

ANALYSIS OF IMPLEMENTATION WORK FROM HOME ON EMPLOYEES MENTAL WORKLOAD IN CUSTOMS AND EXCISE OFFICE OF TANJUNG PRIOK

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ABSTRACT:

The purpose of this research is to analyze the implementation of Work From Home (WFH) on the mental workload of employees. An analysis was carried out to determine whether the implementation of WFH could be continued based on the changes in mental workload. The mental workload values were analyzed using the NASA-TLX method. This method measures 6 aspects that effect on mental workload, namely Mental Demand, Physical Demand, Temporal Demand, Performance, Effort and Frustration Level. Researchers conducted different tests on two working conditions, namely normal working/Work From Office (WFO) and Work From Home (WFH). Based on the test results with the Wilcoxon Signed Rank Test, the p value is 0.00 which is smaller than the alpha of 5%. This shows that there is a difference in the mental workload of employees after the implementation of WFH. In addition, the mental workload condition at the Customs and Excise Major Service Office Type A of Tanjung Priok after the implementation of WFH shows a decrease in the average mental workload value of employees by 9.49%. After being grouped by unit, age, position, and gender, the value of mental workload also decreased, except for the age group of 50 years and over. So that the WFH policy can still be continued.

Keywords: Mental Workload, Work from Office, Work From Home, NASA-TLX, Difference Test.

ABSTRAK:

Penelitian ini bertujuan untuk menganalisis pemberlakuan *Work From Home* (WFH) terhadap beban kerja mental pegawai. Analisis dilakukan untuk menentukan apakah kebijakan WFH dapat tetap dilanjutkan berdasarkan perubahan pada beban kerja mental. Nilai beban kerja mental dianalisis menggunakan metode NASA-TLX. Metode ini mengukur 6 aspek yang mempengaruhi beban kerja mental yaitu *Mental Demand*, *Physical Demand*, *Temporal Demand*, *Performance*, *Effort*, dan *Frustration Level*. Peneliti melakukan uji beda terhadap dua kondisi kerja yaitu kerja normal/*Work From Office* (WFO) dan *Work From Home* (WFH). Berdasarkan hasil pengujian dengan *Wilcoxon Signed Rank Test*, diperoleh nilai p value sebesar 0.00 lebih kecil dibandingkan alfa sebesar 5%. Hal ini menunjukkan bahwa ada perbedaan beban kerja mental pegawai setelah pemberlakuan WFH. Selain itu, kondisi beban kerja mental pada Kantor Pelayanan Utama Bea dan Cukai Tipe A Tanjung Priok setelah pemberlakuan WFH menunjukkan perubahan berupa penurunan nilai rata-rata beban kerja mental pegawai sebesar 9,49%. Setelah dikelompokkan berdasarkan unit, umur, jabatan, dan gender, nilai beban kerja mental juga mengalami penurunan kecuali pada kelompok umur 50 tahun ke atas. Sehingga kebijakan WFH tetap dapat dilanjutkan.

Kata Kunci: Beban Kerja Mental, *Work from Office*, *Work From Home*, NASA-TLX, Uji Beda.

1. INTRODUCTION

Employees are an important asset for an organization. Good quality employees can support the achievement of organizational goals effectively and efficiently. An organization cannot run smoothly if employee productivity and work performance are disrupted.

Each employee has a separate work portion and different tasks, which results in a different workload. According to Meshkati and Hancock (1988), workload can be defined as the difference between worker's ability and job demands. Workload includes physical and mental aspects. The intensity of the physical workload that is too high can lead to excessive energy use. Meanwhile, mental workload intensity that is too high will cause boredom, which refers to psychological fatigue.

Nowadays, Flexible Working Arrangement (FWA) has been implemented in the Ministry of Finance. (FWA) shows a concept that allows ASNs to flexibly manage performance according to their respective preferences but still in the context of performance targets, namely getting work done. In this case, FWA is an alternative method that is suitable for dealing with work fatigue and decreased employee productivity. The implementation of FWA begins with the pandemic Coronavirus Disease 2019 (COVID-19) which causes changes in work patterns and structures at the Ministry of Finance. The temporary FWA concept implemented at the Ministry of Finance is *Flexible Working Space* (FWS) in the form of Work From Home (WFH) in accordance with the Minister of Finance Decree Number 223/KMK.01/2020 and Circular of the Minister of Finance Number SE-7/MK.1/2020. Work From Home (WFH) is a method that allows employees to work from home by providing flexibility in work locations, maximizing the use of information and communication technology to increase and maintain employee productivity and ensure the sustainability of the implementation of the Ministry of Finance's duties and functions.

In its service to the community, the Customs and Excise Major Office of Tanjung Priok (Customs and Excise Office of Tanjung Priok) implements a continuous work system with 24 consecutive hours of work for 7 days (24/7). The 24/7 work system requires some employees to work at unusual times

(eg *shifts* night). In this case, employees need to be given more attention to the risk of experiencing fatigue, mental and health problems, increasing stress levels, and so on. In addition, based on data in the Performance Report of the Directorate General of Customs and Excise (DGCE) 2019, the Customs and Excise Office of Tanjung Priok manages the highest importation and import documents at the DGCE with a percentage of 47.89%. In addition, the number of existing employees is 1081 or 6.39% of the total existing DGCE employees. This proves that the work portion and role of the Customs and Excise Office of Tanjung Priok is very high compared to other Customs offices and of course has implications for higher employee workloads.

Table 1. Import Document based on Unit

Unit	%
Customs Tg.Priok	47.89
Customs Belawan	2.80
Customs Tg. Emas	4.56
Customs Tg. Perak	10.96
Customs Merak	0.31
Customs Soekarno-Hatta	29.31
Customs Ngurah Rai	0.57
Customs Juanda	2.21
Customs Balikpapan	1.24
Customs Makassar	0.15

Source: DGCE Reports 2019, data processed

During the COVID-19 pandemic, the Customs and Excise Office of Tanjung Priok has implemented a Work From Home (WFH) system. The system is combined with 24/7 service so that there is a significant change from the previous work pattern which was already regular with the old system. With the intensity of the existing service density, the change in work patterns can have an impact on the workload of employees in terms of performance and psychological. To maintain performance, agencies often analyze the workload of their employees. According to Adwiyah & Sukmawati (2013), workload analysis is a management technique that is carried out systematically to obtain information about the level of effectiveness and efficiency of organizational work. So that if employees have a high workload

both mentally and performance, they can have a big influence on the services or supervision provided.

Based on these information, this method needs to be examined to determine the value of employee mental workload and the changes. The results of these measurements will show whether there is a change in the level of employee workload either increasing or decreasing. By knowing changes in employee mental workloads, these results can be used as consideration for further decision making, whether to continue, adjust or make changes to WFH policy if the mental load is too large, so that the mental workload value can be reduced. Through this mental workload measurement, it can be seen the factors that most influence mental workload. This research can provide recommendations to the DGCE in taking further steps towards the enforcement of the provisions of the WFH method.

2. LITERATURE REVIEW

2.1 Definition of Flexible Working

In service to the community, the Customs and Excise Office of Tanjung Priok applies a continuous work system with 24-hour work hours consecutively for 7 days. The 24-hour work system requires some employees to work at unusual times (for example night shifts). In this case, employees need to be given more attention to those at greater risk of experiencing fatigue, health problems, increased stress levels, and so forth.

Every worker has different job descriptions, and each job will produce its own workload. Workload is a term used to refer to the price or cost of achieving a target activity. Every workload received by a person must be in accordance with and balanced with the physical and mental abilities of workers who receive the workload to avoid fatigue (Ramadhan et al, 2014).

Flexible Working Hours (FWH) is an alternative working condition that developed since the 1960s in Germany. In this case, FWH was chosen as a breakthrough in facing the level of street density which is increasingly becoming a "mass parking lot on the street".

"Rush hour traffic congestion around plants and offices has been reduced" (Schultz and Schultz, 1990).

Gardiner and Tomlinson (2009) describe flexible working that includes any working arrangements that digress from standard employment involving

fixed daily hours on the employee's premises. Golden, Henly & Lambert, Brown & McNamara on Ramakrishnan and Arokiasamy (2019), the flexibility of work time refers to programs, policies and practices initiated by employers that allow workers at least some freedom of choice in adjusting the length and/or scheduling of their working time to meet their preference. The research concluded that flexible working has positively improved employees performance.

Flexible Working Arrangement (FWA) is a spectrum of work structures that change the time and / or place of work carried out in accordance with applicable regulations. The types of flexible working are grouped into 3, namely flexibility in scheduling work hours, flexibility in the number of hours worked, and flexibility in workplace settings.

1) Flexibility in scheduling work hours

a) Alternative work schedule, which is setting a schedule other than the normal normal schedule for work arrangements.

- Flextime: schedule based on the needs of workers within predetermined and agreed parameters
- Compressed Workweeks: employees work full time in less than 5 normal working days by increasing daily work hours

b) Settings shift work and rest (off)

- Shift Arrangements: rearrange the schedule shift which has been assigned by superiors to employees to provide more flexibility
- Break Arrangements: workers in general can only take breaks (off) at the appointed time, but then an arrangement is made by the employer to give more flexibility when the worker is resting (off).

2) Flexibility in the number of hours worked

a) Part Time Work/Reduced Hours Schedule, i.e. a system of workers who work less than 35 hours per week.

b) Transition Period Part Time, which is the system in the form of workers returning to work gradually after a big event (eg marriage and birth) by working part time for a certain period then returning to work with normal working hours.

c) Job Shares, that is, a system of 2 or more workers sharing one full job, each person working on a part-time basis.

d) Part-year Work, that is, a system that allows

workers to work only a few months per year.

3) Flexibility in workplace settings

- a) Telework/Homework: workers work remotely from home using telecommunications connections with the workplace whenever possible.
- b) Telework/Satellite Connection: workers work remotely from a predetermined satellite work center.
- c) Alternating Location: workers work part-time at one location, then part of the year moves to another location.

Flexible working has been implemented in the Ministry of Finance environment with the issuance of Minister of Finance Decree Number 223/KMK.01/2020 in the form of Flexible Working Space (FWS). FWS is an arrangement of employee work patterns that gives work location flexibility for a certain period by maximizing information and communication technology to improve and maintain employee productivity and ensure the continuity of the implementation of the duties and functions of the Ministry of Finance.

2.2 Definition of Mental Workload

Workload is a unit of measurement of effort that must be expended by someone to fulfill the output of a particular job. In addition to measuring objective workloads, there are subjective workloads namely mental workloads. According to Grandjean (1993) every mental activity will always involve elements of perception, interpretation and mental processes of information received by the sensors to make a decision or process to remember past information.

Mental workload is the workload received by workers after doing mental/psychological work. According to Mc Corminck and Sanders (1993), mental workload can be in the form of the level of expertise and work performance possessed by individuals with other individuals. In addition, according to Henry R. Jex (1988), workload is the difference between the workload demands of a task and the maximum capacity of one's mental workload under motivated conditions. Mental workload is an indicator of the amount of attention or mental demands required to complete a job. (Purwaningsih & Sugianto, 2007).

Measurement of mental workload can be classified on the basis of objective measurement methods and subjective measurement methods. Objective measurements are carried out

physiologically by observing several members of the body through measurements of heart rate, eye blinking, and muscle tension. Meanwhile, according to Simanjuntak (2008), the measurement of mental workload is subjectively based on the perception of the workers. Subjective mental workload measurement is the most widely used measurement technique because it has a high level of validity and is direct compared to other measurements. Measurement of mental workload subjectively has a goal which is to determine the best measurement scale based on experimental calculations,

Mental workload also the measurement of workload in which the source of data processed is qualitative data. This measurement is one of the psychological approaches by making a psychometric scale to measure mental workload. How to make the scale can be done either directly (occur spontaneously) or indirectly (derived from the experimental response). The measurement method used is to choose factors that influence mental workload and provide subjective ratings. Subjective measurement methods can be done with several methods, namely: 1) NASA-Task Load Index (NASA-TLX); 2) Subjective Assessment Technique (SWAT); and 3) Modified Cooper Harper Scaling (MCH).

2.3 Previous Research

Utami *et al* (2020), examined the Mental Workload with the NASA-TLX method on the elementary teacher during the pandemic COVID-19. From the results, it concluded that the average of mental workload of the teacher during pandemic at the high level. This is all caused by a pandemic COVID-19 and new normal which requires each teacher adapts to the pattern new learning is learning from home. Due to the high workload mental at each teacher, influence on the performance of the teacher itself in carry out its duties. When its performance decreases, so the quality of the students will be decreased too.

Kulak and Tuzuner (2020), in the research about comparative analysis of flexible working patterns in Germany and Turkey during pandemic COVID-19. The result imply that the flexible working patterns can be consider provide work-life balance to the employees. Considering the pandemic days, it is like a rehearsal of the future working life. As far as the nature of jobs enables to work within flexibility context to provide alternative work patterns.

Nicholas Bloom *et al* (2015), in the study stated that there was a significant increase of 13% on the performance of employees who received the Work From Home (WFH) schedule. WFH workers reported substantially higher work satisfaction and psychological attitudes scores, and their job attrition rates fell by over 50%.

Alan Felstead and Golo Henseke (2017), argued in their research that greater spatial and temporal flexibility encourages an increase in organizational level of commitment, enthusiasm, and satisfaction for workers.

Purwanto (2020), WFH's impact of the COVID-19 pandemic on teachers has a positive and negative impact on the performance. With WFH, the atmosphere becomes safer, more comfortable, and conducive and can avoid unwanted distractions. While the disadvantage is that it can cause loss of work motivation.

3. RESEARCH METHOD

3.1 Calculation of Mental Workload

NASA-TLX is a subjective method of measuring mental workload in the form of questionnaires with easier but more sensitive measurements of workload measurements.

Determination of the research sample is done by the Slovin method. The Slovin formula is a formula for calculating the minimum number of samples in a survey study with many samples. The Slovin formula can be denoted as follows:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Number of Samples

N = Total Population

e = Error Level

To get a complete picture, the determination of the sample is based on the grouping of echelon III units and functional group units, with the minimum sample calculation results as follows:

Table 2
Sample Calculation

Unit	Employee	Sample
General Affairs	85	71

Stakeholder Compliance and Information Service	45	41
Objections	29	28
Internal Compliance	49	44
Facilities Services	36	34
Customs and Excise Service I	59	52
Customs and Excise Service II	157	113
Customs and Excise Service III	160	115
Customs and Excise Service IV	65	56
Enforcement and Investigation	148	109
Treasury	55	49
Functional	193	131

The aspects measured in the NASA TLX method are Mental Demand (MD), Physical Demand (PD), Temporal Demand (TD), Own Performance (OP), Frustration Level (FR), and Effort (EF). Explanation of these indicators can be seen in Table 3.

Table 3
Mental Workload Indicator

Rating Scale Indicator	
Dimension	Information
Mental Demand (MD)	How much mental and perceptual activity is needed to see, remember and search. Is the work difficult, simple or complex. Loose or tight.
Physical	The amount of physical

Demand (PD)	activity required (eg pushing, pulling and controlling the loop).
Temporal Demand (TD)	The amount of pressure associated with the time felt during the work element takes place. Is the work slow or relaxed or fast and tiring.
Own Performance (OP)	How much success someone has in his work and how satisfied with the results of his work.
Frustration Level (FR)	How insecure, hopeless, offended, annoyed, compared to feeling safe, satisfied, comfortable and perceived self-satisfaction.
Effort (EF)	How hard the mental and physical work required to complete the work.

At the weighting stage, respondents are asked to compare two different dimensions with the pairwise comparison method. The total pairwise comparison for all dimensions (6 dimensions) is 15.

According to Susetyo et al (2012), the rating stage is given a scale of 1-100, then employees will provide a scale in accordance with the workload that has been experienced in their work. Before the interpretation of the value results is first made an adjustment to the rating to a scale of 10-100. This is done because there are restrictions on the scale of the survey on Google Form, which is only 1-10 scale.

The final value of NASA TLX's mental workload is obtained by multiplying the weights by rating each dimension, then adding up and dividing by 15.

$Product = rating \times weighting\ factor.....(1)$

$WWL = \sum Product.....(2)$

$Score = \frac{WWL}{15}.....(3)$

In accordance with the explanation from Hart and Staveland in Hendrawan et al (2013), in NASA-TLX theory, the workload scores obtained can be interpreted as follows:

- A score of >80 indicates a heavy workload

- A score of 50-80 indicates a moderate workload
- Score <50 states the workload is rather low.

3.2 Difference Test

Difference Test is a test to find out the difference between 2 groups with an interval/ordinal scale. Determination of the different test methodologies is done after testing the assumptions on the data used. Test assumptions used are:

1) Normality Test

According to Ghazali (2016), a normality test is conducted to test whether in a regression model, an independent variable and a dependent variable or both have normal or abnormal distribution. If a variable is not normally distributed, the results of statistical tests will decrease. The normality test is carried out with the Shapiro Wilk test and the Kolmogorov Smirnov test with the help of the SPSS application. Determination of normally distributed data is to compare the value of sig. on the test results. If the value of sig. smaller than alpha value (sig.>) then the data is normally distributed and vice versa.

2) Uniformity Test

Data uniformity test is a test conducted on measurement data to find out that the measured data has been uniform and comes from the same system. Determination of uniformity of data is determined based on the control chart after the measurement process is performed on the SPSS application. Data on the control chart will be scattered within certain control limits. Data is said to be uniform when spread between the upper control limit (UCL) and the lower control limit (LCL). If there is data that is spread outside these limits, the data used is not uniform.

The assumption test results determine the different test methods used. If all assumptions used are fulfilled, then the different test uses the Paired T Test. The test aims to compare the average of two groups in pairs. Paired sample is a sample from the same subject but undergoes 2 different treatments or measurements, namely measurements before and after a treatment or policy is conducted. The Paired T Test formula is

Hypothesis used for interpretation, namely:

Ho = There is no difference in employee mental workload after the implementation of Work From Home ($t_{count} < t_{table}$)

H1 = There is a difference in employee mental workload after the implementation of Work From

Home ($t_{count} > t_{table}$)

In case the assumption test is not fulfilled, the different test is carried out by a non-parametric method. Testing is done by Wilcoxon Signed Rank Test. The test is used to measure the significance of the

Class	Working Conditions	
	WFO	WFH
High	418	248
Moderate	437	511
Low	38	134

difference between two groups of ordinal/interval scale paired data that do not meet the normal assumption test. The Wilcoxon Signed Rank Test is an alternative test to the Paired T Test. Hypothesis used for interpretation, namely:

Ho = There is no difference in employee mental workload after the implementation of Work From Home (Asymp Sig. $2 > \alpha$)

H1 = There is a difference in employee mental workload after the implementation of Work From Home (Asymp Sig. $2 < \alpha$).

Furthermore, interpretation of the results of the mental workload calculation is carried out. The interpretation was carried out based on descriptive analysis of mental workload data. To obtain details of changes in mental workload, grouping was carried out based on certain clusters and randomized direct interviews were conducted with employees to find out about these changes.

4. RESULTS AND DISCUSSION

This research was conducted on employees at the Customs and Excise Office of Tanjung Priok. Distribution of questionnaires is done by distributing the online formuller. This is because of the pandemic condition, so it cannot be spread directly.

The questionnaires were distributed in April 2020. There were 986 questionnaire data that were recorded online. The questionnaires that have been obtained are then examined to determine which questionnaires are valid and can be processed. A valid and testable questionnaire is a questionnaire that has been completely filled in and there is no double filling. The number of invalid questionnaires totaled 93 pieces, so that the data that were ready to be processed were 893 data or 90.57% of the total questionnaire data.

Based on the number of questionnaires provided,

it shows that as many as 825 respondents were male or 92.38%, while the rest were women. Meanwhile, based on the education level of respondents consisting of high school and vocational high school as many as 9 respondents or 1.01%, Diploma I as many as 336 respondents or 37.62% of the respondents, Diploma III as many as 276 respondents or 30.91%, Bachelor and Diploma IV as many as 184 respondents or 20.60%, and Masters as many as 88 respondents or 9.85%

The calculation of the mental workload of the Customs and Excise Office of Tanjung Priok employees is based on the results of calculations using the NASA TLX method with different working conditions namely normal work conditions or Work From Office (WFO) and Work From Home (WFH). The steps taken are calculating the total value of each aspect of mental workload based on the multiplication of ranks and weights. Summing the value of aspects of mental workload is called WWL (weighted workload). The final value is obtained by means of the WWL value divided by 15.

Table 4.
Classification of Mental Workload Based on Respondents

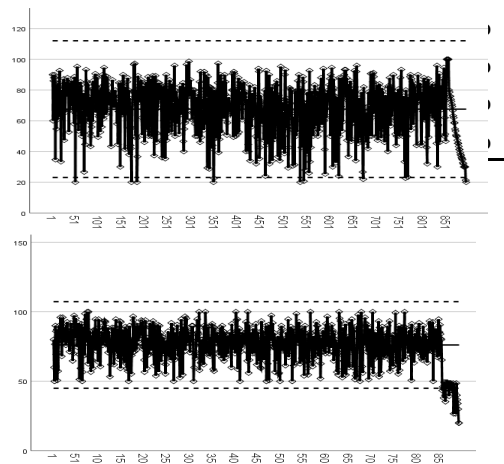
Source: Data processed

Based on Table 4., it is known that the mental workload of employees in WFO conditions is dominated by the category of high and moderate mental workloads. Of the total respondents as many as 893 employees, 418 people (46.81%) employees had high mental workloads, 437 people (48.94%) had moderate mental workloads, and 38 people (4.26%) had low mental workloads. Whereas in the WFH condition, there were 248 people (27.77%) employees had high mental workloads, 511 people (57.22%) had moderate mental workloads, and 134 people (15.01%) had low mental workloads. This shows a change in the number of employees who have high workloads as well as a significant addition to employees who have low workloads.

Table 5.

Comparison of Amounts Mental Workload Aspects
Source: Data processed

Factor	Total score	Average	%
MD	2696	3.02	20.13%
PD	1272	1.42	9.50%



Based on data

processing of mental workload values, it can describe the most dominant aspects of mental workloads, as shown in Table 5. The results of the sum and percentage of each aspect, it is known that the most influential aspect effect to the mental workload value is the temporal demand aspect of 21.34%, followed by the mental demand and effort aspects of 20.13% and 18.78%. Then the aspects of performance, frustration, and physical demand were 15.68%, 14.57%, and 9.50%. Temporal demand becomes the main supporting aspect because high pressures related to time and service promises at the Customs and Excise Office of Tanjung Priok, such as service promises to goods inspectors, manifest inspection, and import quota facilities.

To determine the proper test for differences in mental workload values after the implementation of WFH, first an assumption test is carried out. The assumption test consists of a normality test and a data uniformity test. If the two assumption tests are fulfilled, the test of the difference in the value of mental workloads after the implementation of WFH is carried out by using the Paired T Test. Conversely, if the assumption test is not fulfilled, then the test is carried out using the Wilcoxon Signed Rank Test.

Table 6.
Normality test

Source:	<i>Kolmogorov-Smirnov</i>		
Data	Statistics	df	Sig.
WFO	0.104	893	0.000
WFH	0.086	893	0.000

processed

The results of the normality test with Kolmogorov-Smirnov show data on the mental workload of employees at WFO and WFH conditions are not normally distributed, the Sig. smaller than the level of critical value of α 5% (Sig. <0.05).

Then the data uniformity test is done by looking at the WFO and WFH working conditions control chart. In WFO conditions, respondent data 851 to 893 are outside of the lower control limit (LCL), so the uniformity of the data in these conditions is not fulfilled. The control chart in WFH also shows there are some data of respondents outside of the lower control limit (LCL). Thus, the uniformity of data in the 2 conditions above is not fulfilled.

Picture 1.

Uniformity Control Chart

Source: Data processed

To determine the difference in employee mental workload in two conditions, the method used is a non-parametric test (Wilcoxon Signed Rank Test). Based on the descriptive analysis of the test it is known that there is a predominance of negative rank data or the value of mental workload in WFH conditions is smaller than the WFO condition. The number of negative ranks is 585. The positive data ranks or mental workload values in WFO conditions are smaller than the WFH of 223. While there are 85 ties or mental workload values in WFO conditions as the same as in WFH.

Table 7.
Wilcoxon Descriptive Description

<i>Wilcoxon Signed Rank Test</i>			
	Statistics	Df	Sig.
<i>Negative Ranks</i>	585 ^a	438.77	256679.5
<i>Positive Ranks</i>	223 ^b	314.6	70156.5
<i>Ties</i>	85 ^c		

a. WFH < WFO

b. WFH > WFO

c. WFH = WFO

Source: Data processed

The results of the calculation of the Wilcoxon Signed Rank, the *Z value* of -14.054 with *p value* (Asymp. Sig 2 tailed) approaching 0. The value of *p value* is smaller than the critical value used (Asymp. Sig 2 tailed <0.05), resulting in the conclusion that H_0 is rejected and H_1 is accepted. For these results, there is a significant difference between the mental workload values in WFO and WFH conditions.

Table 8. Difference Test

<i>Wilcoxon Signed Rank Test</i>	
<i>Z</i>	-14.054b
Asymp. Sig. (2-tailed)	0.00

b. Based on positive ranks

Source: Data processed

Based on unit classification within the Principal of Customs and Excise Office of Tanjung Priok, it is known that there is a decreasing in mental workload in WFH conditions. The decrease varied with the overall average, which decreased by 9.49%, from the average value of mental workload in WFO conditions of 75.43 to 68.22 in WFH conditions. The highest average mental workload value in WFO is found in the Division of Customs and Excises Services III while the lowest average value is in the Division of Customs and Excises Services I with a value of 71.49. In WFH conditions, the highest average mental workload is in the Division of Stakeholder Compliance and Information Services while the lowest average values are in the Division of Customs and Excises Services II. The highest changes of the average value of mental workloads are found in the Division of Customs and Excises Services III and the smallest changes are in the Division of Objections.

Table 9.

Mental Workload Calculation Results Based on Unit

Unit	Average Mental Workload		%
	WFO	WFH	
General Affairs	75.14	66.65	-11.30%
Stakeholder Compliance	78.41	74.52	-4.96%

and
Information
Service

Objections	72.51	72.44	-0.10%
Internal Compliance	74.25	65.84	-11.33%
Facilities Services	74.98	70.88	-5.47%
Customs and Excise Service I	71.49	66.89	-6.44%
Customs and Excise Service II	75.03	62	-17.37%
Customs and Excise Service III	79.61	65.58	-17.62%
Customs and Excise Service IV	74.32	66.65	-10.32%
Enforcement and Investigation	75.33	67.18	-10.83%
Treasury	75.06	69.24	-7.76%
Functional	79.00	70.83	-8.18%
Average	75.43	68.22	-9.49%

Source: Data processed

At the Customs and Excise Office of Tanjung Priok there are units with different job characteristics. Generally consists of services, supervision, and supporting units. The service sector consists of the Division of Customs and Excises Services, Division of Facilities Services, Division of Objections, Division of Treasury, and Division of Stakeholder Compliance and Information Services. The supervision unit is fully implemented by the Division of Enforcement and Investigation. Whereas the supporting unit consists of the Division of General Affairs and Division of Internal Compliance.

The implementation of WFH causes direct reduction of the interaction with service users in the Service Unit. In addition, there was a change in business processes from previously manual

hardcopy to self-service automation. This has an impact on reducing mental workload aspects such as physical demand, own performance, and frustration level for employees who are placed in the service sector.

In service units with certain locations such as Division of Customs and Excises Services II and III with monitoring services for the entry and exit of goods (*gate*) and inspection of goods, there was a significant reduction in mental workload during the implementation of WFH. This happened, due to the implementation of WFH causing the direct service process at certain locations is decreased. There was a change in the type of work during WFH, which previously had direct physical activities into non-physical activities such as reviewing regulations, making studies/research, and preparing reports. So the decrease of mental workload in the unit is around 17% influenced by the reduced rating on all aspects of mental workload.

The average value of mental workload in the supervision unit also decreased significantly. The value of mental workload in WFO conditions was 75.33 to 69.24 in WFH conditions. These changes are influenced by a decrease in all aspects of mental workload. In addition, the type of work carried out at the time of WFH is almost the same as the service units at certain locations, such as making studies/research and preparing reports.

In supporting units, the average value of mental workload decreased by 11.3%. Some of the work in this unit can basically be carried out in WFH conditions because it has been supported by adequate information technology facilities. The decline occurred in all aspects of mental workload. In addition, in WFH conditions, employees can focus on carrying out tasks in accordance with performance indicators compared to WFO conditions where distraction often occurs against other work.

Table 10.
Mental Workload Calculation Results
Based on Age

Age	Average Mental Workload		%
	WFO	WFH	
> 50	62.53	77.47	23.88%

¹ PFPD is a Customs and Excise specialist with the main task of checking import / export documents.

41-50	79.21	71.41	-9.85%
31-40	76.84	69.14	-10.03%
21-30	75.46	66.40	-12.01%
<20	79.20	59.20	-25.25%

Source: Data processed

From the calculation of mental workload based on age classification, it is known that there is a decrease and an increase in mental workload. At the age of under 20 years, a decrease in mental workload occurs by an average of 25.25%. Employees with this age range are dominated by officers with administrative duties. With the implementation of the WFH, activities such as direct distribution and filing of letters/documents have turned online using applications office automation. These changes lead to a significant reduction in all aspects of mental workload. For the age ranges of 21-30 years, 31-40 years, and 41-50 years, there was a decrease in mental workload after WFH with an average value of 12.01%, 10.03%, and 9.85%. The decrease occurred in stages where the younger has a great decrease in mental workload after the implementation of WFH. This occurs due to differences in levels of position and occupation. The younger an employee, the more work will be on the administrative then the decision making. So that the value of the aspects of own performance, effort, and frustration is relatively lower.

The age range of 21-30 years is dominated by data presenter positions with jobs consisting of simple administration and decision making. At the age of 31-40 years, the employee's job consists of making intermediate decisions or doing specific jobs such as document examination by PFPD¹. The difference in work causes the average value of mental workload reduction after WFH is not as big as in the previous age range. Jobs as decision makers at the strategic level are dominated by employees with a range of 41-50 years. Apart from that, for those vulnerable ages, the types of positions available mostly consist of echelon IV-III officials. As an echelon official with WFH working conditions, monitoring the performance of subordinates causes an additional workload. The difference occurred in employees aged 50 years and over with an increase in the average value of mental workload after WFH of 23.88%. At this age,

employees consist of echelon IV to II officials as well as senior executives. This increase was due to changes in work patterns with the use of *office automation*, online job monitoring, and changes in work communication patterns. These changes lead to the need for adjustments to the causes above.

Table 11.

Mental Workload Calculation Results Based on Position			
Position	Average Mental Workload		%
	WFO	WFH	
Echelon	79.69	71.63	-10.12%
Functional	79.00	70.83	-8.18%
Officer	75.51	66.41	-12.05%

Source: Data processed

The decline in the value of mental workload also occurs in the entire range of positions. The greatest decrease was felt by employees in executive positions by 12.05%. For structural positions (echelon IV and III) there was a decrease in mental workload by 10.12%. Whereas functional positions consist of Beginners of Customs and Excise Inspectors to Intermediate Customs and Excise Examiners, the decrease in mental burden is felt to be smaller than other levels of office (down by 8.18%). Some functional groups have specific jobs that cannot be done in WFH conditions such as goods inspectors and document studies (hangars). For this work, there is a credit score reported for the purpose of increasing the position. As a result of the COVID-19 pandemic, an employee with a functional position must carry out WFH so that the work done does not get a credit score. This causes an increase in the aspects of frustration level and own performance in some functional officers. Nevertheless there is a decrease in other aspects of mental workload so that there is no increase in the average value of mental workload as a whole.

Table 12.

Mental Workload Calculation Results Based on Gender			
Gender	Average Mental Workload		%
	WFO	WFH	
Men	76.15	67.23	-11.71%
Woman	75.98	71.76	-5.55%

Source: Data processed

Based on the calculations in Table 12, it is known that there was a decrease in the average value of mental workload after WFH in each group based on gender. The decline in the value of mental workload for men is greater than for women. The decrease in mental workload perceived by the male group was 11.71% (76.15 to 67.23) while the female group there was a decrease of 5.55% (75.98 to 71.76). This relates to additional household activities felt by women's groups.

5. CONCLUSIONS

This study analyzes the application of Work From Home (WFH) to the mental workload of employees. The results of calculating mental workload in normal work conditions are dominated by high and moderate mental workload categories consisting of 418 people (46.81%) employees have high mental workloads, 437 people (48.94%) have moderate mental workloads, and 38 people (4.26%) had a low mental workload. Whereas in the WFH condition, there were 248 people (27.77%) employees who had a high mental workload, 511 people (57.22%) had a moderate mental workload, and 134 people (15.01%) had a low mental workload.

Based on the test results with the Wilcoxon Signed Rank Test, the *p value* is 0.00 which is smaller than the alpha level by 5%. This shows that the initial hypothesis (H_0) which states that there is no difference in the mental workload of employees after the implementation of WFH is rejected. Based on these results, there is a significant difference between the mental workload values in the WFO and WFH conditions.

The calculation results also show a change in the form of a decrease in mental workload in WFH conditions. The decrease in the average of mental workload of employees at the Customs and Excise of Tanjung Priok was 9.49%. These changes are influenced by a decrease in mental load aspects. Furthermore, after grouping by age, position, and gender, the mental workload condition of employees also experienced a varied decrease, except for the age group of 50 years and over. Based on this research, the WFH policy can be continued.

The WFH policy that was implemented has succeeded in reducing the mental workload of employees as a whole. However, in the age group 50 years and over, there is an increase in mental

workload. Things that need to be improved further are increasing the internalization of the use of information technology, changes in work communication patterns and work systems, especially for senior employees who have an age range over than 50 years.

The results of this research are expected to give policy implications for Customs and Excise Office of Tanjung Priok especially for the Human Resource Division and also for policy makers at the Head Office Level (DGCE). The policy implications for Customs and Excise Office of Tanjung Priok that WFH Policy must be continued to be implemented. This research also provides implication to the Human Resource Division to manage and review the job description in each position observed and to evaluate effectiveness of WFO and WFH working conditions that has been used during pandemic COVID-19. This research also contains mental workload calculation results based on unit, age, position, and gender, these things got used to make a mapping in some part of the job description that has more mental workload and repetitively types. The temporary WFH concept that has been implemented at the Ministry of Finance in accordance with the Minister of Finance Decree Number 223/KMK.01/2020 and Circular of the Minister of Finance Number SE-7/MK.1/2020 can be permanently implemented and this research could have implication for policy makers at the Head Office Level (DGCE) to make derived rule and tech instructions of WFH policy.

In this research, there are limitations in the use of online questionnaires via online application. As a result of the COVID-19 pandemic, direct distribution of questionnaires is considered ineffective, so it is preferable to use an online questionnaire with limitations on a rating scale of only 1 to 10, so scale adjustments are needed.

Suggestions for further research are to add other variables such as fatigue and work stress, job satisfaction, and workload analysis calculations used in the Ministry of Finance. Subsequent research can see the effect of implementing WFH in a broad sense from various aspects and the results can be used as a comparison to the workload analysis used.

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