Correlation is significant @ 0.05 level*

It can be observed on the table that age is positively related to blood sugar (r=.285*). This means that the older the person, the higher is his/ her blood sugar. This finding is congruent to the finding of Co, et.al.(2006) regarding the effects of age on plasma glucose level of non-diabetic Hong Kong Chinese. They found out that plasma glucose levels increase with age in their respondents. In terms of the profile sex, it is negatively related to BMI (r=-.309**) and Blood Pressure (r=-.429**). This finding indicates that male respondents have higher BMI and blood pressure than female respondents. Civil status is not related to BMI, blood pressure, blood sugar and cholesterol while BMI and blood sugar are significantly related to blood pressure (r=.417** and r=.283*). The positive value of r means that the respondent with a high BMI and high blood sugar tends to have high blood pressure. This finding is similar to the result of the study by

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[8] that "systolic and diastolic blood pressure had a positive correlation with BMI (correlation coefficients of 0.317 and 0.319)".

Conclusion and Recommendation

The majority of the respondents are females, are between the ages 41 to 50 and are married. In terms of BMI, more than half of the respondents are normal although there are less than 30% who are overweight and who are obese. Most of the respondents are in the ideal and healthy and normal blood pressure level. The remaining 25 have low blood pressure and high blood pressure. Seventy percent of the respondents have blood sugars that are on the normal level while 30% have blood sugar levels that are in the pre-diabetes and diabetes level. In terms of the cholesterol level of the respondents, 35 respondents have desirable cholesterol and the remaining 15 have borderline and high cholesterol levels. Older employees have high blood sugar levels. As to sex, male respondents have higher BMI and blood pressure than female respondents. Likewise, respondents with high BMI and high blood sugar tend to have high blood pressure.
Based on the conclusions, the following were recommended: Improvement is very vital [9] for all employees, especially males, who are below and above their normal health status. They should shift to a healthy lifestyle by eating a balanced diet, quit vices that are not good for their health and exercise regularly. The Medical and Dental Service of the DepEd Cabanatuan together with their Information Technology personnel plays an important role [10] in taking care of their executive employees, hence, they should develop a health care monitoring system to help the employees achieve a healthy status. A related study on health conditions of all the employees of the Department of Education should be conducted especially those with actual health problems.

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