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THE CORRELATION OF WORK PERIOD, WORK STRESS AND DIETARY HABITS WITH THE BODY MASS INDEX OF COCONUT MILK PRODUCTION DIVISION WORKFORCES AT PT "X" IN 2021

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Abstract

Nutrition work deals with the nutrients needed by the workforces to meet their dietary needs in accordance to the type of work. Besides, nutrition work is beneficial to maintain and to improve the health as well as to pursue an optimal work power. The most important elements for the assessment of nutritional status are weight and height to determine the magnitude of a person's Body Mass Index in which possibly affected by several factors such as genetic, psychological, dietary, environment, and work shifts. Referring to these reasons, thus, the researcher is interested to examine the correlation between work period, work stress and body mass index of PT "X" coconut milk production department employees with their body weight.

Research Method: This research is a quantitative study with descriptive analytic research design using cross-sectional approach conducted in December 2021. The population of this research is the employee of coconut milk production at PT "X" numbered 75 people selected through total sampling technique. The data were collected by using questionnaires on height and weight body measurements to determine the body mass index categories. Also, the data were analyzed by using univariate and bivariate, to be further investigated by Chi Square statistical test.

Based on the result of the statistical test, it is verified that Ho^1 is accepted, meaning there is no correlation between work period and body mass index of workforces at coconut milk production division with p value = 0,197 (p> 0,05). In the same line, Ho^2 is failed to accept, where there is a correlation between work stress and body mass index of them indicated by p value = 0,037 (p <0,05). Moreover, Ho^3 is failed to accept and it is noted that there is a correlation of dietary habits or meal patterns and the body mass index of the coconut milk production team initiated by p value = 0,001 (p <0.05).

From these findings, the researcher concludes that there is no significant correlation between work period and body mass index of the employee, yet, it is noticed that there is a significant correlation between work stress and meals pattern on employees of coconut milk production division at PT "X" in 2017.

Keywords: work period, work stress, body mass index

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HUBUNGAN MASA KERJA, STRES KERJA DAN POLA MAKAN DENGAN INDEKS MASSA TUBUH (IMT) PADA KARYAWAN BAGIAN PRODUKSI SANTAN PT.‘‘X” TAHUN 2021

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Abstrak

Gizi kerja berarti nutrisi yang diperlukan oleh tenaga kerja untuk memenuhi kebutuhan sesuai dengan jenis pekerjaan, gizi kerja berguna untuk memelihara dan meningkatkan derajat kesehatan serta mengupayakan daya kerja yang optimal. Unsur terpenting bagi penilaian status gizi adalah berat badan dan tinggi badan untuk menentukan besarnya Indeks Massa Tubuh seseorang, dimana banyak faktor yang dapat mempengaruhi status gizi seseorang yaitu faktor genetik, psikis, pola makan, lingkungan, serta shift kerja. Dari alasan diatas peneliti tertarik untuk meneliti hubungan masa kerja, stres kerja dan pola makan dengan indeks massa tubuh pada karyawan bagian produksi santan di PT.“X” tahun 2021.

Penelitian ini berjenis kuantitatif dengan desain penelitian deskriptif analitik dengan pendekatan *cross sectional* yang dilakukan pada bulan Desember 2021. Populasi penelitian ini adalah Karyawan bagian produksi santan di PT.“X” sebanyak 75 orang dan dipakai teknik total sampling. Data dikumpulkan dengan menggunakan kuesioner dan pengukuran tinggi badan serta berat badan untuk mengetahui kategori indeks massa tubuh. Data dianalisis secara univariat dan bivariat dengan komputer menggunakan uji statistic *Chi Square*.

Berdasarkan hasil uji statistik diketahui Ho^1 diterima, dimana tidak terdapat hubungan antara masa kerja dengan indeks massa tubuh pada karyawan bagian produksi santan di PT.“X” tahun 2017 dengan *p value* =0,197 (p>0,05) , Ho^2 gagal diterima dimana ada hubungan antara stres kerja dengan indeks massa tubuh pada karyawan bagian produksi santan di PT.“X” tahun 2017 dengan *p value* =0,037 (p<0,05), Ho^3 gagal di terima ada hubungan pola makan dengan indeks massa tubuh pada karyawan bagian produksi santan di PT.“X” tahun 2021 dengan *p value* = 0,001 (p<0,05).

Dari hasil penelitian dapat disimpulkan tidak ada hubungan antara masa ke**r**ja dengan indeks massa tubuh tetapi ada hubungan antara stres kerja dan pola makan dengan indeks massa tubuh pada Karyawan Bagian Produksi Santan di PT.“X” Tahun 2021S.

Kata Kunci: *Masa Kerja, Stres Kerja, Indeks Massa Tubuh*

Introduction

Background

Hypertension is still a major problem that causes many deaths in the world's population. A person is said to have hypertension if they have systolic blood pressure ≥ 140 mmHg and diastolic ≥ 90 mmHg on two measurements with an interval of five minutes in a state of sufficient rest or calm (Indonesian Ministry of Health, 2019). Hypertension is also nicknamed the silent killer, where the symptoms are not felt until the sufferer is known to have high blood pressure and there may be complications that can result in death (Noviyanti, 2015).

Indonesia is included in the Southeast Asia region where the incidence of hypertension is relatively high, namely 427,218 deaths (Riskesdas, 2018). The results of the 2018 Basic Health Research stated that the prevalence of hypertension based on measurement results in the population aged ≥18 years was 34.1% and that diagnosed by health workers was only 8.6% of the prevalence of hypertension. This has increased from 5 years ago, where Riskesdas data in 2013 stated that the prevalence of hypertension was 25.8% and only 9.5% diagnosed by health workers (Indonesian Ministry of Health, 2018).

The exact cause of hypertension is currently unknown, but lifestyle has a big influence

regarding this case. There are several factors that are at risk of developing hypertension, such as age, smoking and a sedentary lifestyle which can lead to obesity. Reducing risk factors is the basis for providing interventions by health workers (Hariawan & Tatisina, 2020). There are two factors that can influence hypertension, namely, factors that can be controlled such as obesity, lifestyle, stress and factors that cannot be known such as age (Nugroho & Sari, 2019).

In the elderly, there is a decrease in body function, one of which is a decrease in the function of blood vessels. Diseases that often occur in the elderly are caused by a decrease in the function of blood vessels, one of which is hypertension or high blood pressure. High blood pressure is a disease of increasing systemic arterial blood pressure, both systolic and diastolic (Suprayitno & Huzaimah, 2020). If the health of the elderly is not handled properly, it will result in a decline in physical and physiological function resulting in more severe body damage, causing many complications and hastening death. Hypertension in the elderly, if not treated quickly and treated, can cause heart failure, stroke and kidney failure (Jannah & Ernawaty, 2018).

Hypertension basically has medication management which tends to be difficult to control

(Palmer, A. and B. William, 2012). Uncontrolled hypertension can increase the risk of complications, namely heart disease, stroke and kidney failure. The incidence of heart disease and stroke due to hypertension reaches 45% and 51% (WHO, 2013). If hypertension is left without treatment, almost half of hypertensive clients will die from heart disease and 10-15% will die from kidney failure (Black & Hawks, 2014). Stroke, especially hemorrhagic stroke and non-ischemic heart failure, is a disease that often occurs as a complication of hypertension in Asia (Kario et al., 2018).

Management of hypertension needs to be done as an effort to reduce the risk of rising blood pressure. Reducing systolic blood pressure by 10 mm Hg has been shown to reduce the risk of cardiovascular disease events by 20%, coronary heart disease by 17%, stroke by 27%, and heart failure by 28% (Thomopoulos et al., 2018). The aim of blood pressure control is to monitor blood pressure, prevent patients from being admitted to hospital and prevent complications (Martins et al., 2012). Therefore, it is important to manage hypertension in controlling blood pressure, so that it can be said to be controlled hypertension. Blood pressure control in hypertension sufferers is still

not optimal in clinical practice (Weber et al., 2014).

Management of hypertension is divided into two, namely, pharmacological and non-pharmacological therapy. Pharmacological treatment usually uses drugs that have side effects. In Indonesia it shows 60%
use drugs, 30% use herbal therapy, and 10% physical therapy (Harnani & Axmalia, 2017). Non-pharmacological treatment of hypertension can be done by changing a healthier lifestyle, one of which is doing hydrotherapy (soaking the feet in warm water) (Solechah et al., 2017).
2017).
One non-pharmacological method that can be done is hydrotherapy (warm water soak), immersing parts of the body in warm water (Hardianti et al., 2018). Warm water immersion hydrotherapy is one of 4 types of natural therapy which aims to increase blood circulation, reduce edema, increase muscle relaxation, make the heart healthy, relax muscles, relieve stress, muscle aches, relieve pain, increase capillary permeability, provide warmth to the body. body so it is very useful for therapy to reduce blood pressure in hypertension (Evi Dilianti et al., 2017).
From the results of research on alternatives for treating hypertension non-pharmacologically, it can be done by doing foot soak therapy in warm water

at any time, because the effect of soaking your feet is the same as walking barefoot for 30 minutes (Ilkafah, 2016).
Providing foot soak therapy using warm water can be used as an independent measure to lower blood pressure in hypertension sufferers in addition to pharmacological treatment. This foot soak therapy is recommended for patients with hypertension or mild hypertension to prevent severe hypertension which can result in stroke. Foot soak therapy uses warm water with a temperature of 38-40 °C over the ankles for 25-30 minutes, besides being able to lower blood pressure, relieve joint pain, reduce muscle tension, dilate blood vessels, kill germs, eliminate odors and can also improving sleep quality for the elderly (Harnani & Axmalia, 2017).
Researchers show that the effectiveness of the combination of warm water foot soak therapy and deep breathing relaxation is very effective in reducing blood pressure in hypertensive patients. These two therapies are very effective in lowering blood pressure because both therapies play a role in lowering blood pressure. Soaking your feet in warm water will vasodilate the blood vessels so that blood circulation runs smoothly (Priyanto et al., 2019).
According to Daulay & Simamora (2017) the working principle of immersion therapy

warm water legs by conduction where there is a transfer of heat/warmth from warm water into the body will cause widening of blood vessels and a decrease in muscle tension so that it can improve blood circulation which will affect arterial pressure by baroreceptors in the cortical sinuses and aortic arch which will convey the impulses carried Nerve fibers that carry signals from all parts of the body to inform the brain about blood pressure, blood volume and the special needs of all organs to the sympathetic nerve center to the medulla so that it will stimulate systolic pressure, namely stretching of the ventricular muscles will stimulate the ventricles to immediately contract.
This case study uses warm water foot soak therapy. Warm water foot soak therapy was chosen because it is effective and able to reduce high blood pressure. This therapy can be done independently by the patient and is easy to apply in the hospital or at home. This case study aims to determine the reduction in blood pressure in hypertension patients after warm water foot soak therapy.

Research methods

This research was conducted in May 2023 using the case study method. The subjects used in this research were Mr. A with a diagnosis of hypertension, data collection in this study was taken using the method

interview (interview), observation (observation), documentation (results) and a combination of the three. The research instrument used was a nursing care format which included assessment sheets, nursing diagnoses, nursing interventions, nursing implementation, nursing evaluations, and blood pressure meters and observation sheets.

Results

According to Riamah's research (2019), the results of the study showed that the majority of respondents who experienced hypertension were 27 (62.8%) women and 16 (37.2%) were male in the minority. Women are more likely to suffer from hypertension than men. This is due to the presence of the hormone estrogen in women which causes women to be at a higher risk of experiencing stress because women tend to think excessively about problems.

The results of this case study show that hypertensive patients who were given warm water foot soak therapy showed a significant reduction in blood pressure. The decrease was found before the foot soak and deep breathing relaxation was 160/90, whereas after the therapy the blood pressure was 156/91 and the pain was reduced. and the patient saidfeel comfortable. The results of this case study are supported by previous research which states that if you soak your feet in warm water regularly, changes in blood pressure can occur, because the effect of soaking your feet in warm water produces heat energy which dilates and improves blood circulation and also stimulates existing nerves. in the legs to activate parasympathetic nerves, thereby causing a decrease in blood pressure (Umah K et al., 2012).

The results of the study showed that the subject was 68 years old, based on research by Daulay & Simamora (2017) which states that a person's age has an influence on a person's blood pressure, so in this study the respondent's age is one of the characteristics that can influence a person's blood pressure. This is because as the age increases, the more high risk of hypertension. The incidence of hypertension increases with increasing age. This is often caused by natural changes in the body that affect the heart, blood vessels and hormones.

This case study is in line with research by Malibel, Herwanti, & Djogo (2020) which states that structural and functional changes in the peripheral vascular system are responsible for changes in blood pressure that occur in old age. These changes include atherosclerosis, loss of elasticity

connective tissue and a decrease in vascular smooth muscle reaction, which in turn decreases the distensibility and tensile strength of blood vessels. As a consequence, the aorta and large arteries reduce their ability to accommodate the volume of blood pumped by the heart (stroke volume), resulting in a decrease in cardiac output and an increase in peripheral resistance, resulting in pain in certain parts of the body.

Table 1 Data analysis

The risk factor other than age that was found in the two case study subjects was unhealthy eating patterns, excessive sodium (salt) intake. This is in accordance with the theory according to which the sodium contained in table salt functions to maintain body fluid balance and regulate blood pressure. If excess sodium in the blood can retain water and as a result blood volume increases, it triggers the heart's work in pumping blood to increase as a result, blood pressure increases (Cahyati et al., 2018).

Nursing interventions are carried out in accordance with the Indonesian Nursing Intervention Standards, namely assessing the client's general condition, assessing the client's pain level, assessing the location of the intensity and scale of pain, assisting the patient in ambulating as needed, providing non-pharmacological measures, soaking the feet in warm water and deep breathing relaxation, providing explanation of ways to minimize vasoconstrictive activity, collaboration in administering analgesic drugs according to indications.

The implementation of acute nursing care for hypertensive patients using warm water foot soaks and deep breathing relaxation is carried out with a comprehensive assessment starting from monitoring TTV, before and after therapy as well as monitoring blood pressure.

Table 2 Evaluation

Hari/Tgl /jam	Catatan Perkembangan
Jumat,19-05-2023 11.00	S : Klien mengatakan sudah tidakpusing O : Pasien dan keluarga dapat mempraktekkan ca ramelakukan rendam kaki air hangat dan relaksasi nafas dalam lagi, Keadaan umum klien baik, Klien tampak rileks, Terdapat perubahan tekanan darah sebelum terapi yaitu 160/90 dan setelah terapi yaitu sebesar 140/80, TTV dalam batas normal A : Masalah teratasi P : intervensi dihentikan • Anjurkan klien untuk

Kamis, 18-05-2023 11.00		
SYMPTOM	**ETIOLOGI**	**PROBLEM**
DS: klien mengeluhsakit kepala, sakit kepalanya berdenyut-denyut, Klien mengatakan tearasa kaku di kuduknya, Klien mengatakan sakit kepaalanya dating sewaktu-waktu, klienmengeluh penglihatannya kabur. DO: Klien tampak sering memegangi kepalanya, tampak lemah, Skala nyeri 5(0-10) sedang. TTV TD: 160/90 mmHg N: 87 x, S : 36,7 ºC RR: 20 x/menit	Agen Cidera Fisiologis	Nyeri Akut
DS: Klien mengatakan kurang tahu tentang penyakit hipertensi. Klien tidak tahu penyebab hipertensi Klien mengatakan makan makanan yang sama dengan keluarganya, tampa adanya perbedaan DO: Klien bertanya tentang penyakitnya.	Kurang Terpapar Informasi	Defisit Pengetahuan

	tetap mempertahankan kesehatannya • Anjurkn klien untuk dietrendah garam • Anjukan klien untuk istirahat cukup • Anjurkan untuk melakukan rendam kaki air hangat dan relaksasi nafas dalam jika merasa nyeri akan datang.

The results of the study showed changes in the patient's blood pressure before being given warm water foot soak therapy and after being given warm water foot soak therapy. This case study is in line with research conducted by Farmana, Siringoring, & Safruddin (2020) showing that there is a significant difference between blood pressure. before and after soaking the feet in warm water for hypertensive patients in the Benjala sub-district pustu work area.

Based on the results of statistical tests carried out using the alternative Wilcoxon test, the p-value for systolic and diastolic pressure was 0.006.
0.001 < 0.05 then Ha is accepted and Ho is rejected. This proves that there is an effect of soaking feet in warm water on blood pressure in hypertensive patients in the Pustu work area, Benjalan sub-district.
This case study is also in line with research conducted by Damayanti & Destia (2014) in their research journal regarding differences in blood pressure before and after intervention in patients with hypertension. Analysis used the Wilcoxon statistical test with a significance level ($\alpha = 0.05$) which showed Sig. (2-tailed) or P-value = 0.000. With P-value = 0.000 < $\alpha = 0.05$ then H0 is rejected and Ha is accepted. Based on the results of this analysis, it shows that there is a significant effect of warm water foot soak therapy on reducing blood pressure in patients with hypertension at the Manado Bahu Community Health Center.

Darmojo & Martono (2009) stated that the physiological mechanisms that occur are very complex, there are several systems that are related to relaxation conditions, namely muscle tissue, endocrine and nervous systems. Warm water will cause a feeling of comfort in the muscles because there will be a decrease in muscle tension due to widening of blood vessels and stretching of cells in the muscles and can causes a feeling of relaxation in the body (Arnot. L. R, 2009).
The heat from hydrotherapy using warm water is used to increase skin blood flow, by dilating blood vessels which can increase the supply of oxygen and nutrients to the tissues (Intan N, 2010). At the beginning of the contraction, the aortic valve and semilunar valve have not yet opened. To open the aortic valve, the pressure inside the ventricle must exceed the aortic valve pressure. Ventricular contractions begin to occur so that by widening the blood vessels, blood flow will be smooth and it will be easy to supply blood to the heart, thereby reducing systolic pressure. In diastolic pressure, the state of isovolemic ventricular relaxation is when the ventricles relax, the pressure in the ventricles experiences a very drastic decrease, blood flow is smooth with the widening of blood vessels, which will reduce diastolic pressure (Batjun M T, 2015).

Conclusion

1. During the assessment, it was found that the client complained of headaches, a feeling of stiffness in the neck, the headaches came at any time, pain scale was 5 and TTV BP: 160/90 mmHg, N: 87 x/minute, S: 36.7 oC, RR: 20 x/minute, BB: 45 kg.
2. The main nursing diagnosis that arises based on acute pain data is related to physiological injury agent.
3. Nursing interventions are carried out in accordance with the Indonesian Nursing Intervention Standards,

namely assessing the client's general condition, assessing the client's pain level, assessing the location of the intensity and scale of pain, assisting the patient in ambulating as needed, providing non-pharmacological measures by soaking the feet in warm water and deep breathing relaxation. , provide an explanation of how to minimize vasoconstrictive activity, collaborate in administering analgesic drugs according to indications.

4. Implementation of acute nursing care for hypertensive patients using warm water foot soaks and deep breathing relaxation is carried out with a comprehensive assessment starting from monitoring TTV, before and after therapy as well as monitoring blood pressure.
5. Nursing evaluation after providing treatment with warm water foot soaks and deep breathing relaxation carried out twice a day can overcome the acute pain experienced by hypertensive patients, it is proven that the effect is that on the patient the problem is resolved so all that remains is to prepare for future treatment so that their health is maintained.

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