

ABSTRACT

The Work Stress Levels during a Pandemic in Refinery Workers at the RU VI Balongan

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Abstract. The Covid-19 pandemic that happened since 2020 until now has had a tremendous impact on the physical and mental health of refinery workers. Rapid changes in health status, adaptation to health protocols coupled with high work pressure make stress that is impossible to avoid. Therefore, it is necessary to measure work stress to find out a picture of the mental burden felt by workers with the current changing situation. This study aims to measure the level of work stress in refinery workers during the Covid-19 pandemic. This study used a descriptive study design cross-sectional approach. The variable studied was the level of work stress with the Workplace Stressor Assessment (WSA) instrument. The results showed that workers who had low-stress levels were 4 people (4%), low stress 28 people (27%), moderate stress 48 people (47%), high stress 20 people (20%), and very high stress 2 people (2%). This study concludes that during the pandemic there were workers who needed special intervention because they felt high work stress and very high work stress. The evaluation carried out included arranging stress management programs in the form of consultation and counseling oriented to problem-solving. In addition, socialization about good stress management is also carried out in the form of seminars and broadcasts.

Keywords: Stress, Pandemic, Covid-19, Refinery

INTRODUCTION

1. Background

WHO has declares COVID-19 as a global pandemic. The impact is a lot of changes that occur quickly and affect daily life. Starting from the implementation of physical distancing, quarantine, Work From Home (WFH) until the closure of several business that are considered capable of being a place for the spread of COVID-19. The rapid spread of COVID-19 made Indonesian government in early 2020 set Large-Scale Social Restrictions (PSBB) in the context of accelerating the handling of COVID-19, these restrictions on activities, crowd and Work From Home (WFH) policies for workers.

The policy of limiting the number of crowds makes the company have to reduce the number of workers in refinery area, this also done by Refinery Unit VI Balongan. The limited number of workers makes the workload heavier. The increasing workload, many changes, anxiety about the existence of COVID-19 and the uncertainty of when this pandemic will end soon, can be a source of stress for the workers in the refinery area [1].

Oil and gas is an industry with a high level of safety risk [2], so people who work in this industry are required to work optimally without mistakes, because small mistakes made can be fatall. Workers in the refinery area are said to have a number of hazards that have potential to cause work stress [3]. Stress has an effect on decreasing concentration and work productivity [4], work stress during a pandemic is also said to have a significant effect on job satisfaction [5], while the level of job satisfaction itself has a very large influence on employee work performance [6][7]. The work performance of the RU VI refinery should not decrease, because the RU VI refinery is a supplier of fuel oil (BBM) for the capital area. So that stress management of work becomes a very important thing to be considered by the company [8]. The number of stressors that arise due to COVID-19 pandemic is feared to increase work stress that occurs in RU VI area workers and is feared to reduce work performance and productivity levels.

2. Problem

Based on the above background, the formulation of the problem is: “What is the description of work stress level during COVID-19 pandemic in refinery workers at RU VI Balongan”

3. Objective

Find out the description of work stress level during COVID-19 pandemic in refinery workers at RU VI Balongan.

4. Benefits of Research

4.1 Theoretical Benefits

This research is expected to contribute empirical studies in occupational health, particularly related to work stress during the pandemic. This research is also expected to be a reference for further research, especially research on similar topics.

2. Practical Benefits

2.1. *Company action*: This research is expected to be able to provide an overview for companies in responding to work stress on refinery workers, especially during the Covid-19 pandemic.

2.2. *Determine Policy*: The results of this study can provide input for companies in making policies to overcome work stress that occurs during the Covid-19 pandemic.

LITERATURE REVIEW

1. Stress Definition

Stress is an individual's reaction to an excess pressure imposed on them as a result of demands, obstacles, or opportunities [9]. Handoko [10] revealed that stress is a condition of tension that affects a person's emotions, thought processes and condition. Excessive stress can threaten a person's ability to deal with the environment. Stress is based on the assumption that inferred from physiological, behavioral, psychological and somatic symptoms and signs, is the result of a lack of compatibility between a person (in terms of his personality, talents, and abilities) and his environment, which results in the inability to deal effectively with various demands placed on him [11].

Work stress is a form of stress caused by conditions or situations experienced in the work environment. This is different from stress caused by the family the circle of friends and family [9]. Work stress can also be interpreted as a source or work stressor that causes individual reactions in the form of physiological, psychological, and behavioral reactions. The work environment has the potential as a work stressor. Work stressors are all work

conditions that employees perceive as demands and can lead to work stress[12].

Sutherland et al [13] concluded the basic concepts in stress, namely:

1. **Cognitive Appraisal.** Stress is a subjective experience that may be based on the perception of a situation that is not merely visible in the environment.
2. **Experience** is a situation that depends on the level of familiarity with the situation, previous exposure, learning process, real ability and the concept of reinforcement.
3. **Demand**, are pressures, desires or stimuli that are immediate in nature that affect the ways in which demands can be accepted.
4. **Interpersonal Influence** is the presence or absence of a person, situational and background factors affect subjective experience, response, and coping behavior. This can have both positive and negative impacts on individuals. The presence of others can be a source of unwanted confusion, but they can also provide support, increase self-esteem, and provide confirmation of personal values and identity.
5. **A State of Stress** is an imbalance between perceived demands and the perceived ability to meet those demands. The process that follows is a coping process and the consequences of implementing a coping strategy.

2. Stress Symptoms

According to Robbins and Timothy [9] stress has several symptoms that can be categorized as physiological symptoms, psychological symptoms, behavioral symptoms, and interpersonal symptoms.

2.1 Physiological Symptoms

Symptoms of stress are related to a person's physical condition and function and create metabolic changes, such as increased blood pressure, increased heart rate, breathing, blood pressure, feeling dizzy, cold sweats and others.

2.2 Psychological Symptoms

Symptom of stress related to a person's psychological or mental condition, such as mood swings, tension, feeling anxious, irritable and so on.

3. Behavioral Symptoms

Symptom of stress related to changes in behavior including a decrease in productivity, absenteeism, laziness, changes in eating habits, sleep disturbances, increased consumption of cigarettes or alcohol and others.

4. Interpersonal Symptoms

Symptoms of stress that affect individual relationships with other people, such as avoiding other people, being closed, attacking other people with spicy words and so on.

3. Stress Factors

Factors that cause stress (antecedents of stress) can come from outside and within the organization, from the group, and oneself. Luthan (in Arismunandar et al. [14]) categorizes stressors that affect work stress, namely: extra-organizational stressors, organizational stressors, group stressors, and individual stressors.

3.1 Extra-organizational Stressors

Stressors outside the organization are associated with negative effects and feelings on the job. Examples include social/technological change, globalization, family, relocation, economic and financial conditions, race and class, and living conditions or society. The COVID-19 pandemic is included as an extra-organizational stressor that can trigger a person's stress level [15][16].

3.2 Organizational Stressors

Stressors arise due to administrative policies and strategies, organizational structure and design, organizational processes, and working conditions. There are responsibilities without authority, inability to voice complaints, inadequate rewards, unclear of job descriptions. Losing a job or being threatened with being fired can be a tremendous amount of stress for employees. The existence of chronic work demand can also cause work stress.

3.3 Group Stressors

Lack of group cohesiveness such as employees not having togetherness because of work design, because the company prohibits or restricts it, or because there are group members who get rid of other employees, this lack of cohesiveness will cause stress. Sharing problems and happiness together will be better. If social support is lacking, it will cause work stress, which results in health care costs

3.4 Individual Stressors

The existence of situations and individual dispositions can affect stress. Individual dispositions such as personality, personal control, learned helplessness, psychological endurance, level of intra-individual conflict rooted in frustration. The existence of a predisposing psychological endurance will help people withstand stress by providing a buffer for themselves and stressors. An unfavorable work environment, such as employees often under pressure, very heavy or very light workloads, or unclear roles played, can make individuals experience stress due to under pressure. This kind of situation can evoke personal characteristics that have a tendency to be easily stressed and depressed.

4. Stress Consequences

Stress has a number of consequences, when stress is positive, the result can be greater energy such as enthusiasm and motivation. If the consequences are negative, it will have an impact on the company or organization [17].

4.1 Individual Consequences

Stress will greatly affect the individual. Organizations can also suffer, either directly or indirectly. Individuals will pay the real price. Stress can produce behavioral, psychological, and medical consequences.

4.2 Behavioral Consequences

One of the behaviors due to this stress is smoking habits. People who smoke tend to smoke more when they are under stress. There is also evidence that alcohol and drug abuse is associated with stress, although this relationship is less well documented. Other possible behavioral consequences are vulnerability to accidents, aggression and violence and appetite disorder.

4.3 Psychological Consequences

The psychological consequences of stress are related to a person's mental health and well-being. When people experience too much stress at work, they can become more depressed or get too much or too little sleep. Stress can also cause family problems and sexual problems.

4.4 Medical Consequences

The medical consequences of stress affect a person's physical well-being. Heart disease and stroke are two diseases that have been linked to stress. Other medical

problems caused by too much stress include headaches, backaches, various stomach and intestinal disorders and skin conditions, such as acne and itching.

5. Organizational Consequences

Stress will have consequences for the organization, including a decrease in performance, withdrawal, and negative attitude changes.

4.5.1 Performance: There is a decrease in employee performance, where the quality of work is poor and productivity decreases. For managers, this can mean wrong decision making or disruption in work relationships as people become irritable and difficult to get along with.

4.5.2 Withdrawal: Withdrawal behavior can occur due to stress. For organizations, the two most significant forms of withdrawal behavior are absenteeism and quitting. People who have trouble coping with stress in their jobs are more likely to call in sick or considering leaving the organization for good.

4.5.3 Attitude: Another consequence of the stress received by the company is related to attitude. Such as working just enough to meet the requirements, reduced job satisfaction, reduced commitment to the company, decreased motivation and often easy to complain about things that are not important [18][19][7].

4.5.4 Burnout: is a common feeling of fatigue that develops when a person is at the same time experiencing too much stress and too few sources of satisfaction. Fatigue usually develops in this way: people with high aspirations and a strong motivation to get work done are prime candidates for experiencing burnout under certain conditions. They are especially vulnerable when organizations suppress or limit their initiatives while constantly demanding that they serve their own organizational goals. Employees strive to fulfill their own agenda while simultaneously trying to meet the expectations of the organization. The most likely effects of this situation are prolonged stress, exhaustion, frustration, and helplessness under the weight of excessive demands. The person is literally running out of aspirations and motivation. Loss of confidence and psychological withdrawal will follow. Eventually the burnout will appear. Eventually employees will be afraid to go to work in the morning, may take longer, but get less done than before, and usually display mental and physical exhaustion [17].

5. Coping Stress

Coping stress is an effort made by individuals in managing demands both internal and external demands to provide resistance to the effects of stress. There are types of coping stress, namely:

5.1 Emotion Focused Coping

Lazarus (in Santrock [20]) defines emotion focused coping as a stress management strategy in which individuals respond to stressful situations in an emotional way, especially by using defensive judgments. Emotion focused coping refers to efforts to reduce negative emotional reactions to stress. For example, by diverting attention from problems, doing relaxation, or seeking comfort from others (Lazarus & Folkman in Maryam [21]).

5.2 Problem Focused Coping

According to Stuart and Sundeen (in Maryam [21]) states that problem focused coping is used to reduce stressors, individuals will cope by learning new ways or skills. Individuals will tend to use this strategy, if they believe they can change the situation. This method or function of the problem is more often used by adults. In problem-focused coping, people assess the stressor faced and do something to change the stressor or modify individual reactions to alleviate the effects of the stressor (Lazarus & Folkman, in Santrock [20]). There are several factors that affect coping with stress, or the way a person copes with stress, including:

1. *Age* is one of the factors that affect a person's ability to cope with stress, the individual's ability to cope with stress will be different for each age level [22].
2. *Education* is another factor that can affect a person's ability to cope with stress. The higher the level of education, the more realistic the assessment will be.
3. *Social support*. Positive social support has a great impact on reducing anxiety and depression [23], so this is an important factor that affects a person's ability to cope with stress.
4. *Gender*. Many studies state that there are differences in the way men and women deal with problems [24][25][26][27]. Women are reported to have higher stress levels than men. Stress problems in women are related to family and health problems, while in men it is related to financial problems and work problems. Women reported adaptive stress coping strategies, while men

reported using maladaptive stress coping strategies and often avoiding problems.

5. *Personality characteristics.* Different models of personality characteristics will have different coping behaviors [21]. According to Maramis (in Maryam [21]), personality can be classified into two, namely: (a) Introverts, are people who like to think about themselves, have a lot of fantasies, are quick to feel criticism, hold back emotional expressions, are easily offended in discussions, like to make mistakes. , analysis and self-criticism and pessimism; and (b) Extrovert, is a person who sees reality and necessity, does not immediately feel criticism, spontaneous emotional expression, does not really feel failure, does not do much self-analysis and criticism, is open, likes to talk and is optimistic.
6. *Experience.* Experience is a reference material or individual comparison in dealing with an event that is almost the same, so that the length of a person's working period can affect a person's ability to deal with stress related to his work [28].

5. Work Stress Management Strategy

5.1 Individual Approach

Employees can take personal responsibility to reduce stress levels. Things that can be done are: time management, increasing physical exercise, relaxation, and expanding social support networks[29]. Exercise regularly, eat a healthy diet, and relax. In addition, you can perform calming techniques through physical activity, physical activities that can be done such as running, swimming, dancing, cycling or another sports for approximately one hour [30][31][32]. Psychological strategies are carried out through increasing self-awareness, reducing tension, and counseling or psychotherapy[33][34]. Meanwhile, physiological exercise strategies can be done through wise eating arrangements, smoking cessation, and regular exercise.

5.2 Organizational Approach

Strategies that can be done are increasing employee selection, job placement, training, setting realistic goals, redesigning work to give employees more responsibility, more meaningful work, more independence, increasing feedback. Increasing employee involvement in decision making, empowering employees will reduce psychological

tension. Improving formal organizational communication with employees can reduce role uncertainty and role conflict. Effective communication as a means to shape employee perceptions, employee sabbaticals, and wellness programs supports programs that focus on the total physical and mental condition of employees. What it does are: help people quit smoking, stop alcohol use, lose weight, eat well, and develop a regular exercise program with an emphasis on the physical and mental condition of employees effective, increasing participation, enriching tasks and developing skills, and personality or work [35].

5.2.1 *Employee Counseling Program*

Counseling or mentoring programs are carried out to help employees handle problems well, or help individuals become more effective in solving employee problems. Counseling can be done by professionals or non-professionals, usually confidential so that employees feel free to express their problems freely[10]. The functions of counseling are [34]:

1. *Giving advice.* In the form of providing advice to employees with a view to directing them in the implementation of a series of desired activities.
2. *Peace of mind.* Employees are convinced of their ability to carry out a series of activities and employees are encouraged to try them.
3. *Communication.* Counseling is a communication process. Creates upward communication to management, and also provides opportunities for mentors to interpret management issues and explain various views to management.
4. *Relaxation of emotional tension.* People tend to relax their emotional tension when they have the opportunity to discuss their problems with others.
5. *Clarification of thought.* Discussing issues seriously with others will help a person to think more clearly about their problems.
6. *Reorientation.* Reorientation involves changing employee goals and values. In-depth counseling by psychologists, will greatly help employees change their values.

METHOD, DATA, AND ANALYSIS

1. Research Method

The research method used is descriptive quantitative research method which is carried out with the main aim of making an objective picture of a situation. This study aims to describe the level of work stress on the Refinery workers at RU VI Balongan.

2. Research Variable

The variables in this study were gender, age, marital status, education level, length of work, and work stress levels.

3. Sample and Population

Population in this study were all RU VI Balongan workers as many as 1,008 people, while the sample size was 102 people who were selected based on accidental sampling technique.

4. Data

Data collection techniques were carried out using a Workplace Stressor Assessment (WSA) questionnaire. Respondents were asked to fill out the questionnaire completely and then collected it to the researcher when it was finished. Researchers also conducted interviews with respondents the information obtained was then recorded in the observation sheet.

5. Analysis

Analysis of the data used in this study is univariate analysis to get a picture of the frequency distribution and proportion of each variable studied.

6. Location and Time of Research

The research was conducted at PT Pertamina International Refinery Unit VI Balongan in March - December 2020.

RESULT AND DISCUSSION

1. Result

Based on the results of research on the level of work stress in RU VI Balongan refinery workers, the results obtained in the form of a frequency distribution table as follows:

Table 1. Frequency distribution of respondents' gender

Gender	n	%
Man	97	95
Women	5	5
Total	102	100

Based on table 1 above, it was found that most of the respondents were men as many as 97 people (95%) and only a small proportion of women as many as 5 people (5%).

Table 1. Frequency distribution of respondents' age group

Age (years old)	n	%
21 – 30	16	16
31 – 40	49	48
41 – 50	30	29
>50	7	7
Total	102	100

Based on table 2 above, it is known that most of the respondents aged 31-40 years were 49 people (48%), while the rest were aged 41-50 years as many as 29 people (29%), aged 21-30 years as many as 16 people (16%), and >50 years as many as 7 people (7%).

Table 2. Frequency distribution of respondents' marital status

Marital Status	n	%
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Married	98	96
Single	4	4
Total	102	100

Based on table 3 above, it is known that most of the respondents are married as many as 98 people (96%) and only a small proportion are unmarried as many as 4 people (4%).

Table 3. Distribution of respondents' education frequency

Education Level	n	%
SMA	32	31
Diploma	40	39
S1	28	28
S2	2	2
Total	102	100

Based on table 4 above, it is known that most of the respondents are Diploma educated as many as 40 people (39%) and the rest have high school education as many as 32 people (31%), S1 as many as 28 people (28%), and S2 as many as 2 people (2%).

Table 4. Frequency distribution of respondent's length of work

Length of Work (Years)	n	%
1 – 10	56	55
11 – 20	22	22
21 – 30	23	22
>30	1	1
Total	102	100

Based on table 5 above, it is known that most of the respondents have a working period of 1-10 years as many as 56 people (55%), the rest have a length of service of 21-30 years as many as 23 people (22%), 11-20 years as many as 22 people (22%) and >30 years as many as 1 person (1%).

Table 5. Frequency distribution of respondents' work stress levels

Stress Level	n	%
Very Low	4	4
Low	28	27
Moderate	48	47
High	20	20
Very High	2	2
Total	102	100

Based on table 7 above, it is known that most respondents have moderate stress levels as many as 48 people (47%), while the rest have low stress as many as 28 people (27%), high stress as many as 20 people (20%), very low stress 4 people (4%), and very high stress as many as 2 people (2%).

2. Discussion

Work stress is a disturbing emotional and physical response that occurs when task demands do not match capabilities, resources or desires. People who experience stress feel anxious so they often become angry, aggressive, unable to relax, or show an uncooperative attitude [9]. The impact of work stress can be beneficial or detrimental. The beneficial impact is expected to spur workers to be able to complete work enthusiastically and to the best of their ability. However, if stress cannot be overcome, it will have a bad impact that affects the productivity of the workers themselves [17]. Since WHO announced Covid-19 as a global pandemic on March 11, 2020, there has been a lot of uncertainty in the business world that has caused changes in the order in the lives of most of the workforce. This provides psychological stress if not managed properly will potentially threaten mental health [36]. In this study, it is known that the degree of work stress has a different distribution. According to the measurement

results during the 2020 pandemic, the categories of moderate stress and high stress have a significant number of 47% and 20%, respectively. Situations like this can also affect a person's health condition. This means that a worker who experiences stress in addition to experiencing psychological problems, his physical health also becomes vulnerable. Although in reality each individual will get a different effect. Pressure at this level of stress can come from anywhere, for example from workload, relationships with other people, and other aspects of life. However, the pressure caused by the Covid-19 pandemic situation can be even more severe than usual because apart from psychological pressure, some workers also experience physical pain [37].

During the pandemic, workers experience an additional workload because they have to replace the work of their colleagues who are sick or who are doing Work from Home (WFH). In addition, there is time pressure because workers have to chase deadlines which result in many mistakes or a person's health condition being reduced. This is in line according to Sunyoto that too much workload can cause tension in a person, causing stress. This can be caused by the level of expertise demanded is too high, the work speed is too high, the work volume is too much and so on [38].

Adaptation to new policies related to Covid-19 Prevention and Control (P2Covid-19) also has a tremendous impact when large-scale social restrictions are implemented. Workers and families are restricted to travel if it is not an emergency so workers with families outside the city cannot see each other for several months. This situation creates uncertainty about when the pandemic will end and this has implications for uncertainty in almost all areas of life, from work, education, social relations, and others. Thus, researchers can analyze that this is in line with the theory put forward by Anoraga. Based on research, work stress is a response that arises to the cycle of environmental changes and leads to specific things according to existing conditions. The environmental change in question is during the covid-19 pandemic, so this can cause a lot of feelings of worry to discomfort [39].

Work stress conditions are also experienced by workers who are confirmed positive for Covid-19 who are being treated in hospitals or are self-isolating at home. Fear of the deadly impact of Covid-19 as reported in the media often causes fear and anxiety. This condition causes some people to feel excessive worry or fear and think irrationally. Not infrequently they have suspicion and prejudice in people who have

signs of Covid-19 sufferers. This is supported by Yuli's research which explains that physical illness or injury is a source of stress that can cause depression [40]. Other studies have also found that an increase in anxiety leads to lower well-being during the Covid-19 pandemic [41].

CONCLUSION

From this study, it can be concluded that there was work stress at the RU VI Balongan refinery during the Covid-19 pandemic. Most of the workers experienced moderate stress as many as 48 people (47%), the rest had low stress as many as 28 people (27%), high stress as many as 20 people (20%), very low stress 4 people (4%), and very high stress as many as 2 people (2%). Observation results show that some workers increase their workload. Boredom arises because of social restrictions. And there is excessive concern for workers suffering from Covid-19 because of irresponsible information. Things that can be done by the company include doing a proportional division of tasks. Encourage workers to carry out physical activities such as outdoor sports by implementing strict health protocols. And carry out health promotions related to Covid-19. Psychological services are also prepared to assist workers in problem solving stress management. This research can also be a reference for further researchers related to how to deal with work stress during a pandemic.

IMPLICATION/LIMITATION AND SUGGESTIONS

The researcher realizes that this research is still not perfect. Some things to note include the lack of theoretical exploration which makes the research results less detailed, especially if it is associated with the factors that cause work stress. Furthermore, there are technical obstacles in the field that make this research less than optimal. Especially when conducting interviews with respondents, the interactions that occur are felt too short.

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