DIETARY HABITS AND PHYSICAL ACTIVITY IN RELATION TO THE PREVALENCE OF OBESITY IN A TERTIATY HOSPITAL IN COTABATO CITY

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ABSTRACT

This study examined the impact of dietary and physical activities to the prevalence of obesity of nurses in tertiary hospitals in Cotabato City. Methodology Descriptive-correlational research design was used. One hundred-and-forty-six nurses completed survey questionnaires derived from validated instruments. Descriptive statistics was used to estimate the extent of dietary habit, physical activities and obesity and Pearson correlation was used to determine the relationship between these variables. Predictive separation power of dietary habits and physical activity on obesity prevalence was analyzed by multiple regression model. Findings showed that food habits were occasionally followed with some adherence to healthy eating behaviors. Also, work-related physical activities were neutral, while leisure time activities and active commuting were scarce. The mean Body Mass Index (BMI) of participants fell into the category of overweight. There was no correlation between dietary habits and BMI, though physical activity was inversely correlated with obesity prevalence. Physical activity, but not dietary habits, arose as an independent predictor of BMI, according to regression analysis.

Keywords: *Dietary habits, Physical activity, Obesity prevalence, Nurses, Body Mass Index (BMI), Tertiary hospitals, Cotabato City, Descriptive-correlational design, Health interventions. Workplace productivity.*

INTRODUCTION

Background of the Study

Studies conducted worldwide revealed a high prevalence of overweight and obesity among nurses which include Filipino nurses, Apellido (2017). Reports showed that the prevalence of obesity

y among Filipino nurses is
significant, with studies indicating a considerable percentage of nurses falling into the overweight or obese category often linked to factors like irregular shifts of work and demanding schedules which can impact dietary habits and physical activity levels. However, specific data on the exact prevalence within the Filipino nurse population might vary depending on the study and region surveyed. This paper intends to determine the prevalence of obesity of nurses in tertiary hospitals in Cotabato City.

Obesity is a common and growing health problem worldwide with dire consequences for individuals. Obesity is defined as 'abnormal or excessive fat accumulation that presents a risk to health' determined by a body mass index (BMI) of 30 kg/m3 or more, with a measurement of 25 to 30 classified as overweight (World Health Organization, 2020). Overweight and obesity are widely recognized as significant factors contributing to non- communicable diseases, including cardiovascular diseases, cancer, diabetes mellitus, gallbladder diseases, endocrine and metabolic disorders, osteoarthritis and pulmonary diseases. Moreover, they are also associated with social discrimination, psychological impacts and eating disorders (Harvard, School of Public Health, 2022)

The global relevance of the prevalence of obesity among nurses is a matter of great significance. Obesity affects health care workers (HCWs), including nurses, across different countries and health care systems. Nurses in the U.S have a higher-than-average rate of overweight and obesity
(Pettifor,2021). Obesity is considered the United States' most urgent health care problem and it is a significant risk factor for multiple disease processes (Sarwer & Grilo, 2020).. In Bahrain, results of study conducted by Nasaif et al showed that of the nurses working at the study sites, 43% were overweight and 21% were obese.

Meanwhile, in the Philippines, the prevalence of obesity shows a gradually increasing trend as well. According to the recent Expanded National Nutrition Survey (2018), the prevalence of obesity increased from 20.2% in 1998 to 37.2 percent in 2018 (Patalen, 2021). In recent survey study between July 2021 and June 2022, 38.6 percent of adults aged 20 and 59 in the P hilippines were diagnosed as obese or overweight. Also, in Cotabato City, the Office of the Chief Ministry BARRM recognizes the need to promote and practice health and wellness in the workplace and encourages all obese government personnel to lose weight.

Moreover, overweight and obesity among nurses has been gaining much attention due to the multitude of lifestyle factors including having a poor diet, sleep irregularities due to shift work, stress and burn out (Sullivan et al., 2022). The fundamental cause of excess weight and obesity is an imbalance between energy intake and energy expenditure. Globally, the intake of energy-dense foods that are high in saturated fat, salt and sugar has increased. Much of the world population also consume insufficient amounts of fruit, vegetables, dairy, whole grains and oily fish, which has an additive effect on the health impact of a poor diet. In the same

manner, physical activity recommendations are a crucial component of public health guidelines for maintaining a healthy weight, with increased physical activity being associated with a reduced risk of obesity (Master, et al., 2022). Fitness trackers and wearable devices have provided an objective means to capture physical activity, and their use may be associated with weight loss (McDonough, 2021).

Finally, the researchers find this study to be relevant to the present times since several studies have reported the prevalence of overweight and obesity in various countries. Thus, the researcher found this study to be relevant to the present times. This study intended to generate new ideas and insights that could improve nurse's health wellness and improve their work productivity, as well as, becoming model to their patients in terms of body weight. In addition, this study also intends to contribute significant data and information that could alleviate nursing health conditions both in local and global level. Finally, this study also intended to provide and become a source of relevant literatures for future researchers and looking forward that the results be disseminated through presentations in both national ang global research congress and be published in a reputable international research journal for medical service organizations to adopt the recommendations.

Statement of the Problem

This study aims to determine the significant influence of dietary habits and physical activities to prevalence of obesity in tertiary hospitals in Cotabato City.

Specifically, it sought answers to the following questions:

1. What is the level of dietary habits in terms of:
    1.1.1 Eating
    1.1.2 Drinking
2. What is the level of physical activity in terms of:
    2.1.1 Activity at work
    2.1.2 Travel to and from places
    2.1.3 Recreational activities
3. What is the level of prevalence of obesity in terms of body mass index (BMI) among nurses in tertiary hospitals in Cotabato City?
4. Is there a significant relationship between
    4.1.1 dietary habits and prevalence of obesity
    4.1.2 physical activity and prevalence of obesity
5. To what extent does dietary habits, and physical activities influence

Framework

This study is mainly supported by the **Pender's Model Health-promoting Behavior on Wellness** (Pender, Murdaugh, & Parsons, 2011). Health promotion by Pender was defined as behavior motivated by the desire to increase wellbeing and actualize human health potential. Pender's model integrates research findings from nursing, psychology and public health and includes key concepts related to the person, environment, nursing, health and illness. Health promoting behavior is based on individual characteristics and experiences and behaviorspecific cognitions and affect. The Pender model of health promotion is helpful for conceptualizing the complex relationships between variables that determine nurses' commitment to a healthy lifestyle. Identification of healthy diet and physical activity attitudes and opinions, benefits (healthy diet), motivators (exercise), barriers, and self-efficacy within Pender's model of health promotion can help enhance understanding of the multifaceted nature of healthy lifestyle among medical-surgical hospital nurses. **In the context of this study**, the model was be used to identify factors such as such as eating and drinking, activity at work, travel to places, and recreational activities that influence nurses obesity in Cotabato tertiary hospitals thus, allowing the researcher and hospital administrators to gain new insight and information to design program activities that was promote weight management and overall wellness and address issues on obesity.

Moreover, this study is also supported by the psychological theory on obesity. This is based on the concept that food is often related to pleasure or satisfaction, replacing feelings of inadequacy, or as a method of relieving stress. It's not uncommon to see an individual who is nervous about a situation start eating in an attempt to deal with the stress. Boredom is also commonly dealt with by eating.

Furthermore, this study is also supported by the environmental theory which is based on the concept that modern society greatly influences obesity. For example, in society today because of TV and the computer physical activity has decreased dramatically. The constant bombardment of advertisement aimed at making the masses hungry has also contributed to the problem.

Finally, this study is also supported by the physiological theory on obesity wherein a common belief among obese people is that their obesity is a result of problems with glands in the body that control metabolism.
Grade 3.

METHODS

Research Design

The research design to be used in this study is a descriptive correlational design. This design seems to be the most appropriate research design since the

study aims to determine the significant relationship between respondent's dietary habits and physical activities to obesity. Correlational design is a study design for examining the relationships between or among two or more variables in a single group, which can occur at several levels. It is a type of non-experimental design that examines the relationship between two or more variables. It should be remembered that the researcher is not testing the cause-and-effect relationship.

A correlational research design investigates relationships between variables without the researcher controlling or manipulating any of them. A correlation reflects the strength and/or direction of the relationship between two or more variables. It is a type of non-experimental design that examines the relationship between two or more variables.. A correlation reflects the strength and/or direction of the relationship between two or more variables (Devi et al, 2023)

Research Locale

The study site is Cotabato City, southern Philippines. It is the regional capital of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). It has a total land area of 176.00 square kilometers or 67.95 square miles. Its population according to the 2020 Census is 325,079 or 6.63% of the population of the SOCCSKSARGEN region. It has a population density of approximately 1,847 persons per square kilometer or 4,784 persons per square mile. The city officially became part of BARMM on December 15, 2020, after the majority of its population voted to be part of the autonomous region during the 2019 plebiscite.

Respondents and Sampling Design

The study participants was the registered nurses who are working at the Cotabato Regional and Medical Center (CRMC) in Cotabato City. They are selected on the basis of their firsthand experience in clinical practice, which is required in providing relevant insights in accordance with the study objectives. The inclusion criterion is that the participants should be registered nurses working at CRMC and willing to volunteer for the study. On the other hand, those who are not willing to participate or are reluctant was excluded. Convenience sampling was utilized due to time limitations and ease in reaching the target population. According to Hassan (2024). Convenience sampling is a nonprobability sampling technique used in research where participants are selected based on availability, proximity, or convenience. To find the required sample size, an a priori power analysis will be conducted using the Apriori Power Analysis Calculator. Assuming a medium effect size (d = 0.5), alpha = 0.05, and power = 0.80, the minimum recommended sample size is approximately 64 participant.

Research Instrument

The present study was utilize three major research instruments to gather data regarding the respondents' food habits, physical activity level, and obesity prevalence. The first is a modified and adopted questionnaire originally developed by Arrar et al. (2021) in their study entitled "Correlation Between Obesity and Dietary Habit of the Adult Client at Out-Patient Clinic in Qalat Saleh City/Iraq. The instrument was utilized to assess the respondents' food habits. It consists of 19 items and was answered on a five-point Likert scale with the following responses: 5 – Always, 4 – Often, 3 – Sometimes, 2 – Seldom, and 1 – Very Seldom. The original questionnaire was found to have satisfactory reliability and internal consistency, and the instrument was adapted to the local setting with the same level of validity obtained through expert consultation and pilot test.

The second instrument is the Global Physical Activity Questionnaire (GPAQ) of the World Health Organization (WHO) to assess the respondents' physical activity level. The instrument has 15 items divided into three work activity, travel activity, and leisure activity domains. The responses to be answered are frequency and duration of physical activity. GPAQ is a wellestablished instrument with established validity and reliability across various populations.

RESULTS AND DISCUSSION

Level of dietary habits

The table illustrates the analysis on the level of dietary habits of the respondents, garnering a weighted mean of 2.95 (SD: .358) as sometimes. The highest mean score was 3.38 (SD: .866). The participants were interpreted to sometimes to eat main means three times a day. On the other hand, the lowest score was 2.55 (SD: .878). The respondents were observed to seldom eat substantive meal.

Table 1. Level of dietary habits*BMI = weight in kilograms / height in meters*

Eating	Mean	SD	Description
Eating breakfast	2.93	1.063	Moderate
Eating three main meals	3.38	.866	Moderate
Eating substantive meal	2.55	.878	Moderate
Eating nuts	3.01	.938	Moderate
Eating salad with every meal	2.79	.830	Moderate
Eating leafy greens	3.21	.959	Moderate
Eating canned food	3.03	.876	Moderate
Eating frozen meat	3.01	.932	Moderate
Eating pickles	2.94	.837	Moderate
Using too much ghee in food	2.74	.894	Moderate
Eating sweets	2.84	1.008	Moderate
Adding more salt while eating food	2.95	.887	Moderate
Eating food during watching TV or talking on the phone	3.06	.925	Moderate
Eating red meat more than white meat	2.93	.925	Moderate
Category Mean	**2.95**	**.358**	**Moderate**
Drinking			
Drinking tea with sugar and other beverages	2.94	.891	Moderate
Drinking carbonated beverages	2.91	.952	Moderate
Drinking tea directly after meals	2.67	.833	Moderate
Drinking alcoholic beverages, wine	3.04	.901	Moderate
Category Mean	**2.89**	**.449**	**Moderate**
OVERALL MEAN	**2.92**	**.403**	**Moderate**

The findings implies that the level of dietary habits of the respondents were described as sometimes to perceived, specifically on eating meals three times a day. However, the analysis of eating substantive meal was low. Eating three meals a day is a common dietary pattern, and its impact on the overall level of diets of respondents is complex and depends on various factors. While some studies suggest a link between eating three meals a day and better health outcomes, others indicate that more frequent or less frequent eating patterns may also be associated with positive results.

The table presents the level of dietary habits of the participants in terms of drinking that generates a weighted mean of 2.89 (SD: .449). It was interpreted that respondents sometimes to drink. The utmost mean score was 2.94 (SD: .891), it illustrates that the respondents sometimes to drink alcoholic beverages. However, the lowest mean score was 2.67 (SD: .833). The participant's perceived to drink sometimes coffee after meals.

The result signifies that drinking might affect the dietary level of the respondents. According to (Crovetto & Valladares, 2022)alcohol consumption can significantly impact dietary habits, potentially leading to increased energy intake, altered food preferences, and nutrient deficiencies. Studies show that alcohol drinkers tend to consume more high-fat, high-calorie foods and fewer fruits and vegetables compared to non-drinkers. Additionally, alcohol can disrupt the absorption of essential nutrients, further impacting dietary health.

The level of physical activity

	Mean	SD	Description
Activity at work	3.00	.691	Low
Travel to pass	1.76	.431	Moderate
Recreational activities	2.04	.496	Moderate
OVERALL MEAN	**3.00**	**.539**	**Moderate**

The level of physical activity at work of the respondents was perceived in the table. It yields a weighted mean of 3.00 (SD: .691). The uppermost mean scores 3.12 (SD: 1.403). The findings were interpreted as neutral to always done moderate-intensity activities as part of their work. Seemingly, the least mean was 2.91. The respondents were neutral in spending much of time in doing moderate intensity activities at work on a typical day.

Moderate-intensity physical activities are a level of exercise where you work hard enough to breathe harder and raise your heart rate, but you can still talk comfortably, though not sing. They are a step up from light activity but not as intense as vigorous activity, and are generally recommended for adults to maintain good health. According to (Niemiro & Rewane, 2023) this type of physical activity is crucial for managing obesity, both in preventing weight gain and supporting weight loss and maintenance. Engaging in regular physical activity, can help individuals burn more calories, build muscle mass, and improve overall health, contributing to a healthier weight and reducing the risk of obesity related complications.

The table perceived the level of physical activity of the workers in terms of travels with a weighted mean of 1.76 (SD: .431) as strongly disagree. The highest mean scores 1.52 (SD: 501), it implies that the level of physical activity in terms of travelling were perceived to strongly disagree on walking and using bicycle for atleast 10 minutes continuously every day to get to and from places.

Both walking and cycling offer significant health benefits and are valuable forms of physical activity, contributing to improved cardiovascular health, reduced risk of chronic diseases, and overall well-being. Also, both walking and bicycling can help reduce obesity by increasing physical activity and burning calories. However, some studies suggest that walking may be slightly better for burning fat, especially when compared to cycling at the same intensity. Cycling, especially as a form of active transportation, is also linked to various health benefits and can help reduce the risk of obesity and related diseases. (Ferrari & Drenowatz, 2022)Cycling for active transportation was negatively associated with obesity indicators, especially body mass index and waist circumference. Programs for promoting cycling for active transportation could be a feasible strategy to tackle the high.

The table shows the analysis on the recreational activities in the level of physical activity of the workers garnering a weighted mean 2.04 (SD: 496). In a mean score of 2.08, the workers disagree on the impact of vigorous-intensity sports, fitness or recreational (*leisure*) activities every day on obesity. The lowest score 1.99 (SD: .789), the workers disagree on spending a total of 70 minutes doing vigorous-intensity sports, fitness or recreational activities on a week.

Vigorous-intensity sports, fitness, and recreational activities can be effective in managing and reducing obesity, though the benefits are not solely about weight loss. Engaging in these activities can improve overall health and reduce the risk of obesity-related diseases. Vigorous exercise, especially when combined with a healthy diet, can lead to significant weight loss. Studies show that high-intensity exercise can result in more weight loss than lower-intensity exercise (Liang, 2022).

The level of prevalence of obesity in terms of body mass index (BMI) among nurses in tertiary hospitals in Cotabato City

	Minimum	Maximum	Mean	Std. Deviation
BMI	16	34	26.83	3.484

The Body Must Index of the workers was presented on the level of prevalence of obesity among nurses in tertiary hospitals in Cotabato City. Out of the population the computed mean of the BMI was 26.83 (SD: 3.484) that was considered overweight, based on the BMI category of the adults whereas the healthy weight range for is generally between 18.5 and 24.9. Overweight adults are at significantly increased risk for developing obesity, a condition with serious health consequences. Moreover, it was found out that overweight individuals are more likely to have unhealthy eating habits, such as consuming high-calorie foods and drinks, and may be less physically active. These factors can contribute to weight gain and the progression to obesity.

		BMI
Dietary Habit	Pearson Correlation	-.070
	p-value	.403
Physical Activity	Pearson Correlation	-.183*
	p-value	.027
	N	146

The table shows the Pearson Correlation on the extent of the dietary habits, and physical activities influence prevalence of obesity in tertiary hospitals in Cotabato City. The result revealed a Pearson correlation value of -.70, and a p – value of .403. Hence, it signifies that that dietary habit perceived a negative correlation and no significant relationship on the BMI of the workers. Whereas physical activity perceived a perfect negative correlation, (-.283) and significant (.027) on the BMI of the workers.

The findings implies that the extent of the prevalence of obesity of the workers were negatively correlated on its physical activity and dietary habits. This informs that the relationships of the variables were inversely correlated. When the level of dietary habits and physical activity increases, the prevalence of obesity decreases and vice versa.

Increasing healthy dietary habits and physical activity levels are strongly associated with a decrease in the prevalence of obesity, and conversely, a decline in these factors can lead to an increase in obesity. Both diet and exercise play a crucial role in energy balance, and maintaining a positive energy balance (consuming more calories than you burn) is a major contributor to weight gain and obesity.

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	34.401	3.725		9.235	.000
Dietary Habit	-.886	1.032	-.070	-.858	.392
Physical Activity	-2.189	.979	-.183	-2.236	.027

R=.196, R-square=.038

The table shows the relationships of the variables. In terms of dietary habits, it records a t – value of -.858 and a p – value of .392. The result defines that dietary habits has no significant difference on the prevalence of obesity. On the other hand, physical activity shows a t – value of -2.236, and a p-value of .027. Hence, there is a significant relationship on the prevalence of obesity. Furthermore, both variables were significant variables on the prevalence of obesity illustrated on a t – value 0.235 and a p-value of .000. (Almoraie & Shatwan, 2023) consistently show a strong link between these factors and the risk of weight gain and obesity. Specifically, lack of physical activity and unhealthy dietary patterns are associated with an increased risk of obesity and related health issues. Insufficient physical activity contributes to obesity by causing a negative energy balance, leading to weight gain. Regular physical activity helps burn calories and maintain a healthy weight. Unhealthy diets, including high-calorie, unhealthy foods, can also contribute to obesity. This findings urgency calls for stakeholders to formulate strategies that will lead to healthy living with balance on dietary and physical activity in order to prevent the prevalence of obesity.

Conclusions

The study was conducted in order to assess the influence of dietary habits and physical activities on the prevalence of obesity in tertiary hospitals in Cotabato City. It was found out that the workers were sometimes to eat main meals three times a day. It was also observed that the workers sometimes intake alcohol. On the other hand, in physical activity, the workers have done neutrally vigorous-intensity activities as part of my work. Whereas in terms of travelling, walking or using a bicycle (*pedal cycle*) for at least 10 minutes continuously every day to get to and from places was performed by the workers. In addition to physical activity, in a typical week, workers do high-intensity sports, fitness or recreational activities every day.

Furthermore, both the level of dietary habits and physical activity on the work of workers in tertiary hospitals in Cotabato City perceived a negative correlation towards the prevalence of obesity. Hence, serves as an important indicator. On the other hand, based on the findings, the level of dietary habits of the workers shows no significant difference. Seemingly, physical activity shows a significant relationship.

The importance of strategies on the balance of dietary habits and physical activity must be addressed in order to decrease the prevalence of obesity among the workers. Stakeholders must integrate design in order to enhance the contemporary state of the study.

The extent of dietary habits must be balanced in order to reduce the prevalence of obesity. In maintaining the intake of healthy dietary foods and beverages could lead to gain a healthy weight. Through balancing energy intake and expenditure, could reduce the risk of developing obesity and related health issues. Furthermore, by incorporating regular physical activity into their lives, individuals can significantly reduce the risk of obesity and its associated health problems, leading to improved overall well-being.

Workers should start with lower-intensity activities and gradually increase their frequency and duration. Aerobic activity should be spread out over the week. Exercises should be adjusted to decrease risk of prevailing obesity and other health related problems. Exercise/physical activity is a proven modality for treating the disease of overweight and obesity. However, managing this disease is best through dietary interventions and regular exercise. Exercise is an integral part of not only weight loss but overall health as well.

Furthermore, the study recommends the future researchers in order to dig deeper understanding on the prevalence of obesity. To further investigates other variables that could affect the prevalence of obesity.

It should build upon existing knowledge, address limitations, and explore new avenues for investigation on the study. Specifically, researchers should focus on refining methodologies, expanding the scope of studies, and considering the practical implications of the findings. This means examining research limitations, exploring new contexts, and re-evaluating existing theoretical models must be imposed.

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