

# The Relationship of Work Instructions Compliance with Safe Behavior of Production Part Workers in PT X

Ayu Prima Kartika<sup>1</sup>, Windi Wulandari<sup>2</sup>, Noeroel Widajati<sup>1</sup>, Abdul Rohim Tualeka<sup>1</sup>

<sup>1</sup>Department of Occupational Health and Safety, Faculty of Public Health, Airlangga University,

<sup>2</sup>Department of Public Health, Faculty of Health Sciences, Muhammadiyah Surakarta University, Indonesia

## Abstract

Metal casting industry which is having high risk to work accidents and have applied work instructions (IK) to all unit working parts. Based on preliminary survey in PT X the level of work instructions compliance is 70% and 80% of workers safe behavior. The majority of workers work instructions compliance and safe behavior, but there are still workers did not compliance with work instructions and safe behavior. This study aimed to analyze the relation of work instructions compliance with safe behavior of production part workers in PT X. The kind of research is quantitative observational with cross sectional analytic approach that studies the relationship independent variabel with dependent variabel. The research population is all labor production section in PT X many as 74 people with the sample many as 48 people has been present working on the research day. The results of the fisher's exact test showed ( $p=0,03$ )  $< 0,05$  which means  $H_0$  rejected so that there was a correlation between work instructions compliance with safe behavior at production line workers in PT X. Conclusions of the study, that there is a significant relation exist between work instructions compliance with safe behavior. Advice for the company are to be able to establish P2K3, hold an inspection formal and informal.

**Keywords:** *Work instructions compliance, safe behavior.*

## Introduction

The development of industrialization and modernization is increasingly rapid resulting in increased operational work intensity, so that there are various impacts such as fatigue, loss of balance, lack of skills, lack of knowledge about sources of danger are the causes of accidents and work-related diseases that can affect company performance<sup>8</sup>. Manpower, Transmigration, and Population offices of the Central Java Provincial Government noted an increase in work accident data in 2015 which amounted to 3,083 work

accidents compared to 2014 which amounted to 2,549 work accidents<sup>3</sup>.

Accident events based on data, facts and experience are a series of events because of the potential for interrelated hazards, workplace accidents can be caused by work or unsafe actions such as those related to protective machinery, can be moved or modified sequences, work indoors with bad lighting and so on. In various studies of workplace accidents dangerous behavior is an important indicator<sup>7,10</sup>.

There is a significant relationship between compliance with work instructions and safe behavior obtained  $p$  value of  $0.01 < 0.05$  which indicates the relationship of compliance with work instructions and safe behavior is being at the mechanical part employees of PT Y<sup>1</sup>.

PT X has applied Work Instruction (IK) to all work units. All work process activities and actions are carried out daily based on abbreviated work instructions (IK) which are supervised by each section head. Based on the

---

### Correspondence Author:

**Abdul Rohim Tualeka**

Department of Occupational Health and Safety,  
Faculty of Public Health, Airlangga University, 60115  
Surabaya, East Java, Indonesia

e-mail: [inzut.tualeka@gmail.com](mailto:inzut.tualeka@gmail.com) or  
[abdul-r-t@fkm.unair](mailto:abdul-r-t@fkm.unair)

Handphone: +6281333519732

results of the preliminary survey in the production section of PT X the level of compliance with work instructions was 70% and as much as 80% of workers behaved safely. Most workers obey work instructions and work safely, but there are still workers who do not comply with work instructions and behave unsafe. Based on this background, researchers are interested in knowing the relationship of work instructions compliance with safe behavior of production part workers in PT X.

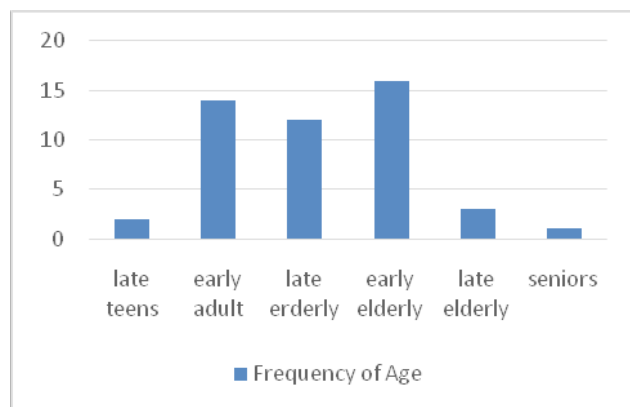
**Material and Method**

This type of research is an observational quantitative study using an analytical cross sectional approach that studies the relationship of independent variables, namely work instructions compliance with dependent variables, namely safe behavior that is assessed and measured simultaneously in one time<sup>5</sup>.

The population of this study is that all the production workforce in PT X numbered 74 people with a minimum sample size of 43 people and at the time of the study a total of 48 workers were present and were willing to be studied. The independent variable is work instructions compliance using the obedient category  $\geq$  mean and  $<$ mean for the non-compliant category and the dependent variable for safe behavior using the safe category  $\geq$  mean and  $<$ mean for the unsafe category. Using univariate and bivariate analysis with the provisions of the chi-square test, namely the null hypothesis (Ho). If p value  $<0.05$ , then Ho is rejected and if p value is  $\geq 0.05$  then Ho is accepted.

**Findings:**

**1. Age of Respondents:**

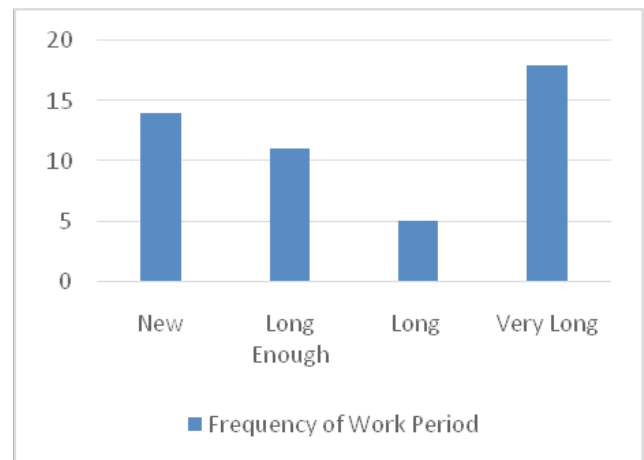


**Figure 1. Age of Respondents**

Most of the production workers at PT X were in the early age, 33.3% and only 2.1% were elderly

workers. age is directly proportional to one’s physical capacity and reaches its peak at the age of 25 years, increasing age will be followed by a decrease in physical capacity such as sharpness of vision, hearing, speed of distinguishing things, making decisions and the ability to remember. Production workers at PT X are almost all productive and can work well<sup>8</sup>.

- 2. Work Period of Respondents:** The number of workers with the highest working period of production at PT X for a very long working period is 37.5% and the number of workers with the least working period during the long service period is 10.4%. a long working period can have an influence on the experience of workers so that the longer the working period, the experience they have will be more and more mature and vice versa<sup>2,4</sup>. Most of the workers in the production of PT X have very long working hours so that they have good experience and skills that can support the smooth running of the work and can complete their tasks quickly and precisely.



**Figure 2. Work Period**

- 3. Education of Respondents:** From the table known that the majority of workers with high school education or equal to 70.8%, and only 2.1% of workers who did not go to school or did not complete elementary school. education is important in dealing with technological developments, so workers can use and maintain it if damage occurs. Based on research, production department workers at PT X have mastered the work they are doing, skillfully and skillfully using equipment, and processing materials such as printing sand without mold, pouring steel liquid in the production process, where education is needed in this case because of

the accuracy in calculations when pouring hot steel liquid, it must be measured correctly<sup>8</sup>.

**Table 1. Education of Respondents**

Age	Behavior		Total
	Safe	Unsafe	
Late teens	2	0	2
Early adult	10	4	14
Late adult	9	3	12
Early elderly	12	4	16
Late elderly	2	1	3
Seniors	1	0	1
Total	36	12	48

**4. Age with Behavior:** Most of the workers who behave safely are in the early age, which is 25%, with early aged workers who behave unsafe at 8.3%. age is directly proportional to one’s physical capacity and reaches a peak at the age of 25 years, increasing age will be followed by a decrease in physical capacity such as sharpness of vision, hearing, speed of distinguishing things, making decisions and the ability to remember<sup>8</sup>.

**Table 2. Age with Behavior**

Education	Frequency	Percent (%)
No school	1	2,1
Graduated from elementary school	9	18,8
Graduated from junior high school	4	8,3
Graduated from high school	34	70,8
Total	48	100

**5. Work Period with Behavior:** Most workers who behave safely enter a very long working period of 27.08%, but there are still those who behave unsafe at 10.42% even though they have entered a very long working period.the longer a person’s working period, the more experience he has and the more mature he has, but there are still those who do not behave safely because they already feel experienced and skilled in doing work<sup>4</sup>.

**Table 3. Work Period with Behavior**

Work Period	Behavior		Total
	Safe	Unsafe	
New	10 20,86%	4 8,34%	14 29,2%

Work Period	Behavior		Total
	Safe	Unsafe	
Long enough	8 16,65%	3 6,25%	11 22,9%
Long	4 8,32%	1 2,08%	5 10,4%
Very long	13 27,08%	5 10,42%	18 37,5%
Total	35 72,91%	13 27,09%	48 100%

**6. Education with Safe Behavior:** The biggest workers with high school education were 52.06% who behaved safely but still had workers who did not behave safely with a high school education of 18.74%.

**Table 4. Education with Safe Behavior**

Education	Behavior		Total
	Safe	Unsafe	
No school	1 2,1%	0 0,0%	1 2,1%
Graduated from elementary school	7 14,6%	2 4,2%	9 18,8%
Graduated from junior high school	3 6,2%	1 2,08%	4 8,3%
Graduated from high school	25 52,06%	9 18,7%	34 70,8%
<b>Total</b>	<b>36 74,98%</b>	<b>12 25,02%</b>	<b>48 100%</b>

**7. Working Conditions:** Working conditions in the production section of X can be seen that 100% of respondents observed work in safe working conditions.

**Table 5. Working Conditions**

Working Condition	Frequency	Percent (%)
Safe	48	100
Unsafe	0	0
Total	48	100

**8. Work Instructions Compliance:** Work instructions compliance for the production workforce of PT X amounting to 71% of respondents obeying work instructions while 29% of respondents did not comply with work instructions given by the company.

Most workers have complied with the work instructions well even though there are no officers

who supervise, such as checking equipment before use, writing work reports that have been completed, using personal protective equipment arranged in work instructions such as glasses, earplugs, masks, clothes protectors, gloves, shoes. They follow work instructions correctly because they understand that they work with considerable danger, namely the risk of being exposed to melt and hot steel splashes, but there are still workers who are not obedient such as not checking the equipment to be used first, not using personal protective equipment when work because workers reason that when using personal protective equipment they will feel uncomfortable and disrupt their activities, that is, they are not free.

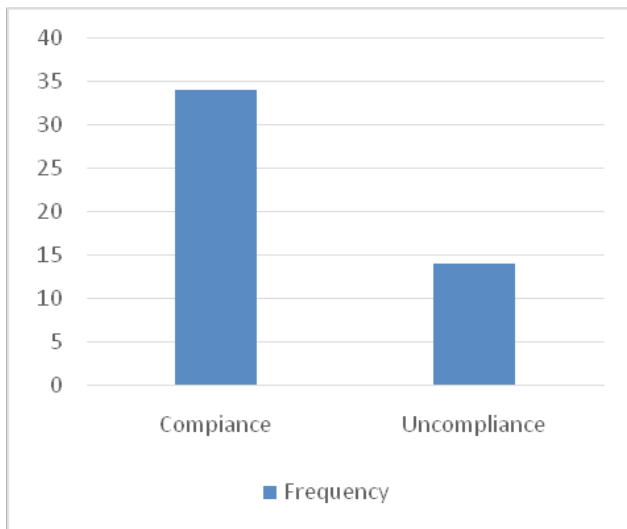


Figure 3. Work Instruction Compliance

9. **Safe Behavior:** The safe behavior of production workers at PT X at 73% of workers behave safely while 27% of workers who do not behave safely when working.

Workers behave safely such as using personal protective equipment even though they are not supervised, use equipment according to their functions, do not joke while working, but based on research there are still workers who behave unsafe such as smoking in the work area, black sand workers who do not use protective equipment self at all, do not use personal protective equipment that is complete using earplugs, gloves but do not use glasses when welding, unsafe work positions such as working positions for too long squatting and bending when forming sand resulting in back pain, exposed to sparks during the induction process and when pouring steel liquid into the mold.

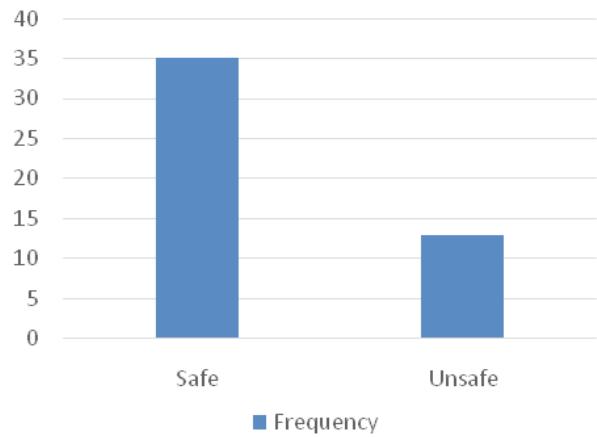


Figure 4. Safe Behavior

10. **Relationship between Work Instructions compliance with Safe Behavior:** The results of the chi-square statistic test showed that the use of the chi-square test was not fulfilled because there was an expected value <5 so that using the value of fisher’s exact test, the results of fisher’s exact test showed p value of 0.03 <0.05 which means that Ho was rejected between compliance with safe conduct of work instructions for production workers at PT X. Statistical test results, the correlation between work instructions compliance with safe behavior produces a number of 0.29, the figure shows a low correlation level<sup>6</sup>.

Based on the results of statistical tests, it was found that production workers at PT X were observed, workers who obeyed work instructions and behaved safely were 52.08%, workers who did not comply with work instructions but behaved safely were 20.83%, obedient workers work instructions but not as safe as 18.75%, workers who do not comply with work instructions and do not behave safely are 8.34%.

This research is in line with previous research that there is a relationship of work instructions compliance with safe behavior on employees of the mechanical part of PT Y with a p value of 0.01 <0.05<sup>1</sup>. and there is a relationship between the practice of applying the SOP with the incidence of workplace accidents and the practice of nurses with a p value of 0.002<sup>9</sup>.

It is known from statistical tests that the more obedient to work instructions, the workers tend to behave safely in the workplace. Workers at PT X who are obedient to work instructions realize that the importance of work instructions to be

understood and adhered to because they know they work in a place that is at high risk for accidents and by behaving safely such as using personal protective equipment that is using glasses, earplugs, masks, protective clothing, shoe gloves so that they can protect them while working.

But there are still workers who do not comply with work instructions because they feel familiar with the work done such as not checking equipment to be used, not using personal protective equipment, then behaving unsafe such as smoking in work areas because there are no sanctions directly given, no using personal protective equipment based on research workers reasoned uncomfortable and felt complicated when they had to use personal protective equipment and they used personal protective equipment completely only when there was a visit.

**Table 6. Relationship between Work Instructions compliance with Safe Behavior**

Compliance	Behavior		Total	P/r
	Safe	Unsafe		
Compliance	25 52,08%	9 18,75%	34 70,83%	0,03/0,29
Uncompliance	10 20,83%	4 8,34%	14 29,17%	
Total	35 72,91%	13 27,09%	48 100%	

**Conclusion**

Base on the result of the study it can be concluded that the Most of the production workers at PT X are in the early age, which is 33.3% and those who behave safely for the early elderly are 25%. The working period of most production workers has entered a very long working period of 37.5% and workers who enter very long work periods behave safely at 27.08%. Most of the workers have high school education or equal to 70.8% with workers with high school education who behave safely at 52.06%. 100% safe working conditions, namely the work area free from garbage, there are no water spills on the floor, there are label items, equipment used in good condition, personal protective equipment is available in good condition, there are hygiene facilities, and there is a first aid kit in each part of the work. Workers who adhere to work instructions based on the results of the study are 71%. Workers who behave safely are based on the results of research, which is 73%.

There is a significant relationship between work instructions compliance and safe behavior of production part workers in PT X.

**Conflicts of Interest:** All authors have no conflict interest to declare.

**Source of Funding:** The source of the research cost from self.

**Ethical Clearance:** The study was approved by the institutional Ethical Bord of the Muhammadiyah Surakarta University, Faculty of Health Sciences, Public Health Study Program.

All subjects were fully informed about the procedures and objectives of this study each subject prior to the study signed an informed consent form.

**References**

1. Aisha. Compliance relations with Behaviors Safe Work Instructions in Section Mechanics Employees PT. X. [Thesis Scientific]. Surakarta: Faculty of Health Sciences, University of Muhammadiyah Surakarta; 2016.
2. Badeni. Leadership and Organizational Behavior. Bandung: Alfabeta; 2013.
3. Transmigration and Manpower Office. Monitoring Labor. Transmigration and Manpower Office of Central Java Province; 2016.
4. Fahmi. Organizational Behavior (Theory, Applications, and Case). Bandung: Alfabeta; 2016.
5. Notoatmodjo. Health Research Method. Jakarta: Rineka Copyright; 2012.
6. Sugiyono. Research Method Combined (Mixed Method). Bandung: Alfabeta; 2014.
7. Tarwaka. Basics Safety And Prevention of Accidents in the Workplace. Surakarta: Hope Press; 2012.
8. Tarwaka. Occupational Health and Safety Management and Implementation K3 at Work (Issue 2). Surakarta: Hope Press; 2014.
9. Wijayanti. Relations Practice Implementation of the Standard Operating Procedure (SOP) and the use of Personal Protective Equipment (PPE) by Genesis Accidents In Perinatology Unit Nurses in hospitals Tugurejo Semarang. [Thesis Scientific]. Semarang: Medical Faculty of the University of Dian Nuswantoro Semarang; 2014.
10. Winarsunu. Psychology Safety. Malang: UMM Press; 2008.