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Lifestyle among Hypertensive Individuals During the Pandemic in Dao District Tagbilaran City, Bohol

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ABSTRACT

Hypertension is a condition where the force of blood that pushes the walls of the blood vessels is often too high. It is considered a “silent killer” that affects 1 in 4 men and 1 in 5 women. This study utilized the quantitative descriptive-correlational design to determine the lifestyle of one hundred (100) randomly selected hypertensive individuals aged from 21-60 years old in Dao district, Tagbilaran City, Bohol, with the aid of the study questionnaire. It delved into the demographic profile and the Levels of lifestyle employed by the respondents in terms of Diet, Exercise, Stress, Smoking, and Alcohol Consumption. Results revealed that most of the respondents were females,

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married, 25-29 years old, and 50-54 years old. Data further showed that respondents have a very good lifestyle regarding alcohol intake and stress management and only have a good lifestyle in exercise and diet. When data were subjected to the Spearman rho test and chi-square, it was found that there is a significant relationship between the age and the level of lifestyle employed by the respondents.

INTRODUCTION

Hypertension is a disorder within which the blood vessels have persistently elevated pressure, commonly referred to as high or raised blood pressure. It is considered the silent killer, a primary health concern that affects 1 in every four men and 1 in every five women, with over a billion people suffering from this condition. Vascular disease remained the top 10 leading causes of mortality in the Philippines from 2005-2010 (Department of Health. 2010). Cardiovascular disease includes heart disease, hypertension, heart failure, and stroke, which remain the leading cause of mortality in the United States (Go, Bauman, Coleman, Fonarow, Lawrence, Williams, & Sanchez, 2014). The World Health Statistics recorded an estimated 41 million non-communicable deaths in 2016, where 17.9 million, or 44%, are related to cardiovascular disease (World Health Organization, 2018). Reducing alcohol consumption, tobacco use, minimizing air pollution, physical inactivity, and unhealthy diet was the identified strategy to reduce the mortality rate related to non-communicable diseases (World Health Organization, 2018).

Since hypertension is a lifestyle disorder, it is correlated with lifestyle variables such as dietary attitudes and physical activity (Ghezelbash & Ghorbani, 2012). The presence of COVID-19 pandemic has caused many changes to the lives of every human being. The limitation on the

movement of human beings imposed by the government to help slow down the spread of the disease has a different impact on different individuals. Cardiovascular disease consequences of quarantine are mostly related to unhealthy lifestyles and anxiety (Mattioli, Puviani, Nasi, & Farinetti, 2020). A healthy diet and physical activity are mandatory to have a good lifestyle routine. Cardiovascular disease patients need to be prepared to cope with the anticipated rise in cardiovascular risks (Mattioli et al., 2020).

The impact of the COVID-19 pandemic is drastically changing the social, physical, and mental well-being of the people (Joshi, Barde, Chavan, Dumbre, Ligade, Shinde, & Desai, 2020). Living in these circumstances can be challenging for people who are clinically diagnosed with hypertension. How a hypertensive patient decides his or her lifestyle during the pandemic can prevent and reduce the risk of high blood pressure. There is evidence that a healthy lifestyle can help prevent and reduce high blood pressure (Rigsby, 2011; Bruno, Amaradio, Pricoco, Marino, & Bruno, 2018). Since hypertension is considered one of the top three causes of mortality worldwide (Hacihasanoğlu & Gözüm, 2011), it is vital to control it. Several studies have evaluated the importance of a healthy lifestyle for hypertension. Hypertensive individuals who are aware of the benefits of living a healthy lifestyle and adhered to it could control their blood pressure within the normal range (Akbarpour, Khalili, Zeraati, Mansournia, Ramezankhani, & Fotouhi, 2018). This study was conducted to increase hypertensive individuals' awareness of the importance of maintaining a healthy lifestyle even during the pandemic.

This study is anchored on the theory of **Dorothea Orem**, known as the **Self-Care Theory.** This theory emphasizes the ability of the person to take care of himself. A person experiencing health-related limitations prevents the person from doing self-care where nursing care is needed. Nursing is viewed as a human health service, and individuals who failed to perform self-care due to the presence of an altered health function may need the help of nursing care (Orem, 2001). Hypertensive individuals are encouraged to carry out healthy behaviors, especially during the pandemic, to promote and preserve well-being at all times. The hypertensive clients are encouraged to perform self-care by living a healthy lifestyle at all times to sustain life and well-being. This ability is obtained by learning and affected by, among other factors, age, life experiences, community, values, and education. If the person fails to remain healthy, then deficiency in self-care occurs, and the individual may need help from others to meet person's

needs. To stay healthy, one needs to set a goal. This is emphasized in the theory of Imogen King, which is known as the "Goal Attainment theory." It focuses on the achievement of specific objectives in life. Hypertensive clients need personal and social satisfaction, and it is crucial that the nurse and patient go hand-in-hand in setting goals together and taking steps to accomplish the objectives set. Roles, stress, space, and time are the variables that influence the attainment of objectives (Gonzalo, 2021).

The **Sustainable Development Goal**, otherwise known as the Global Goals, is part of the United Nations General Assembly's Resolution 70/1, which aims to "Transforming the World: by 2030. One of the seventeen Sustainable Development Goals (SDGs) is "Goal 3, which is all about "Good Health and Well-being." This particular goal is to "Ensure healthy lives and promote well-being for all at all ages." It emphasizes reducing the number of mortality cases from non-communicable diseases through prevention, treatment, and promotion of mental health and well-being, and to strengthen all countries' capacity in health risk reduction and management (United Nations). Supporting the goal of the united nations, **The Department of health formulated Proclamation No. 1761, s. 2009;** Declaring the month of May of each year as **"Hypertension Awareness Month," w**here different strategies in the prevention, treatment, and control of hypertension are actively pursued to reduce hypertension-related deaths and disability (Official gazette,2021).

Hypertension is the leading cause of mortality worldwide (Nadar & Lip, 2020). Hypertension is considered the most risk factor for cardiovascular disease (Wolf-Maier, Cooper, Banegas, Giampaoli, Hense, Joffres, & Vescio, 2003; Roth, Johnson, Abajobir, Abd-Allah, Abera, Abyu, & Ukwaja, 2017). It remains a significant health challenge to the public because of its high prevalence, resulting in cardiovascular disease and renal disorder (Mills, Bundy, Kelly, Reed, Kearney, Reynolds, & He, 2016). The incidence of hypertension is high in developing and highly developed countries (Kearney, Whelton, Reynolds, Whelton, & He, 2004), and it increases with age (Yoon, Fryar, & Carroll, 2015). Most hypertensive patients are not aware of their condition. However, for those who have been medically diagnosed, medical management of the disease is inadequate primarily (Kearney et al., 2004). It has been noted that effective management of hypertension decreases potential complications, including heart attack, stroke, and heart failure (Yoon et al., 2015). One of the most powerful ways to avoid and regulate hypertension is through lifestyle improvements

since it is correlated with lifestyle variables such as dietary attitudes and physical activity (Ghezelbash, & Ghorbani, 2012; Nilsson, 2018). People with a sedentary lifestyle, obesity, high cholesterol level, and alcohol consumption are positively associated with hypertension (Guessous, Bochud, Theler, Gaspoz, & Pechère-Bertschi, 2012).

Elevated blood pressure has long been considered an unavoidable result of aging (Buford, 2016). Only by living a balanced lifestyle keeps blood pressure in a healthy range. It involves consuming a balanced diet, maintaining a healthy weight, having ample physical exercise, not smoking, and limiting alcohol consumption (Go et al., 2014). Physical activity and dietary intake contribute to the incidence of hypertension (Shay, Ning, Daniels, Rooks, Gidding, & Lloyd-Jones, 2013). The involvement in moderate physical activity of at least two and a half hours per week helps the individual to remain healthy (McGuire, 2014). Adhering to the DASH diet is essential for hypertension (Bazzano, Green, Harrison, & Reynolds, 2013; Defensor-Mina, Mina, & Morales, 2019). Other additional recommendations include a low salt or sodium diet, controlling calorie intake, decreasing dietary fat, increasing food intake through fruit and vegetable-rich diets like Potassium, Calcium, and Magnesium (Bellows & Moore, 2013).

Exercise is integrated with prevention, treatment, and high blood pressure regulation. Exercise services provide endurance exercises that help prevent high blood pressure from developing (Pescatello, Franklin, Fagard, Farquhar, Kelley, & Ray 2004). Increasing a person's physical activity with a regular aerobic exercise regimen help reduce one's blood pressure (Calhoun, Jones, Textor, Goff, Murphy, Toto, & Carey, 2008) and prevent hypertension (Diaz & Shimbo, 2013). It has plenty of advantages, one of which is that it will improve one's heart function and reduces mortality in patients with high blood pressure (Rossi, Dikareva, Bacon, & Daskalopoulou, 2012).

The reduction of the consumption of alcoholic beverages also helps in controlling blood pressure (Briasoulis, Agarwal, & Messerli, 2012). Having one drink a day can already increase the risk of having hypertension. Binge drinking of alcoholic beverages increases hypertension and stroke risk (Hillbom, Saloheimo, & Juvela, 2011). Blood pressure can then be reduced and avoided by reducing alcohol consumption. Such is also true for smoking since smoking stimulates the sympathetic nerve causing endothelial damage dysfunction leading to a rise in blood pressure (Li,

Wang, H., Wang, K., Wang, W., Dong, Qian, & Shan, 2017).

There are numerous investigations directed by various explorers about lifestyle changes among hypertensive patients. One of these is the study conducted by Appel (2003), entitled "Lifestyle Modification as a Means to Prevent and Treat High Blood Pressure," which revealed that Blood Pressure is affected by various dietary factors. The combined effects can be significant, although each element usually has a modest effect. Even a modest decrease in Blood Pressure can have a tremendous, beneficial impact on the incidence of hypertension and its complications from a public health perspective. The current challenges for health care practitioners, researchers, and public officials are establishing and adopting successful clinical and public health strategies that achieve and sustain safe lifestyle changes.

The presence of the COVID-19 pandemic has an impact on hypertensive individuals. A study by Mattioli et al. on May 20, 2020, entitled "Quarantine during COVID'19 Outbreak; Change in diet and physical activity increase the risk of cardiovascular disease," revealed that there are some long-term cardiovascular disease consequences of quarantine, mainly related to unhealthy lifestyles and anxiety.

Moreover, a study entitled "The Effect of Lifestyle Changes on Blood Pressure Control among Hypertensive Patients" revealed that healthy eating, weight management, and regular physical exercise are significant for managing high blood pressure in adults. Lifestyle changes can enhance blood pressure control and even minimize the need for medication (Yang, Kang, Lee, Kim, Sung, Lee, K. Y., & Lee, S. Y. 2017). The findings suggest that, in addition to providing medication and monitoring the patient for hypertension control, the doctor should recommend lifestyle changes such as appropriate physical exercise and low salt intake to obtain improved blood pressure control.

Furthermore, Heyman, Gross, Tabenkin, Porter, & Porath (2011) explore the "Factors Associated with Hypertensive Patients' compliance with the recommended lifestyle behaviors." The study reveals that approximately half of patients with hypertension reported doing daily exercise and adhering to a particular diet; 13% were smokers (Heymann, Gross, Tabenkin, Porter, & Porath, 2011). Around half documented seeking advice on avoidance of smoking and diet and a third on physical activity. A quarter reported receiving explanations concerning blood pressure self-measurement and signs of deterioration. Multivariate research found

that patients' opinions on hypertension treatment, their understanding of and management of hypertension, and physician advice on a healthy lifestyle and self-care have an independent effect on compliance with their prescribed actions. The low counseling rates indicate that there might be a need to develop doctors' counseling skills to be more particular and successful in providing their patients with this service. A model focused on educating both doctors and patients can improve the treatment of patients with hypertension.

RESEARCH METHODOLOGY

The researchers utilized the quantitative descriptive-correlational approach aided with survey techniques to determine the lifestyle employed by hypertensive individuals. The respondents were the one hundred (100) hypertensive individuals who were randomly selected from the total of 310 hypertensive cases of Barangay Dao, Tagbilaran City, Bohol. The list of respondents was identified from the records of the Rural Health Center in Dao and the City Health Office in Tagbilaran City. Included in the study were hypertensive clients from Barangay Dao, aged 21-60 years old who were diagnosed with hypertension. Excluded were hypertensive individuals residing in Dao, Tagbilaran City for less than six months, and those who are not anymore living in Dao, Tagbilaran City since the pandemic started.

A researcher-made questionnaire was utilized in the study. There are statements in the questionnaire that are stated negatively. The scores of these negatively framed items were reversed in the interpretation of results: These includes item number 3 under Diet category "I eat processed foods such as canned goods, instant noodles, junk foods, etc."; and Item number 1 under smoking category- "I do smoke."

A pilot testing of the tool was conducted first to ten respondents with a similar socio-demographic profile. The statistician measured the reliability or internal consistency through the use of Cronbach's alpha tests with the result of 0.720 on diet, 0.826 on exercise, 0.896 on stress, 0.752 on smoking and 0.708 on alcohol intake.

To ensure that the "do-no-harm" could be followed, the Research Team subjected this study for review by the Research Ethics Committee of the University of Bohol.

RESULTS DISCUSSION

Profile of Respondents. In terms of age, data revealed that out of one hundred respondents, Fifteen or (15.0%) were between 25-29 years old and also 50-54 years old; while only four or (4.0%) belong to the age bracket of 65-69 years old and 70 years old and above. A study shows increase rates of hypertension. Regarding age, it was noted that 7.5% among adults aged 18-39 to 33.2% has been among those aged 40-59, and 63.1% among those aged 60 and over (Fryar, Ostchega, Hales, Zhang, & Kruszon-Moran, 2017).

As to the sex of the respondents, the data revealed that out of one hundred respondents, Sixty-three or (63.0%) were female, and Thirty-seven or (37.0%) were male. Hypertension is a common disease in both sexes. However, women are more likely than men to develop hypertension, and cardiovascular disease is still the leading cause of death in women (Pimenta, 2012).

Regarding the Civil Status of the respondents, data revealed that out of one hundred respondents, most of them were married, represented by Sixty-two or (62.0%) while three or (3.0%) of them had live-in partners. In terms of religion, it was found out that Eighty-nine or (89.0%) were Roman Catholics while one of them belonged to The Church of Jesus Christ of Latter-Day Saints.

As to highest educational attainment, data revealed that sixty-four or (64.0%) were college graduates while two or (2.0%) were elementary graduates and two or (2.0%) were from high school level. The majority Fifty-four or (54.0%) were unemployed. Persons with chronic conditions such as hypertension in a marginalized area have experienced difficulty finding jobs because of this COVID-19 pandemic, both financially and socially, resulting in unemployment (Simon, Helter, White, Van der Boor, & Łaszewska, 2021).

Data on height and weight were also taken, and it was found out that Nineteen or (19.0%) of the one hundred respondents weighted 65-69 kilograms; while one or (1.0%) weighted 35-39 kilograms. It was found out that Forty-eight or (48.0%) are within 1.55-1.69 meters tall, while one or (1.0%) of them is within 1.85-1.99 meters. Weight is an essential factor to consider when dealing with hypertensive individuals. Losing weight to those overweight patients is beneficial in lowering blood pressure, which is also important for preventing and managing non-communicable

diseases, including hypertension (Sohlberg, Stephansson, Cnattingius, & Wikström, 2012). Maintaining an average weight is very important in the management of hypertension. For an individual to know if his weight is still within the acceptable range, it is essential to compute the person's Basal Metabolic Rate, which can be obtained using the person's data on height and weight.

Furthermore, data revealed that eighty-four or (84.0%) of the respondents are members of any hypertensive clubs, while sixteen or (16.0%) are not members. The Department of Health has created health organizations, including hypertensive clubs, to increase awareness of the importance of preventing and controlling chronic diseases and living a healthy lifestyle (Rigsby, 2011).

Level of Lifestyle of the Respondents. When asked about their lifestyle in terms of diet, the derived values of the answers were translated into interpretations and descriptions, computed the weighted mean, and ranked from the highest to lowest.

In terms of diet, the respondents have a good lifestyle with a composite weighted mean of 2.58. The findings showed that respondents "refrain from eating fatty foods such as beef, pork, dark chicken meat, poultry skin, cheese, butter margarine, etc." ranks top with a weighted mean of 2.63. On the other hand, respondents "refrain from drinking soda or carbonated drinks such as coke, sprite, royal, etc." ranks last with a weighted mean of 2.56. Eating healthy foods is vital in the management of hypertension. The reduction in sodium consumption and calorie intake, as well as eating more food servings rich in fruits and vegetables, low-fat dairy products, whole grains, meat, seafood, nuts, and unsaturated vegetable oils, were all found to lower blood pressure (Sacks, & Campos, 2010).

The result showed that when the respondents were asked about their lifestyle in terms of exercise, overall, they observed good lifestyle by engaging into exercise (2.53). Respondents "perform exercises at home" (2.64), and they set a schedule for when to exercise" (2.43). Increasing one's physical activity will aid in the reduction of blood pressure and reduce the prevalence of heart disease (Pal, Radavelli-Bagatini, & Ho, 2013).

As to lifestyle employed by the respondents in terms of stress, it was found that they have very good lifestyle (3.29). Data revealed that respondents have "keep a positive attitude despite the lockdown" which ranked highest (3.44). However, " meditation to keep their mind in serenity" ranked lowest with a weighted mean of 3.07. Stress can be harmful to

the body leading to blood pressure elevation (Hu, Liu, Yin, Fan, Feng, & Yuan, 2015). Trying some stress control methods is important if one has hypertension. Meditation reduces anxiety and helps control blood pressure (Chung, Brooks, Rai, Balk, & Rai, 2012).

Pertaining to lifestyle of the respondents in terms of cigarette smoking, results showed that they generally have a "good lifestyle" (3.15). Data showed that the statement "I do not smoke" ranked highest (3.84). Furthermore, the data showed that respondents "lessen the cigarette consumption they usually have" ranks 3rd (2.58). Cigarettes contain nicotine which is harmful to the walls of the blood vessels which may result in vasoconstriction resulting in a further increase in blood pressure. This was supported by the study conducted by Bowman, Gaziano, Buring, & Sesso-study in 2007 entitled "A prospective study of cigarette smoking and risk of incident hypertension in women," showing an association between cigarette smoking and hypertension.

Regarding the lifestyle employed by the respondents in terms of alcohol intake, data showed that respondents, instead of getting drunk, they keep themselves active, with a weighted mean of 3.57. Respondents prefer to drink water instead of alcohol and "refrain from drinking alcoholic drinks because it is not allowed." Reducing alcohol intake among heavy drinkers significantly reduces systolic and diastolic blood pressure. Furthermore, it was suggested that alcohol reduction is recommended as an essential component for someone's lifestyle to prevent and treat hypertension (Lippi, Henry, & Sanchis-Gomar, 2020).

The results showed that overall, the respondents have a "good lifestyle" with an overall mean of 2.9873. Respondents were found to have a "Very Good Lifestyle" in terms of Alcohol intake with the highest weighted mean (3.35); followed by stress (3.293); however, it was found out that the category of exercise was ranked lowest.

Controlling alcohol consumption and stress response are important factors in the management of hypertensive patients. Binge drinking is never a brilliant idea, and persons with hypertension need to limit and regulate their alcohol intake (Hillbom et al., 2011). This has always been part of the reminder provided and emphasized by health care teams. Hypertensive individuals need to have effective relaxation techniques to fight against stress, especially during this pandemic, since stress can greatly impact the person's blood pressure. It is vital for individuals to use relaxation techniques or biofeedback to help them cope with the consequences of

stress and is an effective alternative to pharmacotherapy in reducing blood pressure (Park, & Han, 2017).

Part of the management of the hypertensive patient is on the avoidance of smoking, adherence to a healthy diet, and adherence to a regular exercise program. However, data in this study revealed that respondents only have “good lifestyle” on these aspects, with diet and exercise belonging to the bottom rank. It has always been known that diet (Bazzano et al., 2013), and exercise help reduce weight and, at the same time, lowers blood pressure and even the risk of heart disease and stroke. Adhering to a regular exercise program aids in the maintenance of a healthy weight and maintain healthy blood pressure. A good lifestyle is one of the most critical factors in preventing and treating high blood pressure. However, adherence to the recommended lifestyle is low (Tibebu, Mengistu, & Negesa, 2017).

Table 1. Summary of the Levels of Lifestyle Employed by the Respondents per category (N=100)

Category	Weighted Mean	Descriptor	Interpretation	Rank
Alcohol Intake	3.350	Always	Very Good Lifestyle	1
Stress	3.293	Always	Very Good Lifestyle	2
Cigarettes Smoking	3.156	Often	Good Lifestyle	3
Diet	2.585	Often	Good Lifestyle	4
Exercise	2.535	Often	Good Lifestyle	5
Overall Mean	**2.9873**	**Often**	**Good Lifestyle**	

Scale	Descriptive Value	Meaning	Interpretation
1.00 – 1.74	1	Never	Poor lifestyle
1.75 – 2.49	2	Sometimes	Fair lifestyle
2.50 – 3.24	3	Often	Good Lifestyle
3.25 – 4.00	4	Always	Very Good Lifestyle

The gathered data underwent a normality test to determine the appropriate statistical treatment of the data. Both parametric and nonparametric tests were used to test the correlation between the respondents’ profile on age, weight, and height, and lifestyle. Results revealed that age was significantly correlated with the level of lifestyle practices. This implies that age has something to do with lifestyle. On the other hand, results revealed that respondents’ weight and height were not significantly correlated with lifestyle.

Table 2. Tests of Correlation between the Respondents' Profile and their Lifestyle

Variables	Statistical Test	P-Value	Decision	Interpretation
Age and Lifestyle Practices	Spearman's Rank Correlation	0.036	Reject the Null Hypothesis	Significant correlation exists between the variables
Weight and Lifestyle Practices	Pearson Correlation	0.611	Failed to Reject the Null Hypothesis	No significant correlation exists between the variables
Height and Lifestyle Practices	Spearman's Rank Correlation	0.950	Failed to Reject the Null Hypothesis	No significant correlation exists between the variables

Chi-Square Test of Association was used to determine the relationship between respondents' profile on Educational Attainment, Sex, Civil Status, Religion, Occupational Status, and Membership of Hypertensive Clubs, and their Lifestyle. Results revealed that the respondents' educational attainment was significantly associated with their lifestyle. However, no significant association was found for the profile on Sex, Civil Status, Religion, Occupational Status, and Membership of Hypertensive Clubs.

Table 3. Chi-Square Tests of Association between the Respondents' Profile and their Lifestyle

Variables	P-Value	Decision	Interpretation
Educational Attainment and Lifestyle Practices	0.036	Reject the Null Hypothesis	Significant association exists between the variables
Sex and Lifestyle Practices	0.940	Failed to Reject the Null Hypothesis	No significant association exists between the variables
Civil Status and Lifestyle Practices	0.271	Failed to Reject the Null Hypothesis	No significant association exists between the variables
Religion and Lifestyle Practices	0.962	Failed to Reject the Null Hypothesis	No significant association exists between the variables
Occupational Status and Lifestyle Practices	0.481	Failed to Reject the Null Hypothesis	No significant association exists between the variables
Membership of Hypertensive Clubs and Lifestyle Practices	0.338	Failed to Reject the Null Hypothesis	No significant association exists between the variables

CONCLUSION

The hypertensive individuals of Barangay Dao in Tagbilaran City generally have a good lifestyle. This was attributed to their avoidance of alcohol intake, reduction of stress, avoidance of smoking, adhering to a healthy diet, and being physically fit.

Furthermore, age and educational attainment were significantly related to lifestyle.

RECOMMENDATIONS

1. That the Department of Health in coordination with the LGU will continually implement a health education program that will manage and monitor the lifestyle of the hypertensive individuals during this pandemic, particularly in adhering to a regular schedule of exercise regimen, adhering to a healthy diet, and adhering to virtual Zumba.
2. The local government unit, in coordination with the other non-government organizations and academe, sponsors and implements webinars encouraging the people, especially younger generations, that will focus on healthy dietary practices.
3. The local government units (LGUs) and the Department of Health to launch a program in the community introducing the effects of meditation in helping the people lower their stress level.

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