The effect of the occupational health and safety practices on the boutique production quality

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Abstract. This study aims to find out: (1) the application of occupational health and safety in boutiques in the Special Region of Yogyakarta, (2) the quality of boutique productions in the Special Region of Yogyakarta, and (3) the effect of occupational safety health on the quality of boutique productions in the Special Region of Yogyakarta. This study can be categorized as an associative study using a survey method and a descriptive study related to fact collection, identification, and prediction of relationships within and between variables. The sample was selected using the random sampling technique referring to Isaac and Michael’s formulas with the error margin of 5%. From a population of 35 employees, the sample consisted of 32 employees was selected. The data were analyzed using the descriptive analysis technique. The hypothesis testing used the product-moment test. The study was conducted at Seyvia Charis Couture and Bridal Boutique, Gavrilla Fashion Studio, and Punky Rima Design of Indonesia. The results of the study are as follows. 1) The OSH application by boutiques in Yogyakarta was very good. This showed that employees and leaders have implemented occupational health and safety very well with the score of 1901 that can be categorized as very good. 2) The quality of boutique productions in Yogyakarta as a whole obtained the score of 2303 that can be categorized as very good. 3) The effect of the OSH application on productions is very strong on the stage of the production process with the correlation coefficient of 0.676 but it is getting weak on the final preparation and completion stages with the correlation coefficients of 0.426 and 0.330, respectively.

1. Introduction
Based on the report from the International Labor Organization (ILO) in 2004, each year there are 2,000,000 cases of death all over the world in the workplace with details of 354,000 cases as fatal incidents, more than 270 million cases of work accidents and 160 million cases related to work that injures the workers. It urges employers, workers, and the government to emphasize Occupational health and safety (OSH). OSH also contributes to the financial system and becomes an important record for the company or industry. ILO has listed more than Rp. 16907.37 trillion In 2004 which is equivalent to 4% of the Gross Domestic Product (GDP) or the total value of goods produced and services provided in a country for one year. As a result, the country has a potential loss of 4% from GDP due to work accidents.

In Indonesia, the application of OSH itself has not been optimum yet. Reveals that work accidents in Indonesia tend to increase. He shows an escalation of workplace accidents in Indonesia from 2007
to 2011 based on the number of work accident claims in Jamsostek. It excludes the number of workplace accidents in the traffic sector under Jasa Raharja Insurance Ltd [1].

### Table 1. The work accidents in Indonesia (2007-2011) and the number of claims to Jamsostek

| Year | Number of cases | The number of claims to Jamsostek |
|------|-----------------|----------------------------------|
| 2011 | 99,491          | RP. 540,0 Billion                |
| 2010 | 98,711          | Rp. 401,2 Billion                |
| 2009 | 96,314          | RP. 328,5 Billion                |
| 2008 | 94,736          | Rp. 297,9 Billion                |
| 2007 | 83,714          | Rp. 219,7 Billion                |

The high number of work accidents in the industry up to 2012 reaches 103,074 cases or 388 cases per day with the losses estimation of Rp. 585 billion [2]. In this globalization era, the high industrial competition demands each industry to have maximum and qualified production. The industry must optimize every available resource to be able to compete with other companies, especially their human resources.

Human resources in the industry cannot be separated from work health and safety issues since they always deal with the equipment and production machinery to support the production process. It means employees have the risk of workplace accidents that requires more attention from the industry, management and employees themselves. The fashion is also such industry that can not be separated from this problem with its risky equipment, processes and materials. As part of the fashion industry, a boutique is a small shop specializing in elite and fashionable fashion items. It is a fashion business that also runs the process of designing, producing and selling certain fashion items.

An industry is established using particular working methods, technology and others to get a high level of productivity but it often rules out the side effects that may occur it causes. One of the many that arise from this situation is the occurrence of an occupational accident that makes the worker injured and it will greatly affect their working performance. Although many industries have implemented OHS, there are still some who do not really understand what OHS is.

Based on the observations in several boutique production houses in the Special Region of Yogyakarta, mostly the owner only know the meaning of OSH in general and they have no idea in its application or to provide OSH training to his employees, for instance, the boutique provides personal protective equipment but not all employees use it. A good industry is an industry that really takes care of the safety and health of its employees by making clear rules of OHS that is obeyed by all employees and owners of the industry. Based on the above conditions, researchers want to conduct research to see the effect of the OSH application on the quality of boutique production in the Special Region of Yogyakarta.

This study aims to reveal: (1) the application of OSH in boutiques in the Special Region of Yogyakarta, (2) the quality of boutique productions in the Special Region of Yogyakarta, and (3) the effect of occupational safety health on the quality of boutique productions in the Special Region of Yogyakarta.

### 2. Methods

This research is the associative research with the hypothesis testing using product moment to prove the relationship between health and safety variables towards production quality variables. The data analysis was performed with the help of SPSS software. In the hypothesis test, the interpretation of sig values was performed. If the value of sig. <0.05 then Ha is accepted and Ho is rejected. The study was conducted on the couture industry in the Special Region of Yogyakarta, namely Seyvia Charis Couture and Bridal, Gavrilla Fashion Studio, and Punky Rima Design of Indonesia.

The subjects of this study were boutique employees in Yogyakarta including Seyvia Charis Couture and Bridal, Gavrilla Fashion Studio, and Punky Rima Design of Indonesia amounting to 35
people. The size of the sample of this study was calculated based on the Isaac and Michael formula with the error rate of 5%.

**Figure 1.** Diagrammatic representation

The data collection techniques used to obtain data on OSH variables, while the production quality was obtained from a questionnaire. The questionnaire instrument consisted of 20 items, the questionnaire was closed-item by providing four answer choices. The answer choice employed a Likert scale containing strongly agree (SA), Agree (A), disagree (D) and strongly disagree (SD). In overcoming the OSH problem by using safety psychology and industrial clinical psychology [3]. It focuses more on efforts to prevent accidents by examining why and how accidents can occur. Industrial clinical psychology focuses on the decline of employee performance, its causes and how to overcome it. Referring to the theory, the instrument guideline was made for the questionnaire in line with the agreement with the boutiques. There were four aspects used in Miner theory covering work safety awareness, work environment control, OHS awareness, as well as supervision and discipline. These aspects are applied to each indicator, namely (1) preparation (2) process (3) final completion.

| Variables                   | Indicators                             | Aspects                                      |
|-----------------------------|----------------------------------------|----------------------------------------------|
| OSH application             | Preparation Socializing work safety    | Controlling the work environment             |
|                             |                                        | Raising OHS awareness                        |
|                             | Process Controlling the work environment | Supervision and discipline                   |
|                             | Final completion Controlling the work environment | Supervision and discipline                   |

For the quality of fashion, it was adapted from the theory of fashion criteria by Lin and Jerusalem and safety fashion criteria by Chen [4] [5].

**Table 2.** The Guideline of OSH instrument

| Group            | Criteria                           |
|------------------|------------------------------------|
| Scheme of Fashion Design | Innovation Fashion forecast New idea |
|                  | Style Comfort Mix and match        |
|                  | Color Suitability for everyday use Matching with body and skin color |
|                  | Market Consumer knowledge Consumer lifestyle |
|                  | material Maintenance Fabric pattern |
Table 4. The criteria of safety fashion design according to Chen

| Criteria              | Sub-criteria                        | Indicators                                                                |
|-----------------------|-------------------------------------|-----------------------------------------------------------------------------|
| Technical safety      | Requirements for straps use          | Straps, functional or decorative straps, elastic straps, shoulder straps,    |
|                       |                                     | neck-straps, belts or sashes, stirrups                                      |
|                       | Size, intensity, abrasion resistance | Buttons, knots, zippers, drawstring finishes, labels, adhesive tapes,      |
|                       | of small parts                      | small decorative pieces such as poms, lace, and beads                      |
|                       | Requirements for other parts         | Hoods, sharp objects, magnetic materials, embroidery, abrasion resistance   |
|                       |                                     | from sewing thread, packaging, washing labels, instruments used in         |
|                       |                                     | manufacturing such as needles and scissors, strength of stitches,           |
|                       |                                     | remaining thread, wrinkle or swell                                         |
| Chemical safety       | The content of formaldehyde, water  | Fabrics, pom-poms, applications, lace, small pieces of cloth and other     |
|                       | fastness, acid, dryness, friction,  | buttons, adhesives, embroidery, zippers, beads, sewing thread.             |
|                       | saliva, pH value, AZO staining       |                                                                             |
| Fire resistance       | Flammable Requirements               | Main ingredient, Coating                                                  |
| External security     | Qualification                        | Product identification qualifications, Fiber composition in labels,        |
|                       |                                     | Washing and nursing labels                                                |

Based on the theory of fashion criteria by Lin and Jerusalem and safety fashion criteria by Chen, the instrument guidelines were made by adapting the theory into four indicators namely (1) technique, (2) tidiness (3) cleanliness (4) accuracy.

Table 5. The instrument guidelines of product quality

| Variable               | Indicators                                                                 | Aspects                                                                 |
|------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Production results     | Technique Buttons, zippers, application lace, embroidery, seam, sewing      | Buttons, zippers, application lace, embroidery, seam, sewing thread,    |
|                        |                                                                             | wrinkle/swell, packaging                                               |
| Tidiness               | Embroidered, zipper, button, lace, application, embroidery, sequins, labels | Embroidered, zipper, button, lace, application, embroidery, sequins,    |
|                        |                                                                             | labels                                                                  |
| Cleanliness            | Free from stains, stitch marks, and thread                                 | Free from stains, stitch marks, and thread                             |
| Accuracy               | Punctuality                                                                 | Punctuality                                                             |

3. Results and Discussion

Based on the results of the data calculation, it can be concluded that the total score of the OSH variable was 1951. It means that the OSH application in the boutique industry in the Special Region of Yogyakarta was very good including the aspects of OSH socialization, OSH awareness, work environment control, as well as supervision and discipline.

Table 6. The scores range of boutiques OSH assessment in Yogyakarta

| Score     | Explanation |
|-----------|-------------|
| 0 – 640   | Very Bad    |
| 641 – 1280| Bad         |
| 1281 – 1920| Good       |
| 1920 – 2560| Very Good  |
The quality of boutique production in Yogyakarta as a whole was based on the results of the data calculation with the score of 2303 that can be categorized as very good. It means the techniques used by the boutiques in making the product were very good including the size of the seam that had fulfilled the standards, as well as the zipper size, buttons, lace, border applications, sequins and draping were in accordance with the design. It made the products had met the desired goals. Moreover, the tidiness of the fitting of interfacing, zippers, buttons, lace, application, borders, sequins, and the results could be considered as very good. The neatness of the seams can be seen from there was no wrinkles/bubbling. The product was also very good that it was clean from sewing thread, stain, sewing lime, and machine oil. The packaging was also very good by using the cover that was appropriate with the size of the product. In addition, the production was always on time.

**Table 7.** The score range on the quality assessment of boutique fashion in Yogyakarta

| Scores | Explanation   |
|--------|---------------|
| 0 – 736| Very Bad      |
| 737 – 1472| Bad          |
| 1473 – 2208| Good          |
| 2209 – 2994| Very Good     |

Based on the results of Product-Moment correlation for hypothesis testing, it was obtained the value of 0.039. This value was smaller than the stated level of significance (p = 0.000 <= 0.05), it means that there is no relationship between the OSH application in the preparation stage with the production results. Based on the Product-Moment hypothesis, the correlation coefficient value was 0.366. It proves that the OSH application in the preparation stage has a very low effect on production quality.

Based on the results of Product-moment hypothesis testing, it was obtained the value of 0.067. This was smaller than the stated level of significance (p = 0.000 <= 0.05), i.e there is no relationship between the OSH application in the final completion stage with the production quality. Based on the product-moment hypothesis, the correlation coefficient value was 0.330 for the relationship between OSH in the final completion stage and the quality of production. It proves that the OSH application in the completion stage has a low effect on the value of production quality.

Based on the results of the study, it can be concluded that the OSH application of boutique in Yogyakarta can be categorized as very good. It indicates that employees and employers or owners have implemented OSH very well with the total score of 1901. The employees have applied OSH procedure from the preparation stage with the total score of 1134, or good category. It is caused by the leader that has socialized OSH and the use of personal protective equipment (PPE) to employees properly. The leaders and employees are also able to control the work environment, such as cleanliness, room temperature and lighting. They have been accustomed to well prepare their workspaces, such as tools and materials before working.

In the stage of the production process, the total score obtained was 476 which has a good category that employees always pay attention to the condition of their workspace during the production process, such as the use of electricity, lighting and room temperature. The boutique leaders/owner always supervise their employees, especially in risky areas during the production process. In addition, the employees always put or return the tools and materials to their proper place. The employees also use PPE during the production process.

In the final stage of the production results, it had the score of 305 in which OSH in that stage was already very good because both leaders and employees always check the tools and materials regularly to maintain the cleanliness of the tools and materials after work and return them to the proper place to maintain tidiness and cleanliness. They also turn off and re-check the electricity before leaving the workspace/boutique.
Table 8. The scores of OSH application

| Variables   | Scores |
|-------------|--------|
| Preparation | 1134   |
| Process     | 476    |
| Completion  | 305    |

Based on the results of the study, it can be concluded that the production quality of the boutiques in Yogyakarta has been very good. They have performed good production techniques, cleanliness, punctuality, and tidiness. The quality of boutique production in Yogyakarta was very good with the total score of 2303. The technique included its sewing technique and fitting application with proper size and the dimension of the seam has been in accordance with the standards and the zippers. The sizes, buttons, lace, applications, borders, draping, sequins are matching with the design as well as the pattern and material cutting technique. The scoring scores based on those technique aspects have the total score of 1121, which categorized as very good.

The boutiques have also maintained their tidiness where this aspect obtained the score of 868 (very good). This aspect is assessed from the fitting of interfacing and its the stitches results that have no wrinkles or stitches that usually make the fabric become bulging. It can also be seen from the tidiness of buttons, applications, borders, draping and sequins.

Meanwhile, the cleanliness aspect is assessed from whether any sewing thread that is attached or the remain thread from stitches, as well as free of stains, sewing chalk, stitch marks and machine oil. Also, their product completion is always on time that can be seen from its speed aspect of 103, as good category.

Table 9. The total score of product quality

| Variable   | Score |
|------------|-------|
| Technique  | 1121  |
| Tidiness   | 868   |
| Cleanliness| 211   |
| Accuracy   | 103   |

Based on the results of the hypothesis testing above, it indicates that there is a relationship between the OSH application in the production process stage towards the quality of production with the results of the correlation value of 0.676 (see Table 9). It is related to the supervision of the workplace, tools and materials as well as discipline attitude in using PPE and in caring for the working equipment. Those affect the production techniques consisting of button mounting, zippers, lace, application, embroidery and packaging. Those also influence the tidiness on the size of the seam and the finishing of the seam without any wrinkles, as well as the fitting of stitching, zippers, applications, sequins, embroidery, and labels. It indicates that the OSH procedure also affects the cleanliness and the speed of work among employees in the industry.

Table 10. The relationship of OSH factors to the boutiques production quality

| OSH Factors | Correlation Value | Opportunity Value | Explanation |
|-------------|-------------------|-------------------|-------------|
| Preparation | 0.426             | 0.039             | Low         |
| Process     | 0.676             | 0.000             | High        |
| Completion  | 0.330             | 0.067             | Low         |

The OSH application has a low influence towards the preparation and completion stages. It can be seen in Table 10 with the correlation score of 0.426 and 0.330 on the aspects of OSH socialization, OSH awareness, supervision and discipline, and environmental control. The aspects applied in the preparation and the completion stage have a low influence where the average value of the OHS application is in a good category. The aspects applied during the preparation process are safety.
awareness, environment control, OSH awareness, as well as supervision and discipline prior to the production phase. For the final stage of completion, the aspects that are applied cover environment control and supervision and discipline.

Based on the research results and discussion, there are several suggestions that can be proposed as follows:

a. Boutique leaders/owners need to provide more control and attention to the working environment.
b. Boutique leaders/owners should be aware of the supplies and equipment of personal protective equipment (PPE) and First Aid, room lighting, air circulation, space for movement, and workplace layout.

4. Conclusion

The analysis results on the OSH application in the boutiques in the Special Region of Yogyakarta have indicated that the OSH procedure has been well implemented by employees. The total average score obtained can be categorized as Good. It shows that the employees have carried out the OSH program well. The results of the analysis of the production quality have identified that the influencing factors related to the aspects of cleanliness, speed, technique, and tidiness. Based on the Spearman rank analysis results, there is a positive and strong relationship between OSH program and the production quality, namely OHS socialization, environment control, OHS awareness, as well as supervision and discipline. This means that the higher the awareness and application among employees on OSH, the higher the value of production quality.

References

[1] Wirawan 2015 *Managemen Sumber Daya Manusia Indonesia* (Jakarta: PT. Raja Grafindo Persada)
[2] Priyanto H, Suwandi T, Hamidah 2016 *Inter. J. of Evaluation and Research in Education (IJERE)* 5
[3] Simbolon J, Nuridin 2017 *ISSN 2338-4794* 5
[4] Lin S W, Jerusalem M A 2017 *Inter. J. of Clothing Science and Technolog*
[5] Chen L, Yan X, Gao C 2016) *Fiber & Textiles* 24 6 p 32