Assesing the Risks of Type II Diabetes Mellitus among Gordon College Personnel: A Basis for Awareness and Prevention

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ABSTRACT

This study aims to measure the level of awareness about diabetes mellitus among Gordon College personnel. The researchers used a structured questionnaire categorized into three parts: the first part includes the respondents' demographic data. The second part describes the Risk factors of diabetes mellitus. The third part consists of the perception and beliefs about diabetes. The Risk Test Survey assessed 50 personnel of various ages and sexes.

Out of the 50 responders interviewed, mostly were in the age of 40 and were females. Also most had no Diabetes Miletus and no history of Diabetes mellitus and no hypertension and mostly had at least 1 physical activity per week.

Most males are more susceptible to diabetes than their female counterparts, and the minimum and maximum age of diabetes-risk personnel range from 32 and 50 years respectively. And most of the studied respondents were engaged in various physical activities ranging from light to vigorous physical activities and are measured in hours.

The diabetes awareness program is a passionate way of helping individuals lead a healthy lifestyle and uniting them with healthcare professionals to support them in diabetes care and management. Health Promotion activities will enhance and improve every individual's condition to achieve a healthy state. This includes access to healthy foods, lifestyle, and appropriate physical activities

Keywords: Diabetes Mellitus II, Gordon College Personnel, Risk Test, Diabetes Awareness Program

INTRODUCTION

Diabetes mellitus (DM) is a well-known public health concern globally, which is associated with high morbidity and mortality. The disease is expected to take dimensions of an epidemic and is often called "the scourge of modern times." Diabetes is a disorder characterized by impaired metabolism of carbohydrates, proteins, and fats due to inadequate or inefficient activity of insulin. Type II diabetes is characterized by insulin resistance (reduced sensitivity of cells to insulin), a relative insulin deficiency, or both. Most people with type II diabetes are obese, and the condition typically manifests in adults. (Kosti & Kanakari ,2019)

The World Health Organization estimates that the total number of diabetics worldwide will reach 333 million in 2025 from 135 million in 1995. Preliminary data from January to September 2023 shows that diabetes mellitus illnesses accounted for 6.4% of deaths in the Philippines (Statista, 2024). The percentage of deaths from these diseases peaked in 2020 at 6.5 percent. This significant increase is expected to take place both in developing and developed countries and is mainly attributed to the modern way of living including a sedentary lifestyle, stress, and unhealthy nutritional dietary habits.

Diabetes among Filipinos is not exclusively mediated by obesity per se, as increased rates are seen in relatively lower BMI, as compared to Caucasians. Philippine data show that despite an obesity prevalence

that is less than 10%, visceral adiposity as measured by the waist-to-hip ratio is 65.6% in females.

Notwithstanding preliminary research on the genetics of diabetes mellitus and its consequences in Filipinos (18–20), a more thorough explanation of this association is still required. To provide the foundation for preventative efforts, pertinent inquiries about unique lifestyles, dietary habits, and other preferences must be fully comprehended. The country's topography produced regions divided by airways, which in turn gave rise to different lifestyles and preferences. (E. Paz-Pacheco & C. Jimeno, 2015)

Most Filipinos people do have diabetes mellitus, and more than 300,000 Filipinos suffer from Diabetes Mellitus. In the United States, there are about 16 million diabetics and about 1800 new cases are diagnosed each year. Type II diabetes, also known as non-insulin dependent diabetes mellitus (NIDDM), is primarily seen in people over the age of thirty and is frequently accompanied by obesity. It is treatable with medications (sulfonylureas, antihyperglycemic medicines) as opposed to insulin. It is responsible for 90–95% of diabetes cases. (Philippines Health and Social Care Essay: Diabetes Mellitus Among Filipinos, 2018)

Previously primarily affecting the middle-aged and elderly, type 2 diabetes is now more common in children and young adults. Since type 2 diabetes is frequently misdiagnosed and studies to determine the number of newly arising cases are difficult, there is a dearth of information regarding genuine incidence. The impoverished are often the most likely to have type 2 diabetes in high-income countries. The data that is available indicates that while the prevalence of diabetes is often greatest in affluent individuals, this tendency is reversing in several middle-income nations. The data on the income gradient of diabetes in low- and middle-income countries is scarce. (Chan, 2016).

The prevalence of diabetes continues to rise, but the condition still has a ways to go. Even though diabetes is chronic and uncurable, it can still be treated, allowing a person to lead a healthy life. This research aims to provide early diagnosis and management of diabetes because the disease has a lifelong impact on a patient's health.

Conceptual Framework

The study used the input-Process-Outcome Model (Fig.1) to illustrate the process of the research. The input variables include the demographic profile of the participants which will comprise age and gender. The profile of Gordon College Personnel includes age, gender, educational attainment, and occupation. The process variable will include enhancing awareness of proper management of people at risk for diabetes mellitus.
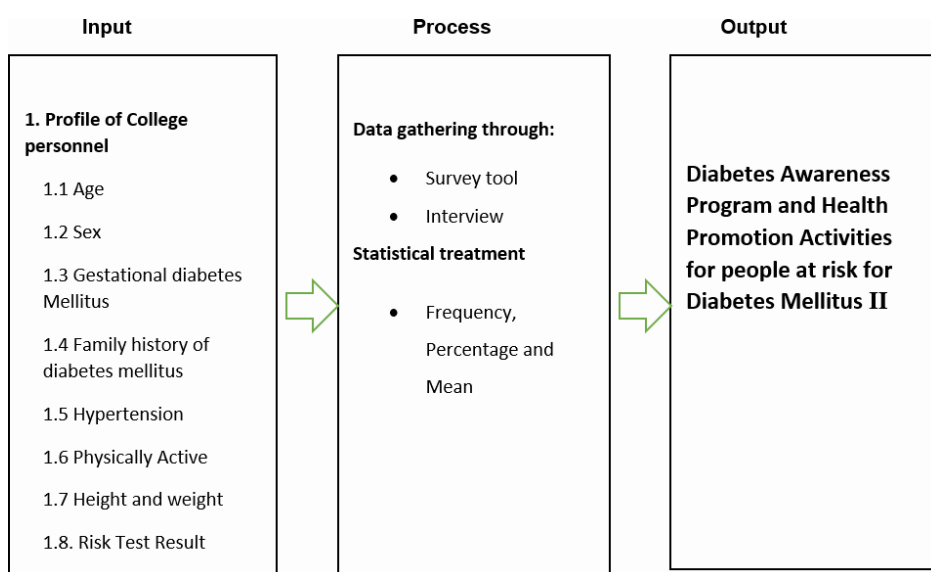

Figure 1. Research Paradigm of the study

Statement of the Problem

The study will determine the following:

1. What is the Diabetes Mellitus 2 Risk test score of the respondents in terms of:

1.1. age;

1.2. sex;

1.3. gestational diabetes mellitus;

1.4. family history of diabetes mellitus;

1.5. hypertension;

1.6. physically active;

1.7. weight and height?

1.8. risk test result

2. What are the perceptions and beliefs of the respondents in Diabetes Mellitus?
3. What is the implication of the result of the study?

METHODOLOGY

Research Designs

According to Burns and Grove's (1993) definition of quantitative research, which is a formal, objective, systematic procedure for describing and testing correlations as well as looking at cause and effect interactions among variables, the study's design is quantitative.

A survey interview and questionnaires were employed to gather the opinions, beliefs, and feelings of selected groups of individuals often chosen for demographic sampling.

Respondent

The respondents selected for this study were 50 personnel from the Gordon College personnel who were qualified in the set criteria and have offered their willingness to participate.

Data procedure

The researchers sought permission and approval by sending a letter to conduct the study at the Gordon College office of the College President.

Statistical Treatment

The researchers used the following statistical formulas to analyze the data.

Frequency, Percentage, and Mean. These statistical formulas were used to interpret the demographic profile and the results of the study.

Ethical Consideration:

The researchers obtained the respondents after the approval of the College President. The participants were chosen according to the inclusion criteria. The purpose of the research study was explained to the respondents.

Before the questionnaire started, the consent was explained and given to the respondents. Information and data were treated with the utmost confidentiality and the respondents were kept anonymously.

Informed consent was obtained from each respondent and confidentiality was assured.

RESULTS AND DISCUSSION

Table 1 Frequency and Percentage Distribution According to Age of Respondents

AGE	FREQUENCY	PERCENTAGE
Lessthan40yearsOld	25	50.0
40-49 years	12	24.0
50-59	13	26.0
Total	50	100.0

Scoring (Less than 40 years (0 points), 40-49 years (1 point), 50-59 years (2 points), 60 years or older (3 points)

Table 1 presents the frequency and percentage distribution of respondents according to age; 25 out of 50 respondents are aged less than 40 years old with a percentage of 50%; 13 out of 50 respondents were 50-59 years old with a percentage of 26%; 12 out of 50 respondents were 40-49 years old with a percentage of 24%.

Table 2 Frequency and Percentage Distribution According to Sex of Respondents

SEX	FREQUENCY	PERCENT
Male	22	44.0
Female	28	56.0
Total	50	100.0

*Male (1 point), Female (0 points)

Sex

Table 2 presents the frequency and percentage distribution of respondents according to sex; 28 out of 50 respondents are female with a percentage of 56%; 22 out of 50 respondents are male with a percentage of 44%.

The Philippine female labor force participation rate is the percent of the female population aged 15 and older who are economically active in 2019 is 45.9 according to Philippine Statistics Authority. This upholds

that more women are inclined to work. Today, more women face competing obligations to work and family and neither leaving work nor remaining at work can completely satisfy these twin demands. (Damaske, 2012).

Table 3 Frequency and Percentage Distribution of Female Respondents With Gestational Diabetes Mellitus

GESTATIONAL DIABETES MELLITUS	FREQUENCY	PERCENT
Yes	4	14.3
No	24	85.7
Total	28	100.0

*Diagnosis of gestational diabetes, Yes (1 point), No (0 point)

Table 3 presents the frequency and percentage distribution of female respondents with gestational diabetes; 24 or 85.7% who doesn't develop gestational diabetes mellitus; 4 or 14.3% who had developed gestational diabetes mellitus.

The prevalence of diabetes during pregnancy has been rising along with the global obesity pandemic. Not only are type 1 and type 2 diabetes becoming more common among women who are fertile, but reported rates of gestational diabetes mellitus have sharply increased as well (Diabetes Care, 2019)

Table 4 Frequency and Percentage Distribution according to Family History of Diabetes Mellitus of Respondents

FAMILY HISTORY OF DIABETES MELLITUS	FREQUENCY	PERCENT
Yes	14	28.0
No	36	72.0
Total	50	100.0

*Diagnosing if a mother, father, sister, or brother with diabetes, Yes (1 point), No (0 point)

Table 4 presents the frequency and percentage distribution of respondents with a family history of diabetes mellitus; 36 out of 50 respondents who don't have a family history of diabetes with a percentage of 72%; 14 out of 50 respondents who have a family history of diabetes with a percentage of 28%.

According to World Health Organization (WHO) presence of a family history of type 2, Diabetes Mellitus is a well-establishing risk factor for developing the disease. Diabetes is a disease that has strong clustering in families and has a genetic component.

Table 5 Frequency and Percentage Distribution of Identified Hypertension of Respondents

HYPERTENSION		
RESPONSE	FREQUENCY	PERCENT
Yes	15	30.0
No	35	70.0
Total	50	100.0

*Diagnosis of high blood pressure, Yes (1 point), No (0 points)

Table 5 presents the frequency and percentage distribution of respondents with hypertension; 35 out of 50 respondents who don't have hypertension with a percentage of 70%; 15 or 30% of the respondents who have been diagnosed with hypertension.

The association between blood pressure and the risk of newly onset diabetes is less obvious, despite the fact that hypertension has long been acknowledged as an independent risk factor for cardiovascular events (Wise, 2015)

Table 6 Frequency and Percentage Distribution According to the physical activity of Respondents

PHYSICALLY ACTIVE	FREQUENCY	PERCENT
Once A week (1 hour)	22	44.0
Twice a Week (2 hours)	14	28.0
Thrice A week (2 hours)	4	8.0
No Physical Activity	10	20.0
Total	50	100.0

*Physically Active, Yes (0 points), No (1 point)

Table 6 presents the frequency and percentage distribution of physical activity of the respondents; 22 or 44% of the respondents exercise once a week; 14 or 28% of the respondents exercise twice a week; 10 or 20% of the respondents have no physical activity; 4 or 8% of the respondents exercise thrice a week.

Comprehensive lifestyle programs that promote physical activity are advised by the ADA and ACSM in an effort to regulate glycemia within a specified range and avoid glucose levels from declining (Syeda et. Al, 2023). Exercise encompasses a variety of activities that can be performed in many environments, such as sports, recreation, play, walking, and cycling for transportation. It also includes everyday movements like grocery shopping, housework, and stair climbing (Bull et. Al., 2017)

Table 7 Frequency and Percentage Distribution According to Height and Weight of Respondents

HEIGHT AND WEIGHT	FREQUENCY	PERCENT
Others	30	60.0
5'2 (136-163;164-217;218+)	4	8.0
5'3 (141-168;169-224;225+)	3	6.0
5'4 (145-173;174-231;232+)	7	14.0
5'5 (150-179;180-239;240+)	1	2.0
5'7 (159-190;191-254;255+)	2	4.0
5'8 (164-196;197-261;262+)	1	2.0
5'9 (169-202;203-269;270+)	2	4.0
Total	**50**	**100.0**

Height	Weight (lbs)		
4' 10''	119-142	143-190	191+
4' 11''	124-147	148-197	198+

5' 0''	128-152	153-203	204+
5' 1''	132-157	158-210	211+
5' 2''	136-163	164-217	218+
5' 3''	141-168	169-224	225+
5' 4''	145-173	174-231	232+
5' 5''	150-179	180-239	240+
5' 6''	155-185	186-246	247+
5' 7''	159-190	191-254	255+
5' 8''	164-196	197-261	262+
5' 9''	169-202	203-269	270+
5' 10''	174-208	209-277	278+
5' 11''	179-214	215-285	286+
6' 0''	184-220	221-293	294+
6' 1''	189-226	227-301	302+
6' 2''	194-232	233-310	311+
6' 3''	200-239	240-318	319+
6' 4''	205-245	246-327	328+
	(1 point)	**(2 points)**	**(3 points)**
	*if weight is less than the amount in the left column (0 points)		

Table 7 presents the frequency and percentage distribution of respondents according to height and weight; 30 or 60% of the respondents' BMI is less than 25; 20 or 40% of the respondents' BMI is greater than 25 which is considered overweight and obese.

An adult's height and weight are used to calculate their body mass index (BMI), which classifies them into four categories: underweight, normal weight, overweight, and obese. A person's body mass index (BMI) plays a significant role in identifying potential long-term health problems (Zierle-Ghosh & Jan, 2023).

Table 8 Frequency and Percentage Distribution According to Risk Test Result

RESULT	FREQUENCY	PERCENT
At-Risk	9	18.0
No-Risk	41	82.0
Total	50	100.0

There were 9 or 18% out of 50 respondents identified as at-risk with diabetes after the Risk Test tool was used which was adapted from the Alert! Day Type 2 Diabetes Screening test.

The tool suggests that the sooner the individual knows if he or she is at risk, the sooner measures can be initiated to prevent or manage diabetes. (NIDDK, 2019)

Perceptions and beliefs of the respondents to Diabetes Mellitus.

Most of the perceptions and beliefs of the respondents about diabetes mellitus were that the disease can be acquired through bad eating habits like eating too many sweets and high-cholesterol foods, vices, and psychological factors like stress. The majority of the respondent's statements stressed that an individual will know that they have diabetes through checking their blood sugar, which is high, the presence of non-healing

wounds, repeated feelings of thirst and hunger, the rapid decline of body weight, and frequent urination. In terms of controlling diabetes mellitus, the respondent's main explanation is that avoiding eating sweets, practicing proper exercise, drinking adequate water, and maintaining a healthy lifestyle can help manage diabetes mellitus.

Type 2 diabetes results from a combination of genetic and environmental factors. The risk is greatly increased if there is high blood pressure, an overweight or obese body, a lack of physical activity, or eating a nonhealthy diet. Type 2 diabetes is usually diagnosed using the glycated hemoglobin (A1C) test. This blood test indicates the average blood sugar level for the past two to three months. Normal levels are below 5.7 percent, and a result between 5.7 and 6.4 percent is considered prediabetes. (American Diabetes Association, 2019)

Implication of the study

The implication of this study was based on the results that were gathered, such as that males are more likely or have a higher risk of acquiring diabetes than females. The total participants were 50 Gordon College personnel, and the overall result of the risk test that was adapted from ADA included age, sex, gestational diabetes, family history, hypertension, physical activity, weight, and height. The total findings of those who were at risk are 9 or 18%, and 41 or 82% do not have the risk. The risk test appears to be an effective screening tool; it is a simple tool used to identify people at risk for early detection of the disease. It is said that type 2 diabetes is preventable by taking several simple measures, like keeping weight under control, exercising more, eating a healthy diet, and avoiding vices such as smoking and drinking alcohol. Further, behavioral modification should also be one of the factors that most people should also consider, such as discipline to make healthy choices and worthy choices to prevent diabetes.

CONCLUSION

The study aims to identify among the respondents who will have a risk of developing diabetes mellitus in the future, and it was found that 50% of respondents are less than 40 years old, and 56% are female. Among these women, 85.6% never experience gestational diabetes, but among the respondents, 72% have a family history of diabetes. Also, 70% have been traced to having no hypertension, 44% have at least once a week physical activity, and 60% of the respondents' BMI is less than 25. And lastly, 18% have the risk of having diabetes in the future.

DISCUSSION

It was identified from the study that males are more susceptible to diabetes than their female counterparts. The accounted minimum and maximum age of diabetes risk personnel were 32 and 50 years, respectively. Though the study groups were engaged in various physical activities, ranging from light to vigorous, and measured in hours, The identified at-risk population for diabetes poses a "wake-up" call to take the necessary steps to prevent the development of the disease. It is a fact that the development of the disease would mean non-adherence to a healthy lifestyle and other factors. The following actions, like diabetes awareness, routine healthcare checkups, a healthy lifestyle, and discipline, are the most important to a diabetes-free world.

RECOMMENDATIONS

The study would like to emphasize the need to modify a healthy lifestyle for everyone to limit or prevent the risk of having diabetes. And it is therefore recommended that the college develop a diabetes awareness program to raise awareness about diabetes, which is a passionate way of helping individuals lead a healthy

lifestyle and uniting them with health care professionals to support them in diabetes care and management. And provide health promotion activities that will enhance and improve every individual's condition to achieve a healthy state. This includes access to healthy foods, a healthy a healthy lifestyle, and appropriate physical activities

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