THE RELATIONSHIP BETWEEN STRESS LEVELS AND BLOOD PRESSURE IN PRODUCTIVE AGE AT KESEK VILLAGE, LABANG SUB-DISTRICT BANGKALAN REGENCY

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Abstract. Hypertension is a major risk factor for health problems which is quite dangerous in the world (WHO, 2018). Factors that cause hypertension include heredity, food, activity, and one of them is stress (Arum, 2019). The aim of this study is to find out the relationship between stress levels and blood pressure at productive age. This research method is inferential statistics with the type of quantitative data used to analyze the relationship stress levels and blood pressure at productive age. The subjects in the study were 31 productive age in the Kesek Village, Labang District, Bangkalan Regency. The data were analyzed using the Spearman Rank tests. The results of this study showed that productive age with severe stress level were 100% hypertension and productive age with moderate stress level were 20,8% had hypertension. From the data showed that there was a relationship between stress levels (value Sig.=0,041) with the occurrence of hypertension in Kesek Village, Labang District, Bangkalan Regency. The conclusion of this study is expected of productive age to find information about the stress levels and blood pressure. Thus, it can pay more attention to their health in controlling stress so they can control their blood pressure properly.

Keywords : Stress Level, Blood Pressure, and Productive Age

1 INTRODUCTION

Hypertension is a major risk factor for health problems that are quite dangerous in the world, because hypertension can cause cardiovascular diseases such as heart attacks, heart failure, stroke and kidney disease where in 2016 ischemic heart disease and stroke became the two leading causes of death in the world (WHO, 2018). Based on the 2019 East Java Provincial Health Profile, the estimated number of hypertensive patients aged ≥ 15 years in East Java Province is around 11,952,694 residents, with a proportion of men 48% and women 52%. Of these, 40.1% or 4,792,862 residents received health services for people with hypertension (East Java Health Office, 2020). according to Sinubu, et al (2015) in Arum (2019). Factors that cause hypertension such as heredity, food factors, activity factors, and one of them is caused by stress factors.

The high economic burden, the widening social inequality, the uncertainty of the social situation, and the unpreparedness of individuals to deal with it result in psychological disorders such as stress (Ratnaningtyas, 2019; Murni et al., 2023).

According to Suoth, when a person experiences stress, the hormone adrenaline will be released and will then increase blood pressure through contraction of the arteries (vasoconstriction) and an increase in heart rate. If stress continues, blood pressure will remain high so that the person will experience hypertension. Stress can trigger the onset of hypertension through activation of the sympathetic nervous system which results in intermittent increases in blood pressure (Islami, 2015; Putri, 2018).

Research conducted by Rusnoto that increased blood pressure is more found in respondents who experience stress compared to those who do not experience stress (Lumbantobing, 2018). Research conducted by (Bhelkar, 2018) also states that stress was found to be significantly associated with hypertension and was found to be an independent risk factor for hypertension. So it is very important for the productive age to control their stress levels well.

2 RESEARCH METHODS

This study used inferential statistics to analyze sample data using *a cross-sectional* time approach method. The number of samples used in the study was 31 respondents. The research was conducted in Kesek Village, Labang District, Bangkalan Regency.

3 RESULTS

The characteristics of the 31 productive ages in this study include age, sex, education, age, occupation, stress level, and blood pressure. Almost half (29%) of the productive age in this study was aged 43-54 years, the most productive age (54.8%) was female. The level of education of productive age in this study was almost half (38.7%) had a high school education. Most (61.3%) were employed. The level of stress in productive age is almost all (77.4%) experiencing moderate stress and a small percentage (3.2%) experiencing severe stress. Most of the blood pressure of productive age (54.8%) has normal blood pressure. While a small percentage (25.8%) had pre-hypertensive blood pressure and a small percentage (19.35%) had hypertension.

Table 1. Karakteristic in Kesek Village, Bangkalan Regency, May 2023

Characteristics of Productive Age	Frequency (f)	Percentage (%)
Age		
14 – 24	7	22,6 %
25 – 34	8	25,8 %
35 – 44	5	16,1 %
45 – 54	9	29 %
55 – 64	2	6,5 %
Gender		
Male	14	45,2 %
Woman	17	54,8 %
Education		
SD	4	12,9 %
JUNIOR	5	16,1 %
SMA	12	38,7 %
College	10	32,3 %
Work		
Not Working	12	38,7 %
Work	19	61,3 %
Stress Level		
Mild Stress	6	19,4%
Moderate stress	24	77,4%
Severe stress	1	3,2%
Blood pressure		
Normal	17	54,8%
Pre-Hypertension	8	25,8%
Hypertension	6	19,4%
Total	31	100 %

Table 2. Distribution of sex with blood pressure in productive age in Kesek Village, Bangkalan Regency, May 2023

		Blood pressure						Total	
		Usual		Pre-Hypertension		Hypertension			
		f	%	f	%	f	%	f	%
Gender	Woman	8	47,06%	7	41,18%	2	11,76%	17	100%
	Male	9	64,29%	1	7,14%	4	28,57%	14	100%
Total		17	54,8%	8	25,8%	6	19,4%	31	100%

Table 3. Distribution of stress levels with blood pressure in productive age in Kesek Village, Bangkalan Regency, May 2023

		Blood pressure						Total	
		Usual		Pre-Hypertension		Hypertension			
		f	%	f	%	f	%	f	%
Stress Level	Mild Stress	5	83,3%	1	16,7%	0	0%	6	100%
	Moderate Stress	12	50%	7	29,2%	5	20,8%	24	100%
	Severe Stress	0	0%	0	0%	1	100%	1	100%
Total		17	54,8%	8	25,8%	6	19,4%	31	100%

Table 4. The relationship between stress levels and blood pressure in Kesek Village, Bangkalan Regency, May 2023

Correlations				
			Stress levels	Blood pressure
Spearman's rho	Stress levels	Correlation Coefficient	1.000	.368*
		Sig. (2-tailed)	.	.041
		N	31	31
	Blood pressure	Correlation Coefficient	.368*	1.000
		Sig. (2-tailed)	.041	.
		N	31	31

*. Correlation is significant at the 0.05 level (2-tailed).

Based on table 1.4 of the results of the *Spearman Rank test* on the level of stress to blood pressure there is a relationship. This is indicated by the sig value. (2-*tailed*) is 0.041, which is $0.041 < \alpha = 0.05$ so that H1 is acceptable and H0 is rejected. Furthermore, from the *output* above, it is known that the *correlation coefficient* is 0.368, so this correlation value can indicate a moderate relationship between stress levels and blood pressure in Kesek Village, Labang District, Bangkalan Regency.

4 DISCUSSION

Identification of productive age characteristics in Kesek Village, Labang District, Bangkalan Regency

Based on age, it was found that almost half of the productive age is aged 45-54 years, which is the most respondents compared to the age of 55-64 years, which is only a small part of the productive age. In general, the incidence of hypertension occurs in many elderly residents but does not rule out the possibility of adolescents to adults can also experience hypertension (Ansar et al., 2019). Adolescents and young adults who are in the age range of 18 years have a prevalence rate of 34.1% (Riskesdas, 2018).

Identification of stress at productive age in Kesek Village, Labang District, Bangkalan Regency

Based on the results of the study, it shows that the productive age in Kesek Village, Bangkalan Regency almost all have moderate stress levels and a small number experience severe stress levels. The results of this study are in accordance with research (Evita, 2017) which shows that stress levels in early adulthood experience mostly

moderate categories. A person is said to experience moderate stress if he begins to show complaints such as, digestive disorders, muscle tension, feelings of unease, and sleep disorders (Hawari, 2016; Pebriyani, 2021; Delavera et al., 2021). Based on the results of the study, researchers argue that the older a person gets, the stressor he has increases, thus affecting stress levels and symptoms.

Identification of blood pressure at productive age in Kesek Village, Labang District, Bangkalan Regency

In this study, it was found that blood pressure at productive age in Kesek Village, Labang District, Bangkalan Regency was mostly within the normal range, because all respondents in good health did not have a history of diabetes mellitus and hypertension, although there were a small number of high blood pressure measurements. Then of the 6 respondents who had high blood pressure or hypertension, most were men. This is in accordance with research (Wulandari et al, 2023; Elvira et al., 2019) saying that gender has a significant relationship with the incidence of hypertension, out of 32 male respondents there are 28 people (87.5%) experiencing hypertension, while from 53 female respondents there are 31 people (58.5%) experiencing hypertension. Based on the results of the study, researchers argue that hypertension or high blood pressure can be caused by various factors, one of which is age.

Identification of the relationship between stress level and blood pressure in Kesek Village, Labang District, Bangkalan Regency

Based on the results of statistical test analysis, there is a relationship between stress levels and blood pressure in productive age in Kesek Village, Labang District, Bangkalan Regency. This is proven by analysis using *spearman rank* with a value of $\alpha = 0.013$. The results of this study are supported by research that has been conducted by (Mucci N, 2016) which explains that the role of psychological stress (especially student satisfaction) affects young students' blood pressure and heart health. Systole blood pressure significantly increases with anxiety and stress. This is because strong emotional states and intense stress can and continue for a long time will be a somatic reaction. Based on the results of research, theory and related research. Researchers argue that the incidence of high stress levels is also followed by an increase in blood

pressure due to hormonal changes, so that the productive age in Kesek Village, Labang District, Bangkalan Regency is expected to be able to manage or manage stress well.

5 CONCLUSION

The conclusion from this research are : (1) almost all productive age experience moderate levels of stress, (3) most of the productive age have normal blood pressure, (3) there is a relationship between stress levels and blood pressure in productive age in Kesek Village, Labang District, Bangkalan Regency. For the further research, it is need to be done using a different approach, with a larger sample, and a wider area related to the effect of health education on stress and changes in blood pressure and different variables can be added.

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