LIFESTYLE PROFILE AND STRESS RISK LEVEL IN RELATION TO METABOLIC SYNDROME AMONG NURSES, GOVERNOR CELESTINO GALLARES MEMORIAL HOSPITAL (GCGMH), TAGBILARAN CITY, BOHOL

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ABSTRACT

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Keywords — Metabolic syndrome; lifestyle profile; stress risk level; nurses; dietary intake; physical activity; sleeping pattern; personal habits; workplace health; Philippines

Metabolic syndrome is a growing public health concern because it increases the risk of cardiovascular disease and diabetes. This study focused on nurses at Governor Celestino Gallares Memorial Hospital in Tagbilaran City, Bohol, during 2018, highlighting its relevance for healthcare professionals concerned with nurse health and metabolic risks. A correlational design was adopted, with 140 nurses selected through simple random sampling. Data were collected using validated questionnaires covering demographic profile, lifestyle

factors (diet, physical activity, personal habits, and sleep), and stress risk level, along with document analysis of annual physical examinations for metabolic indicators. Metabolic syndrome was diagnosed according to the National Cholesterol Education Program Adult Treatment Panel III criteria. Statistical analyses included frequency, percentage, weighted mean, chi-square, Pearson correlation, t-test, and one-way ANOVA with Scheffé's test. Results showed that dietary intake, physical activity, and sleeping patterns were generally rated as satisfactory, while personal habits showed the lowest adherence. Most nurses experienced a moderate level of perceived stress. More than half of the respondents had no risk for metabolic syndrome, while a smaller proportion showed moderate to high risk, and a few were already diagnosed. Position was significantly associated with metabolic syndrome, highlighting the importance of role-related factors. Although lifestyle profile and stress risk level were not strongly associated with metabolic syndrome, significant correlations were observed among several lifestyle components. These findings emphasize the need for workplace health programs that promote healthy eating, regular physical activity, stress management, and adequate sleep to reduce metabolic risks among nurses.

INTRODUCTION

To mitigate the effects of metabolic syndrome, different worldwide organizations have created tools to help healthcare providers efficiently and effectively assess the risk of developing this syndrome, which may lead to life-threatening diseases. Metabolic syndrome is universal and non-target specific, meaning it can happen to anyone at any point in their lifetime. This condition can be life-threatening if inappropriately addressed. It poses a significant concern for everyone. The World Health Organization provides an alarming picture of global health trends. The data show that there has been an erratic shift in the diseases that predominantly cause death in the population. Six out of the ten die due to a non - infectious disease such as cardiovascular disease and cerebrovascular disease, which is strongly linked to metabolic syndrome. Based on conclusive data, the number of those suffering from metabolic syndrome or non-communicable diseases who have died is increasing (World Health Organization [WHO], 2018).

Metabolic syndrome is universal and non-target specific, meaning it can happen to anyone at any point in their lifetime. International studies strongly suggest that lifestyle-related factors are correlated with metabolic syndrome. Health care providers have one of the most demanding working environments, especially in public hospitals in the Philippines, which impacts their lifestyle. There is a need to ensure they remain healthy to continue delivering quality health care.

This study is anchored on the "Health Promotion Model" by Nola Pender

(2011). This model defines health as a dynamic state of holistic well-being achieved by actively engaging in actions that promote positive change in the person. This theory focuses on health as a self-directed intervention in which the individual must commit to consistently engaging in a set of health-promoting behaviors, aiming to build self-efficacy in managing one's health. The theory's mindset concerns how an individual can maintain or improve their health, an essential course of action for fighting metabolic syndrome.

A hospital is a hectic, fast-paced environment because, in the business of saving lives, every second counts. This type of mentality in a domain is a daily occurrence for our healthcare providers. Therefore, nurses need to adapt to this environment to survive and thrive despite the stress-causing stimulus.

At a United Nations forum (2015), heads of state drafted 17 Sustainable Development Goals to transform the world. Third among their goals is to address the need for Good Health and Well-being. It shows the commitment of the world's different nations in addressing health-related concerns.

Metabolic syndrome refers to a cluster of abnormalities in an individual, such as elevated blood pressure, elevated blood sugar, central obesity, and high cholesterol or triglyceride levels. An individual is only diagnosed when three or more of these symptoms are present. The United States National Cholesterol Education Program Adult Treatment Panel III sets these clinical measurements, NCEP-ATP III (Grundy et al., 2005).

A study on lifestyle by Chang et al. (2016) found that lifestyle factors significantly affect the development of metabolic syndrome. People who were less engaged in any physical activity and ate fewer vegetables and fruits among Taiwanese people were observed to be overweight and obese. This study examines the links between lifestyle factors and metabolic syndrome.

A study conducted on overweight and obese Filipino adolescents shows that they are at high risk of developing metabolic syndrome. Filipino adolescents who were overweight and obese were found out to be mostly either or both with hyperinsulinemia and insulin resistance. (Chan Cua, 2012)

The studies below highlight the effect of lifestyle practices on our health. It shows how it affects an individual's health continuum.

Findings of another study on lifestyle conducted by Domapias (2012) cited that lifestyle-related factors, namely diet, activity, and other personal habits, affect the risk of developing diabetes. Specifically, it stresses that engaging in sedentary activities frequently increases the risk.

The findings are consistent with a research study on High-Intensity Exercise, which shows decreased blood glucose levels 1 to 3 days post-exercise in both diabetics and non-diabetics. Furthermore, the research has emphasized the need for further studies on the hypoglycemic effects of High-Intensity Exercise. Specifically, on its impact during and immediately after exercise to determine its safety, acceptability, long-term efficacy, and optimal exercise intensity and duration for the desired effect of controlling the blood glucose level. (Adams, 2013)

A study of women found that frequently neglected sleep disturbances, such as poor sleep quality and insomnia, are associated with increased blood pressure and vascular inflammation (Aggarwal et al., 2018).

The studies, as mentioned earlier, show how lifestyle and metabolic syndrome are correlated. They establish the need for further research on this topic on different subjects.

This study aimed to assess the lifestyle profile and stress risk level in relation to the clinical metabolic profile of nurses at Governor Celestino Gallares Memorial Hospital in the City of Tagbilaran, Bohol, during 2018.

Specifically, it sought to answer the relationship between the incidence of metabolic syndrome and demographic profile, lifestyle profile, or stress risk level. It also sought to establish relationships among the demographic profile, lifestyle profile, and stress risk level. The study also sought to assess the degree of correlation between the stress risk level and lifestyle profile. These are used to determine the degree of variance in the different practices in the lifestyle profile.

RESEARCH METHODOLOGY

The researcher employed a quantitative-descriptive correlational design to examine the relationships among various lifestyle factors and metabolic syndrome. The study recruited 140 employed nurses from Governor Celestino Gallares Memorial Hospital (GCGMH). This study employs a purposive sampling with the following inclusions: nurses employed by the said institution with

The demographic and lifestyle profile of the participants was assessed using a validated questionnaire, whereas the clinical metabolic profile was analyzed from the annual physical examination record. The researcher informed the respondents of the information gathered, the study's purpose, and their rights before obtaining their consent. Privacy and confidentiality were upheld at all times throughout the research. The respondent's withdrawal at any point of the study was explained. Any associated inconveniences benefit the participants, and the purpose of this study was to be fully disclosed to the respondents.

With their permission, the personal health record with the following data: height and weight, body mass index, waist circumference, blood pressure, fasting blood sugar, triglyceride, and high-density lipoprotein was analyzed. It evaluated the incidence of metabolic syndrome using the National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III) criteria (Grundy et al., 2005).

The tool used for this study was divided into two parts. The first part comprised a documentary analysis of the respondents' 2018 health records from their annual physical examinations obtained from the hospital's Personal Health Committee, from which the data for the clinical metabolic profile will

be retrieved. The second part is a self-assessment questionnaire that collects demographic information and assesses respondents' health status across various aspects.

It is divided into four sections: Section I will determine the demographic profile of the respondents. Section II will determine the respondents' lifestyle status regarding dietary intake, based on the Food and Nutrition Research Institute (FNRI)-prescribed dietary intake for Filipino adults. Section III determines the respondents' lifestyle status regarding physical activity practices based on the Filipino Pyramid Activity Guide for adults. Section IV defines the respondents' personal habits profile, including smoking, alcohol intake, and caffeine consumption. Section V examines the sleep patterns of the research respondents. In contrast, Section VI aims to determine the respondent's stress level using the Perceived Stress Scale by Cohen, Kamarck, and Mermelstein (1983).

The study underwent ethics review by both the University of Bohol Ethics Review Committee and the Governor Celestino Gallares Memorial Hospital Institutional Review Board to ensure that the study maintained a high regard for participants' welfare. It ensured that participants' rights were upheld during the survey, minimizing any risks to respondents.

The questionnaire was given to the nurses on a date and time agreed upon by the participants and the researcher. The completed questionnaire was then collated, tallied, and processed for statistical treatment by a statistician.

The study employed a descriptive analysis using percentages and weighted means. The study used inferential analyses including Chi-Square, Pearson's r, and ANOVA. To determine the difference between the metabolic syndrome and the following: Demographic profile, Lifestyle profile, and Stress risk level, Analysis of Variance (ANOVA) and Pearson Correlation were performed. The coefficient (Pearson's r) indicates the strength of the relationship between lifestyle factors and metabolic syndrome. A t-test was used to test the significance of the correlation. (Cohen, Kamarck, & Mermelstein, 1983)

RESULTS AND DISCUSSION

Profile of Respondents. The study revealed that of the 140 nurses who participated, the majority are in the age range of 20 to 30 years old; females are employed as staff nurses with 1 to 5 years of hospital experience.

Lifestyle Profile of the Respondents. The results showed that the respondents often had ideal dietary intake, activity, and sleep patterns. Dietary profile adherence ranked highest, with a mean of 3.37, followed by the activity profile (2.93) and the sleeping pattern profile (2.73). The personal habits profile receives the least adherence, with a mean of 1.83.

Stress Risk Level Profile of the Respondents. The results show that the majority of respondents reported a moderate perceived stress risk, with a composite mean of 1.78.

Clinical Metabolic Profile of the Respondents. The results showed that 56.43% of respondents did not indicate a risk of metabolic syndrome. In comparison, 24.29 percent showed a moderate risk for metabolic syndrome, and another 11.43 percent showed a high risk for metabolic syndrome; only 7.86 percent were currently diagnosed with metabolic syndrome.

Relationship among variables

Table 2. *Pearson Correlations Among Demographic Variables, Lifestyle Components, and Stress Risk (N = 140)*

Variable pair	r
Age – Dietary intake	–0.010
Age – Physical activity	–0.190*
Age – Personal habits	–0.105
Age – Sleeping pattern	0.144
Age – Stress risk	–0.179*
Years of experience – Dietary intake	–0.081
Years of experience – Physical activity	–0.150
Years of experience – Personal habits	–0.132
Years of experience – Sleeping pattern	0.125
Years of experience – Stress risk	–0.141
Stress risk – Dietary intake	0.028
Stress risk – Physical activity	0.067
Stress risk – Personal habits	0.043
Stress risk – Sleeping pattern	–0.197*
Dietary intake – Physical activity	0.495**
Dietary intake – Personal habits	–0.186*
Dietary intake – Sleeping pattern	0.422**
Physical activity – Personal habits	–0.072
Physical activity – Sleeping pattern	0.322**

Personal habits – Sleeping pattern	–0.101

Note. Values are Pearson product–moment correlations. Two-tailed significance tests were used. $N = 140$.
$p < .05$. **p** < .01.

It was found that the respondents' position bears a significant degree of relationship to metabolic syndrome.

There is no significant relationship between the respondents' metabolic syndrome and lifestyle profile; metabolic syndrome and stress risk level; demographic profile and lifestyle profile; and demographic profile and stress risk level.

Correlation among variables. There is a significant association between age and activity, between age and stress risk level, and between stress risk and sleeping pattern. Diet is substantially associated with activity, personal habits, and sleeping patterns, whereas activity is related to sleeping patterns.

Table 3: *Analysis of Variance in the Different Practices in the Lifestyle Profile Variance among the Lifestyle Profiles of Respondents*

Analysis of Variance in the Different Practices in the Lifestyle Profile

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Dietary	140	472.44	3.37	0.26758
Activity	140	409.87	2.93	0.43994
Personal Habits	140	255.67	1.83	0.21178
Sleeping Pattern	140	382.50	2.73	0.86119

ANOVA

Source of Variation	*SS*	*Df*	*MS*	*F*	*P-value*	*F crit (0.05)*
Between Groups	177.8783	3	59.29277	133.20595	4.99563E-65	2.6209
Within Groups	247.4873	556	0.44512			
				Result: Significant		
Total	425.3656	559		**Ho: Rejected**		

The computed value of 4.9956 is greater than the tabulated critical value of 2.6209 at a 0.05 level of significance; therefore, the null hypothesis is rejected. There is significant variance across all components of the respondents' lifestyle profile.

Multiple Comparison
Using Scheffe's Test

Table4: *Variance among the Lifestyle Profiles of Respondents*

Between Dimensions			Mean1	Mean2	D	n1	n2	F'	F*K-1	Interpretation
Dietary	vs	Activity	3.37	2.93	0.45	140	140	31.42	7.86	**Significant**
Dietary	vs	Personal Habits	3.37	1.83	1.55	140	140	377.05	7.86	**Significant**
Dietary	vs	Sleeping Pattern	3.37	2.73	0.64	140	140	64.91	7.86	**Significant**
Activity	vs	Personal Habits	2.93	1.83	1.10	140	140	190.78	7.86	**Significant**
Activity	vs	Sleeping Pattern	2.93	2.73	0.20	140	140	6.01	7.86	Insignificant
Personal Habits	vs	Sleeping Pattern	1.83	2.73	-0.91	140	140	129.07	7.86	**Significant**

CONCLUSION

Based on the previously mentioned finding, the majority of the nurses at the Governor Celestino Gallares Memorial Hospital are aware of the benefits of a healthy lifestyle. Still, there are areas for improvement. Improving their food intake variation, especially fruits and vegetables, maximizes the nutritional value they receive. Motivation to engage in high-calorie-burning physical activity could have been initiated. They introduced a leisure activity that helps them relax and burn calories, reducing the need for a sedentary lifestyle. Nurses have altered their sleep patterns due to the nature of their working hours.

The nurses at Governor Celestino Gallares Memorial Hospital are very resilient, as they adapt to a work environment that exposes them to moderate stress.

Obesity and central obesity are prevalent among nurses. Metabolic conditions are a growing concern among nurses at Governor Celestino Gallares Memorial Hospital.

RECOMMENDATION

Grounded on the results and findings discussed previously, here are the recommendations and suggestions. The researchers suggest expanding the study's respondent pool to include other factors that may affect the study.

A tool that will facilitate healthcare providers in simplifying the diagnosis of metabolic syndrome and tailoring the instrument to the condition applicable in the Philippine setting should be created. It should be mandated that the tests be incorporated into the annual examination of all employed individuals, regardless of age or prevailing health status.

Proactive health services aimed at detection and prevention should be prioritized over rehabilitative efforts.

To integrate an institution-specific health program aimed at early detection, prevention, and control of metabolic syndrome for all employees, which would be best incorporated into the healthcare delivery routine. They should also conceptualize a health program that could be integrated into the daily routine of the healthcare delivery system, such as Expanded Primary Care Benefits.

To include within the organization's continuous improvement plans a health-oriented lifestyle through innovations such as creating a cafeteria that offers healthy options, ideally accessible to employees, and establishing opportunities for employees to engage in team-building recreational activities.

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