Level Stress, Blood Pressure, and Pulse Air Rate Traffic Controller Makassar

Yulianah Rahmadani,[1] Lalu Muhammad Saleh,[2] Agus Bintara Birawida,[3] Iva Hardi Yanti[4]

[1]*Departement of Occupational, Faculty of Public Health, Hasanuddin University*
[2]*Departement of Epidemiology, Faculty of Public Health, Hasanuddin University*
[3]*Departement Of Biostatistics, Faculty of Public Health, Hasanuddin University*
[2]*Departement of Epidemiology, Faculty of Public Health, Hasanuddin University*

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Correspondence : Yulianah Rahmadani, Public Health Faculty Hasanuddin, University Makassar, 90245
Email: yuliramadanil995@gmail.com

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ABSTRAK

Air Traffic Controller Officers (ATC) are officers who regulate the movement of aircraft that fly or are in the area of movement at the airport such as aprons (aircraft parking lots) and taxiways (where the transition from runway to apron or vice versa). This study aims to determine the description of blood pressure, stress level, pulse of Air Traffic Controller employees. This research was conducted at Airnav Sultan Hasanuddin International Airport Makassar. The method used in this research is analytic observational with a cross sectional approach by looking of the level of stress, blood pressure and pulse of an air traffic controller. The Sample of this study was done on ATC employees. Measurement of the stress level was carried out using a questionnaire, blood pressure uses a blood pressure gauge, while the pulse uses palpation. Data were analyzed using SPSS 16. The results showed that after measuring blood pressure, stress levels, and pulses on the Air Traffic Controller, the results showed that the average Air Traffic Controller employee had a history of high hypertension, as well as at stress levels. Whereas the pulse of an ATC is normal. This can occur because an ATC does not do much physical exertion during work but rather expends a lot of thought power during controlling the aircraft.

INTRODUCTION

In a Statistical Summary study of Commercial Jet Airplane Accidents, Boeing stated that the causes of accidents experienced by airlines around the world for ten years in the 1996-2005 time span were: flight crew errors (55%), aircraft factors (17%), weather conditions (13%), Air Traffic Controller errors (5%), and aircraft maintenance (3%) (Afi, 2007). Flight crew or human error is still the main cause of aircraft accidents (Widiastuti, 2016).

Stress accounts for 37% of all health-related health cases and 45% of all workdays lost due to workers' health problems. In addition, the factors that cause work stress, depression or anxiety are mental stresses, including tight

deadlines, too many responsibilities and lack of managerial support (Loura, 2013).

Air traffic controller is a job that has an important role in controlling aircraft travel activities, starting from taking off (taking off) travel route arrangements that are traversed, weather information obtained through the Meteorology and Geophysics Agency (BMKG) , visibility, wind direction, temperature, air pressure, information on the presence of airplanes that are monitored via radar, control of landing aircraft (landing via giving signals to pilots, to setting aircraft parkers or aprons). The importance of communication related to information related to flight makes Air Traffic Controller officers is considered as the closest pilot partner in smooth flight (Saleh, 2016).

As explained at the outset that in general Air Traffic Controller officers have several units in carrying out their functions as guides in smooth flight. The following will be described in outline the stages in the flight process guided by ATC officers. According to Wilson (2006) the stages of flight are divided into 7 (seven) stages: preflight, takeoff, departure, En Route, descent, approach, and landing.

The sources of stress for the controllers include: (1) Work demands such as the number of planes controlled, the peak period of air traffic density, unscheduled foreign aircraft, the occurrence of unexpected events; (2) Operational procedures, such as time pressure, violation of rules, feeling of loss of control, fear of the consequences of mistakes; (3) Working hours, such as work periods with no breaks, night shifts; (4) work equipment, such as equipment limitations and reliability, quality of communication equipment, telephone lines, and equipment layout; (5) Work environment, such as lighting, optical reflection, sound level, microclimate, non-ergonomic body posture, number of breaks, relaxation facilities and canteen, elevator or stairs; (6) Work organizations, such as role ambiguity, work relationships with supervisors and coworkers, lack of control over work processes, salaries and rewards, public opinion (Setiaji et al., 2017). Based on the description above, this study aims to find a description of blood pressure, stress levels, pulse of Air Traffic Control employees.

METHOD

Research Design and Location

This research was conducted at Makassar Air Traffic Center located at Makassar Sultan Hasanuddin International Airport. This type of research is observational analytic with cross sectional approach by looking at the level of stress, blood pressure and pulse rate of an air traffic controller.

Population and Sample

The population is Makassar Air Traffic Center employees. The sample of this study were 40 selected based on total sampling on the type of work the controller in charge of regulating flight traffic in the air and willing to participate in this study by signing an informed consent issued by the ethics committee of the Faculty of Public Health, Hasanuddin University.

Data Collection

Data collection was carried out by researchers using the Persaive Stress Scale questionnaire to measure Stress and

Blood Pressure Measuring Devices to measure blood pressure. Data on individual factors (age, years of service, length of work) were measured using a questionnaire.

Data Analysis

Data were processed using SPSS for windows 23 to assess levels of stress, blood pressure, and pulse of ATC employees. Control variables in this study include age, length of work and years of service.

RESULTS

Table 1. Distribution of Characteristics Age, sex, length of work and years of service Employee Variable ATC

Variable	Employee ATC	
	n	%
Age		
Young (20-35 Years)	22	55
Old (36-50 Years)	18	45
Gender		
Man	28	70
Woman	12	30
Length of Working		
Meet the requirements	40	100
Not Eligible	0	0
Years of Service		
Old	31	77,5
New	9	22,5

Table 2. Characteristics of Blood Pressure Variables

Respondents	ATC Employee				Rangkings
	Sistol		Diastol		
	n	%	n	%	
ATC Employee	11	13,3	11	20	*Hipertensi*
	17	33,3	15	20	*Prehipertensi*
	12	20	14	26,7	*Normal*

Based on data from Table 1, the age of Air Traffic Control employees, which on has average age of 20-35 years as many as 22 people (55%) and 36-50 years as many as 18 people (45%). Gender Characteristics Air Traffic Control

employees are on average 28 men (70%) and 12 women (30%). The length of work characteristics of all Air Traffic Control employees have met the working requirements (100%) for <6 hours per day, most of ATC employees with a long service period with as many as 77.5% and 22.5% with new long service period categories.

Table 3. Characteristics of Variable Stress Levels and pulse rates

Variable	ATC Employee		Rangkings
	n	%	
Stres Level	24	*35,8*	*Low*
	16	23,9	*Moderate*
	6	8,8	*High*
Pulse	0	*0*	*Low*
	39	*58,4*	*Normal*
	1	1,5	*High*

Based on the data in table 2, the characteristics of systole blood pressure among air traffic controller in category have a history of prehypertension as much as 33.3% then normal category as much as 20% and history of hypertension category as much as 13.3%. Whereas the diastolic blood pressure with a history of prehypertension category is 20%, normal category is 26.7% and hypertension category is 20%.

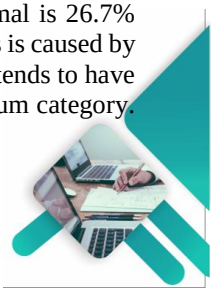
Results of the analysis of table 3 characteristics the average stress level has a Low stress level of 35.8% and a moderate stress level of 23.9% and a high stress level of 8%. The results of the analysis of the average pulse characteristics were 58.4% normal and 1.5% high.

DISCUSSION

The results of the study showed that there were controllers who experienced moderate to high stress levels, some of whom had a history of prehypertension on systolic blood pressure, and found that there was an ATC who had a high pulse rate.

The controller work system that focuses on air traffic control affects the high or low of their mental load, including external and internal dimensions, the controllers have authority over airspace and ground control (CASR 170, Air Traffic rules) (Iqbal et al., 2012).

Based on data from table 2, the characteristics of blood pressure systole air traffic controller on average have a history of prehypertension as much as 33.3% then normal as much as 20% and a history of hypertension as much as 13.3%. While diastole blood pressure with a history of prehypertension is 20%, normal is 26.7% and hypertension is 20%. This is caused by the factor of adult age which tends to have high stress levels in the medium category.



Stress results in sympathetic stimulation which can increase the frequency of blood pressure, cardiac output and vascular resistance as well as the effect of sympathetic stimulation on increasing blood pressure (Alimansur, 2013).

Stress can trigger an increase in systolic and diastolic blood pressure in people who have a sensitivity to it. Besides stress tends to cause a rise in blood pressure that is repeated, but, if the stress has passed then the blood pressure will usually return within normal limits. The results of the analysis of table 6 characteristics The average stress level has a Low stress level of 35.8% and a moderate stress level of 23.9% and a high stress level of 8%. The results of Table 3 analysis of the average pulse characteristics have a normal of 58.4% and a height of 1.5%.

While the pulse does not change because the heart rhythm of an air traffic controller is always in a stable state because the activity during work is always in a static state such as sitting for long, so it does not cause significant changes in the pulse rhythm.

A study explains that one way to reduce stress levels is to do relaxation techniques which is a form of therapy in the form of giving instructions to someone to close their eyes and concentrate on breathing so that it will create a comfortable and calm state, as well as giving instructions in the form of movements starting from head to toe arranged systematically to train muscles to relax (Suyono et al., 2016).

CONCLUSION AND SUGGESTION

From 40 respondents there were 16 respondents who were at moderate stress level while 6 of them were at high stress level. Of the 40 respondents as many as 17 respondents who had a history of prehypertension in systolic blood pressure, while in diastole as many as 15 respondents. A total of 39 respondents had normal pulses and 1 of them had high pulses.

Makassar's General Air Traffic Controller is expected to always supervise the health of its workers. For Educational Institutions can increase the capacity and quality of education so that the information from the results of this study can be used as additional material to enrich knowledge and the need for reference science. Respondents are expected to always improve the quality of health. For further researchers who want to examine with the same object should increase the number of respondents and other variables.

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