DESCRIPTION OF QUALITATIVE WORKLOAD, CAREER DEVELOPMENT AND PERSONAL RESPONSIBILITY TOWARD THE RISK OF WORK STRESS OPERATORS ON AIR TRAFFIC CONTROLLER (ATC)

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ARTICLE INFORMATION

Received : November 16th, 2021
Revised : November 30th, 2021
Available online : February 27th, 2022

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KEYWORDS

Workload, career development, personal responsibility, ATC

ABSTRACT

Background: *operator Air Traffic Controller (ATC) or air traffic guide is a job that is responsible for flight safety so that the aircraft can fly safely without any aircraft accidents from departing to arriving at the destination, which is at risk of experiencing work stress.*

Objective*: This study aims to describe the qualitative workload, career development and personal responsibility for the risk of work stress on ATC operators. This type of research is quantitative with a descriptive approach.*

Methods*: The population in this study were all ATC operators at Sultan Hasanuddin International Airport Makassar as many as 67 people. Sampling was carried out using themethod Total Sampling of 67 respondents. Measurement of Work Stress using a questionnaire instrument Stress Diagnosis Survey (SDS).*

Results*: The results showed that ATC operators experienced moderate work stress as much as 52.2%, qualitative workload in the medium category by 71.6%, career development in the moderate category as much as 59.7% and personal responsibility in the moderate category by 53.7%.*

Conclusion: *Conclusion Qualitative workload, career development, and personal responsibility of ATC operators are all in the medium category, most of them experience moderate work stress, especially the Tower work unit, and the dominant work stress risk factor is qualitative workload. It is recommended that management should routinely conduct training related to ATC so that operator skills are updated according toneeds ofthethe independent variables are not related to student stress levels.*

INTRODUCTION

Air Traffic Controller Service Operators are one of the professions that are at risk of experiencing work stress in risking the safety of the lives of aircraft passengers and all flight crews. Air Traffic Controller (ATC) is a profession that provides air traffic control services, especially aircraft to prevent the distance between aircraft from each other, prevent collisions between aircraft and aircraft with obstacles that exist around them during operation. In addition, ATC also plays a role in regulating the smooth flow of traffic, assisting pilots in controlling emergencies, providing information needed by pilots such as weather information, flight navigation and air traffic. ATC is a pilot's closest partner while in the air, ATC's role is very large in achieving flight goals (Saleh, 2017).

The work of an Air Traffic Controller (ATC) operator involves a large mental and emotional burden when making decisions, both in the smooth flow of traffic, assisting pilots in controlling emergencies, as well as providing information needed by pilots, which is carried out in a very limited period of time. The consequences of this ATC operator's job demands trigger increased stress, and changes in cognitive performance related to attention and memory, so that it can be a cause of boredom and decreased concentration (Angela M. Freitas, 2017)

Based on the report of the Civil Air Navigation Services Organization (CANSO), 2018 states that by 2036, airplane passengers will reach 7.8 billion passengers. Indonesia will be the top five countries with the fastest passenger growth with 355 million airplane passengers after China, the United States and India. High passenger growth must be supported by smooth and safe flight traffic controllers so that flight safety guarantees can be maximized.

In the last 10 years, the demands of work on Air Traffic Controller (ATC) operators have become a major concern in Aviation Occupational Safety and Health (K3). This is because every year there is an increase in flight routes so that it requires a large number of aircraft and will affect the ATC operator's personal work schedule based on work shifts so that there is a risk of experiencing work stress (Then Muhammad Saleh, 2018).

Based on data from the Aviation Safety Network, it says that 43% of aircraft accidents are caused by the breakdown of coordination and communication between pilots and ATC on the ground, therefore airport management officers play an important role in improving and improving flight safety (Pratiwi , 2015). One of the workloads experienced by ATC operators is work demands that are too high due to the dense number of flight flows (Pratiwi, 2015). This is supported by the results of research on the stress level of flight traffic guidance officers where the work factor of the guide operator is an average of 88.26% compared to other factors (Widodo, 2015). Therefore, it is necessary to know how the

description of qualitative workload, career development and personal responsibility towards the risk of work stress for Air Traffic Controller (ATC) Operators at Sultan Hasanuddin International Airport Makassar.

METHODS

The research used is a quantitative research type with a descriptive approach. This research was conducted on Air Traffic Controller (ATC) operators at Sultan Hasanuddin International Airport Makassar, with a population of all 67 Air Traffic Controller (ATC) operators. The sampling technique was carried out by total sampling of 67 respondents, then the data were analyzed by univariate and bivariate using SPSS.

RESULT

Table 1 shows the characteristics of respondents by gender, age, work unit, years of service and work shifts.

Table 1. Distribution of Respondents

Characteristics Characteristics	(n)	(%)
Gender		
Male	51	76.1
Female	16	23.9
Total	**67**	**100**
Age		
21-25	11	16.4
26-35	32	47.8
36-42	24	35.8
Total	**67**	**100**
Work Units		
Tower	25	37.3
APP	22	32.8
ACC	20	29.9
Total	**67**	**100**
Working Period		
5 years	31	46.3
>5 years	36	53.7
Total	**67**	**100**
Shift Work		
Morning	20	29.9
Afternoon	30	44.8
Night	17	25.4
Total	**67**	**100**

Source: Primary Data, 2020

From table 1 shows that most of the respondents are male, namely 51 people (76.1%), aged 26 -35 years as many as 32 people (47.8%), working in the Tower work unit by 25 people (27.3%), working years >5 years by 36 people (53.7%) and 30 people working day shifts (44.8%)

Table 2
Distribution of Work Stress Frequency Based on Qualitative Workload, Career Development, Personal Responsibilities ofOperators at*Air Traffic Controller* (ATC) Sultan Hasanuddin International Airport Makassar

JobFactors	Stress				Total	
	Stress Mild		Stress Moderate Stress			
	n	%	N	%	n	%
Qualitative Workload						
Mild	9	13.4	5	7.5	14	20.9
Medium	21	31.3	27	40.3	48	71.6
Heavy	2	3.0	3	4.5	5	7.5
Total	**32**	**47.8**	**35**	**52.2**	**67**	**100**
Career Development						
Mild	15	22.4	1	1.5	16	23.9
Medium	17	25.4	23	34.4	40	59.7
Heavy	0	0.0	11	16.4	11	16.4
Total	**32**	**47.8**	**35**	**52.2**	**67**	**100**
Personal Responsibility						
Mild	6	9.0	0	0.0	6	9.0
Medium	20	29.9	16	23.9	36	53.7
Heavy	6	3.0	19	28.4	25	37.3
Total	**32**	**47.8**	**35**	**52.2**	**67**	**100**

Source: Primary Data, 2019

Based on table 2 shows that most of the respondents experienced work stress in the moderate category as many as 35 people (52.2%). In addition, the dominant respondents experienced a qualitative workload in the medium category of 48 people (71.6%), career development in the medium category of 40 people (59.7%) and personal responsibility in the medium category of 36 people (53.7%).

In addition, table 2 also shows that most of the respondents experienced moderate work stress with a moderate qualitative workload as many as 27 people (40.3%), moderate work stress with medium category career development as many as 23 people (34.4%), and work stress. light with personal responsibility category of 20 people (29.9%).

Table 3
Distribution of Work Stress Frequency Based onOperator Work Units *Air Traffic Controller* (ATC) at International Sultan HasanuddinAirport Makassar

WorkWork Unit	Stress						Total	
	Mild		Medium		Heavy			
	n	%	n	%	n	%	n	%
Tower	8	11.9	17	25.4	0	0.0	25	37.3
APP	11	16.4	11	16.4	0	0.0	22	32.8
ACC	13	19.4	7	10.4	0	0.0	20	29.9
Total	**32**	**47.8**	**35**	**52.2**	**0**	**0.0**	**67**	**100**

Source: Primary Data, 2019

Based on Table 3, it shows that moderate work stress is mostly experienced by ATC operators in the Tower work unit, namely 17 people (25.4%), and APP work units as many as 11 people or 16.4%. **DISCUSSION**

Work Stress Based on Qualitative

workload is overloaded if the work is very complex and difficult so that it takes away the ability of employees (Ivancevich and Matteson, 1982). This has the risk of causing work stress for ATC operators. Job stress can occur because of the pressure experienced by a person due to excessive work demands that can interfere with one's work performance (Mallapiang, 2015). The plurality of jobs requires technical and intellectual abilities that are higher than those possessed and at a certain point the plurality of jobs no longer causes productive but becomes destructive (Balbeid, 2017). Based on the results of the study, it shows that the qualitative workload of the medium category has a higher frequency than the light category, meaning that the standards for ATC work are sometimes not in accordance with the ability of the respondents. So there is still a need to improve skills in managing air traffic, organizational skills, communicating and coordinating by obtaining junior ATC and ICAO licenses. This can minimize the level of workload of an ATC operator thereby reducing the risk of work stress.

Work is also an obligation in terms of making the best use of natural resources for human happiness and worshiping Him. God also does not force humans to work beyond their capabilities. This is explained in the Qur'an surah Al-Baqarah QS: 2(286) which means "God does not burden a person but according to his ability..." (Ministry of Religion RI, 2007).

In the interpretation of Al-Misbah that Allah does not burden a person except with something he can do, because Allah's religion is built on the principle of ease, so that there is nothing burdensome in it.

If viewed based on the work unit in this qualitative workload, it shows that of the 25 respondents (37.3%) who work in the Tower unit, there are 19 respondents (28.4%) who experience moderate work stress, and of the 22 respondents (32.8%) who work in the APP

unit, there are 15 respondents (22.4%) experienced moderate work stress and 3 respondents (4.5%) experienced severe work stress. Of the 20 respondents (29.9%) who work in the ACC unit, there are 14 respondents (20.9%) who experience moderate work stress and 2 respondents (3.0%) who experience severe work stress. This shows that most of the respondents who experience a qualitative workload are currently working in the APP unit. This is in line with Sakinah's research (2017) that the workload on the APP controller is caused by the complexity of the work and the ability of workers. ATC operators must have the ability to make decisions and remember information so that they can respond quickly to problems during the flight.

An ATC operator may have limitations in information processing capabilities such as working memory capacity, time and consideration in decision making. In addition, it can also be influenced by other factors such as motivation and high workload. Workload has a clear influence on the preparedness of an ATC operator. An overloaded workload is a risk that causes work stress that contributes to the performance of an ATC operator.

Job Stress Based on Career Development Career

development is a source of stress or stressor for ATC operators, which is the result of the interaction between individuals and one's organizational environment on the quality of their career development (Ivancevich and Matteson, 1982), (Ermina, 2017).

The results of this study indicate that the highest career development for ATC operators is in the moderate category, so that more intensive career development improvements are needed to reduce the risk of stress on the job. One of the factors that influence career development in ATC operators is promotion to positions that are lower than their abilities, and promotions to positions that are higher than their abilities and excessive ambition resulting in frustration, which can affect performance (Prasetyo, 2015). The career development of an ATC operator has the risk of triggering work stress if there is no match between the career path and the required performance or vice versa. The existence of system ambiguity, career development and work performance assessment risk becoming a source of job stress for an employee (Rice, 1999). On the other hand, employees who are highly motivated and have great responsibility can improve their performance (Ermonia, 2017).

In addition, career development is also influenced by the level of education. The education level of ATC operators still does not meet the specified requirements so that they cannot occupy higher positions. This is in line with research conducted by Sena (2018), that the increase in education of ATC operators is caused by several factors such as finance, time and age. This factor is often a problem that often arises and greatly affects the career of

ATC operators. Thus career development is one of the risk factors causing work stress in the ATC environment.

Job Stress Based on Personal Responsibility

According to John M. Ivancevich and Matteson (1982) personal responsibility is a responsibility that includes other people or other things. In many cases responsibilities to others are more potential sources of job stress. Personal responsibility leads ATC operators to choose to take certain positions in the work they are responsible for, and sometimes these choices run the risk of causing job stress.

This study shows that the most dominant personal responsibility is in the moderate category, this shows that there are still ATC operators who have not fully carried out their responsibilities in their work, so there is still a need for improvement regarding the personal responsibilities of ATC operators to reduce the risk of work stress. The ATC operator is a job that is responsible for flight safety so that the aircraft can fly safely without any aircraft accidents starting from departure to destination (Saleh, 2016). This is in accordance with regulations issued by the International Civil Aviation Organization (ICAO) that the purpose of air traffic services is to prevent collisions between aircraft so that accidents do not occur that endanger the lives of those on board.

ATC operator's high motivation and full responsibility for the task can improve performance. Conversely, if motivation is low and does not have full responsibility to work optimally, it will have an impact on decreasing performance. In addition, performance is also determined by the ability of an ATC operator (Maier, 1965). The UN convention held at the International Civil Aviation Organization (ICAO) stipulates that the responsibility of each ATC unit is to ensure flight safety by providing domestic flight services and overflight flights. The ability of ATC operators with high professionalism will cause ATC operators to be more responsible for their duties than people who work with low abilities (Saleh, 2016).

The results of research related to personal responsibility based on work units show that those who experience the most personal responsibility in working as ATC operators are the APP unit as many as 10 respondents (14.9%) in the heavy category, Tower work units have 9 respondents (13.4%) in the heavy category and ACC work units as many as 6 respondents (9.0%) in the heavy category. This shows that the APP unit provides service responsibilities to aircraft that are in the air at an altitude of 10,000 - 15,000 feet which are not reached by the Tower and ACC units, meaning that the responsibilities of each unit are carried out according to their respective functions and duties. Various conditions can occur in the personal responsibility of an ATC operator, among others, in a breakdown of coordination condition or a change that is not coordinated or submitted to each work unit that is not

concerned, then officers from other units must immediately take over the duties and functions of the operator. ATC or appoint a replacement ATC operator solely on the basis of psychological considerations (Dmochowski, 2017).

Work Stress Based on Work Units

When viewed based on work units experiencing work stress in the medium category with the highest percentage, namely the Tower work unit as many as 17 respondents (25.4%) this is because the Tower work unit requires a focus on visibility to monitor the aircraft directly in the area. Aprons and must require good lighting in the workspace area in order to clearly see the visibility between the ATC operator and the aircraft being observed. A good environmental condition is an ergonomic working environment such as lighting that meets the requirements of the ATC workplace, so that it can increase the level of alertness of ATC employees, on the other hand an unhealthy work environment will reduce the level of alertness of ATC employees at work caused by poor lighting and risk of being a cause of stress at work.

CONCLUSION

The qualitative workload, career development, and personal responsibilities of ATC operators at Sultan Hasanuddin International Airport Makassar are all in the medium category. ATC operators at Sultan Hasanuddin International Airport Makassar predominantly experience moderate work stress, and most of them are in the Tower work unit. Qualitative workload and career development are dominant stressors in moderate work stress

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