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ILO-PATRIS AS AN ALTERNATIVE INSTRUMENT TO OBSERVE THE WORKING CONDITIONS OF A SMALL FOOD-PRODUCING BUSINESS

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Abstract

The poor and hazardous work conditions of small businesses are prevalent, including the Indonesian small food-producing businesses. Observations have been commonly used to examine and describe the work conditions, although with some limitations. Despite the seemingly useful application, the ILO-PATRIS and its IPR calculation have not been used to observe the work conditions of Indonesian small food-producing businesses. This study aimed to demonstrate the applicability and usefulness of ILO-PATRIS, as an instrument to observe the working conditions of Indonesian small food-producing businesses. A small business of tempe chips was purposively selected, with three respondents involved in the scoring of the ILO-PATRIS monitoring items. The results indicated relatively poor working conditions with ILO-PATRIS score of 30 out of 58. The IPR calculations led to the understanding that several aspects could be improved, such as the personal protective equipment and physical environment. This study demonstrated that the ILO-PATRIS and its IPR calculation are useful in observing the working conditions of an Indonesian small food-producing business. However, some recommendations of the use should be considered, which may be investigated in further studies.

Keywords: *ergonomics; food business; observations; small business; work conditions*

1. Introduction

The working condition of a workplace is one important thing to be considered and maintained. One reason for this is that the working conditions may have particular effects on the performance and well-being of the workers. Poor working conditions could lead to undesirable effects, mainly for the workers and potentially the overall business operation. Some potential negative effects of poor working conditions to the workers are fatigue and discomfort (Kida & Takemura, 2022; Nagaraj et al., 2019). Not only affecting the physical or physiological aspects of the workers, poor working conditions may also lead to negative effects on the workers' performance and physiological aspects (Bashir et al., 2020).

One type of an industry in which the work conditions are widely studied by many researchers across the globe, is the workplaces of small businesses. This is because small businesses have been agreed to be vital for a nation's economy and employment (De Marco et al., 2020). Therefore, their working conditions are important to be maintained to ensure the well-being of the workers. It has been widely argued that, the working conditions of small businesses are below ideal with various hazards and poor work safety (Micheli et al., 2018; Sørensen et al., 2007)

In Indonesia, the number of small businesses which are involved in the production of various kinds of foods are plentiful. Yolanda (2024) stated that food businesses dominate the proportion of small businesses in Indonesia, with the number reaching 1.5 million units in the year 2022. Various studies have put forward the poor working conditions of Indonesian small food-producing businesses. Dewi et al. (2020) and Rahayuningsih (2019) revealed the commonality of the hazardous and risky working conditions in Indonesian small food-producing businesses. There is also a poor provision of protective and emergency equipment. Due to their vital role, it is important to understand the working conditions of Indonesian small food-producing businesses.

In understanding the work conditions of Indonesian small food-businesses, the observation method has been widely used. Several papers such as Dewi et al. (2020) and Delti et al. (2018), have mentioned the usefulness of observation to examine and describe the working conditions. However, in some papers, the application of the observation method is unclear. Although this may be caused by the requirement of concise presentation in papers, this should not be the case for the clarity of the use, analysis, and results presentation of observations.

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Furthermore, observations of the work conditions of Indonesian small food-producing businesses might be accompanied by another instrument. This is to add examination and explanation of the observation results. There are instruments such as the Work Improvement for Safe Home (WISH) and Work Improvement for Small Enterprise (WISE), which were respectively used by Muslim et al. (2018) and Saputra & Kusmindari (2023), in observing the work conditions of Indonesian small food-producing businesses. It can be understood that such instruments could enhance the analysis and descriptions of the work conditions.

An alternative instrument to observe the work conditions of an Indonesian small food-producing business is the ILO-PATRIS (International Labour Organisation-Participation Action Training for Informal Sector Operators). Developed for the informal sector, ILO-PATRIS is a simple, effective, and low-cost tool to examine and suggest improvement related to the working conditions (International Labour Organisation (ILO), 2003). As demonstrated by Sukapto et al. (2019), the ILO-PATRIS is a useful instrument to analyse several aspects related to working conditions. In addition to scoring, the ILO-PATRIS allows the description of the actual conditions. The ILO-PATRIS may also be followed by the calculation of IPR (Index Priority Ratio). This would give insights about the aspects of working conditions that should be prioritised for improvements.

The ILO-PATRIS and its IPR calculation have been proven to be useful in the shoes industry (Sukapto et al., 2019). As far as the authors of this study are aware, it has not been applied in an Indonesian small food-producing business. As previously mentioned, the method of observation has been used to observe the working conditions of Indonesian small food-producing businesses. However, the depth of the analysis and descriptions of the results may be improved, to give clearer understanding and insights of the potential improvements. Therefore, this study attempted to fill the research gap of demonstrating ILO-PATRIS as an instrument to observe the work conditions of Indonesian small food-producing businesses. Relatedly, the objective of this study was to demonstrate the applicability and usefulness of ILO-PATRIS, to observe the working conditions of Indonesian small food-producing businesses.

2. Research Methods

2.1. Participants

One small business factory of *tempe* (soybean cake) chips was involved in this study. This business was purposively selected, based on the indications of poor working conditions in the workplace as indicated in Tamara et al. (2013) and Silalahi et al. (2021). Additionally, the head of the business association also suggested that the selected businesses are the most suitable for this study. A consent form was signed by the owner of the business after explanation of the study, to indicate their agreement to be involved in this study.

Furthermore, three people were involved in working with the ILO-PATRIS check sheet. These were the researcher, the owner of the business, and the worker of the business. The researcher was involved, to act as an expert with experience of working with Indonesian small food-producing businesses related to ergonomics and work safety. The owner of the business was involved as they have the overview and general knowledge of the activities and working conditions in the businesses. The worker of the business was involved, aimed to have an assessment of the working conditions from the worker's point of view.

Altogether, the three respondents were involved to have different point of views of the working conditions of the business. Additionally, this was to explore the applicability of using and analysing the ILO-PATRIS instrument with multiple respondents.

2.2. Observation

A one-time direct observation was conducted in this study, which is a method to capture the activities and other information in a location with the presence of the researcher in the location (Sharples & Cobb, 2015). The observation was done in the location of the factory, both in the production and non-production areas. ILO-PATRIS check sheet, which will be explained in the following section, was used during the observation.

The owner and worker were accompanied when they observed the working conditions, and when they did the scoring on the ILO-PATRIS check sheet. This was to assist the owner and worker, who were assumed to have relatively low levels of knowledge of the ILO-PATRIS check sheet. This was to ensure that they understood the items and were able to answer accordingly.

2.3. ILO-PATRIS check sheet

The ILO-PATRIS survey instrument consists of 8 categories of physical environment, premises, welfare facilities, ergonomics, equipment, work organisation, personal protective equipment, and day-to-day management. Each of the aspects contains several monitoring items, to be scored by the participants. Referring to the monitoring form or check sheet of the ILO-PATRIS by The ILO (2003), the scoring system that was used was 0 (major improvement needed), 1 (improvement needed), and 2 (satisfactory). Additionally, the ILO-PATRIS check sheet includes a section to add necessary explanation of the scoring of the monitoring items.

2.4. Focus group discussion

Two small focus group discussions took place in this study, which is an involvement of a small number of people in a focussed discussion of a particular topic (Hydén & Bülow, 2003; Wilkinson, 2011). The first one involved an expert and the owner of the business, to achieve the face validity of the ILO-PATRIS check sheet. As defined by Chapman & Gillespie (2019), the face validity in this study was aimed to ensure that the ILO-PATRIS check sheet would be able to measure what it is supposed to measure, which are the monitoring items, including the wording of items.

The second focus group discussion was held to reach an agreement of the ILO-PATRIS scoring. In the

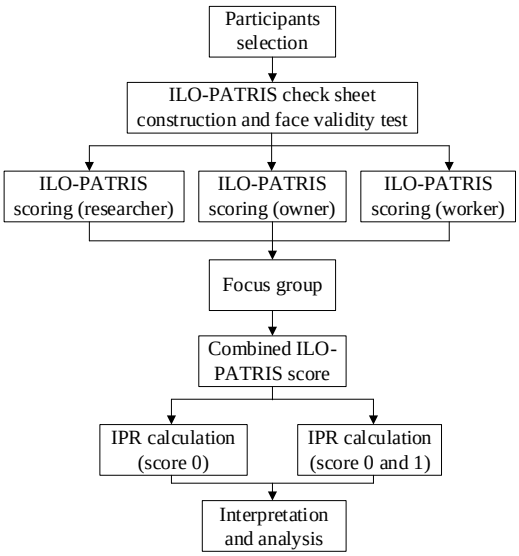

Figure 1. The Steps of the Study

second focus group discussion, the researcher acted more as a guide and moderator of the discussion, rather than actively involved in determining the scoring of the ILO-PATRIS monitoring items. This is to give the owner and worker an opportunity to freely express their opinions. Also, this was intended to ensure that the score of the ILO-PATRIS would represent the actual working conditions.

2.5. Analysis

The analysis that was done in this study mainly followed the analysis by Sukapto et al. (2019). The findings related to the working conditions based on the obtained ILO-PATRIS score were analysed descriptively. Index Priority Ratio (IPR) then calculated, to indicate priorities for improvement. The IPR values were obtained by the calculation of the ratio between the number of statements in one category with the value of 0, and the total number of statements in that category. Higher IPR value indicates the more urgency of improvements. In this study, an additional calculation of IPR value by including the items with the values of 0 and 1 was also calculated. This was to present a comparison between including only the score of 0 with the inclusion of the score of 0 and 1.

3. Results and Discussion

3.1. ILO-PATRIS monitoring items scoring

The results of the scoring of the ILO-PATRIS monitoring items are presented in **Table 1**. It can be understood from the scoring that, generally, the working conditions of the observed Indonesian small food-producing business of *tempe* chips is below ideal. This is indicated by the overall total scores from the researcher, owner, and worker of 22, 33, and 34, respectively. These scores are below the maximum total score of 58, which would be the best possible score with which all monitoring items are in the score of 2. Hence, the scores indicate the need for improvements of the working conditions in the business. This result confirms the statements of some studies such as Sudewa (2021) and Tamala (2020), that the working conditions of small business are often poor.

Although the scoring results of the ILO-PATRIS monitoring items from the three respondents are similarly low as can be seen in **Table 1**, there are differences between the respondents. There are different scores of monitoring items between respondents, such as in monitoring items number 1, 4, 10, 16, and 20. These differences could be due to subjectivity, as ILO-PATRIS is a subjective tool to assess the work conditions of a workplace. Additionally, the knowledge and experience about the work conditions of Indonesian small food-producing businesses might also contribute to the different scoring. This is also pointed out by Zhang and Lin (2024), that people's knowledge about work conditions, such as the ergonomics aspect, may be different.

Regarding the differences in the scoring of ILO-PATRIS monitoring items, it was considered that determining scores which accommodate all respondents was necessary. This is to have an agreement on the working conditions of the businesses, and also to be able to proceed to the next step of improvement recommendations. Therefore, a focus group discussion was held involving all three respondents. This resulted in an agreement of the ILO-PATRIS monitoring items scoring as in **Table 1** (Score[d]). The modified ILO-PATRIS scoring based on the focus group discussion shows an overall score of 30, which is similarly low compared to the individual scores.

As can be seen in **Table 1**, most of the monitoring items are in the score of 1 (16 items, 55%). This indicates that, generally, there are several aspects of working conditions that still can be improved. An example is on the aspect of physical environment, of which the items dust, noise, and lighting have the score of 1. Permatasari et al. (2021) explained that small businesses are exposed to hazards due to the inappropriate location. This is also found in the observed business of this research, in which the production process of *tempe* chips is performed in an undesignated place. This leads to the exposure of dust and noise, particularly as the production process is

Table 1. The Scoring of The ILO-PATRIS Monitoring Items

No.	Monitoring items	Score[a]	Score[b]	Score[c]	Score[d]	Observations
1. Physical environment						
1)	Dust	1	1	2	1	Dust from outside environment exposure.
2)	Chemicals	2	2	2	2	No certain chemicals used.
3)	Noise	1	1	1	1	Noise from road (e.g. motorcycles, car).
4)	Heat	0	1	0	0	Workers exposed to heat from the activities and environment.
5)	Lighting	2	1	1	1	Sufficient lighting but may be dark in cloudy weather.
2. Premises						
6)	Fire prevention	0	0	0	0	No emergency precautions, procedures, or equipment.
7)	Material storage and handling	0	1	1	1	Material storage and handling uses the same areas for personal needs.
8)	Housekeeping/general order and cleanliness	0	0	1	0	Work environment is dirty, tools and equipment not organised.
9)	Waste disposal	1	1	1	1	General waste disposal only.
10)	Roof	1	2	2	2	Sufficient roof conditions.
11)	Walls	0	1	0	0	Dirty and stained walls.
12)	Floors/stairs/staircases	1	1	1	1	Slippery floors.
13)	Drainage sewage systems	2	2	2	2	Sufficient, no specific sewage system required.
3. Welfare facilities						
14)	Toilets	1	2	2	2	Using the owner's house toilet.
15)	Showers	1	2	2	2	Not needed.
16)	Rest/sleep/eating/smoking areas	1	2	1	1	No designated area.
17)	Drinking water	1	1	1	1	Provided but sometimes not enough.
4. Ergonomics						
18)	Hazardous postures	0	0	1	1	Some tasks include poor work postures.
19)	Seat	0	1	1	1	Some seats are not comfortable.
20)	Working surfaces	1	1	2	1	Some tools are not comfortable.
21)	Lifting	2	2	2	2	No heavy lifting in the tasks.
5. Equipment						
22)	Tools, machines, equipment	0	1	1	1	Some tools are not suitable, but still functional.
6. Work organisation						
23)	Interaction with workers	1	2	2	1	Flexible task arrangements and interaction.
24)	Work rotation	2	2	2	2	The work hour is acceptable.
25)	Work-rest cycles	0	1	1	1	The workers forced to rest during working, but the fatigue is not high.
7. Personal protective equipment						
26)	Shoes, gloves, aprons, masks, googles, etc.	0	0	0	0	No use nor provision of PPE.
8. Day-to-day management						
27)	First aid	0	1	1	1	Provided by the owner's personal first aid
28)	Health services	1	1	1	1	Although not close by, health services are available in the area.
29)	Delegation of safety responsibilities to workers	0	0	0	0	No delegation of safety responsibility.
	Total score	**22**	**33**	**34**	**30**	

a: scoring by the researcher; **b**: scoring by the owner, **c**: scoring by the worker, **d**: aggregate score based on the focus group

located next to a busy road. Other items with the score of 1 can be found in the categories related to the premises and ergonomics. These include items such as poor material storage and handling, hazardous postures, and inappropriately-designed equipment. Examples of the activities and working conditions in the observed *tempe* chips business are presented in **Figure 2**.

The score of 0 is found in some aspects and items, totalling 6 items (21%). The most notable item with the score of 0 is the unavailability and use of personal protective equipment. Balkhyour et al. (2019) stated that in small businesses, there is a low level of the use of PPE. This is also found in this current research, on which all workers are not using any form of PPE. Another item with the score of 0 is the delegation of safety responsibilities, in which the business does not implement any policy or organisation related to safety. This resonates with the finding of

Figure 2. Examples of The Working Conditions and Activities in The Observed Business

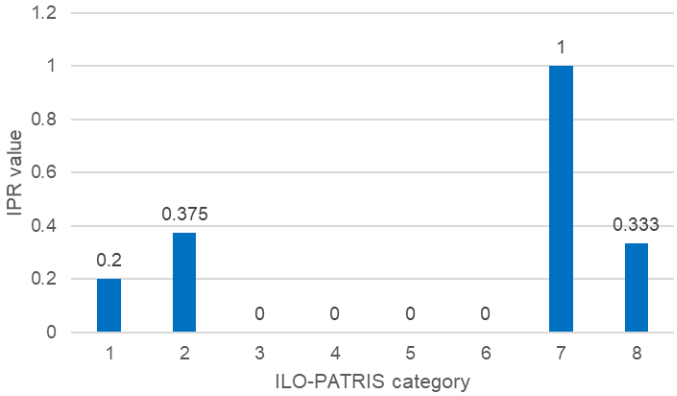

Figure 3. IPR Values (Including 0 Scores Only)

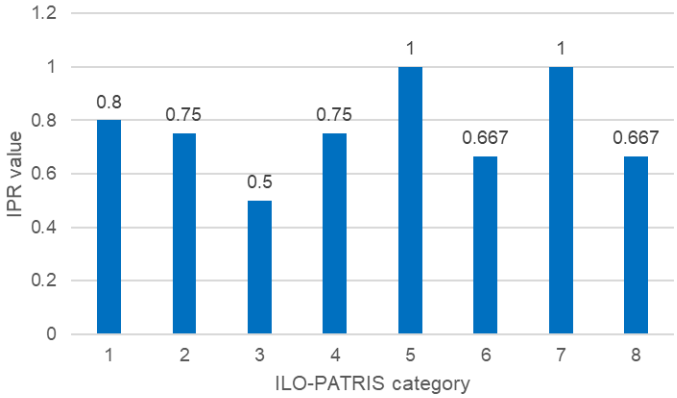

Figure 4. IPR Values (Including 0 And 1 Scores)

previous research by Astuti & Ramdhan (2024), that safety in small businesses may be neglected by the personnel.

Some items in the ILO-PATRIS scoring are given the score of 2, indicating that the items are currently satisfactory and improvements are not necessary. An item with the score of 2 is related to chemicals, as no chemicals are used in the production process. This somewhat contradicts the statement by Sankaran et al. (2023), that small businesses are exposed to chemicals. However, this may be due to the dependence with the type of products and processes. Items related to lifting and work rotation are also in the score of 2. This may be caused as the people felt that no heavy lifting is involved, and the work time and shift is acceptable. A rather interesting discussion occurred when discussing the score for toilets and showers. The owner and worker argued that a shared-toilet with the owner's house is adequate, and a shower is not needed. However, it has been argued that a work in a home setting may mean lack of personal needs such as toilets, which should be available (Wibberley, 2013).

3.2. Index Priority Ratio (IPR)

Overall, as discussed in the previous section, the overall ILO-PATRIS score of 30 indicates the need for improvements in some categories or monitoring items related to the work conditions in the observed workplace. In this research, based on the ILO-PATRIS results, the priority for improvements was analysed using Index Priority Rating (IPR) as demonstrated by Sukapto et al. (2019). As explained in the method section, the IPR analysis in this research was divided into two analyses, which are including only the score of

0, and including both the scores of 0 and 1. The results of the IPR calculations are presented in **Figure 3** and **Figure 4**.

When including only the score of 0, it can be understood that four aspects (physical environment, premises, PPE, and management) have priority ratings above 0. This means that those are the four aspects that need improvements. Meanwhile, on the IPR calculation including the items with the score of 0 and 1, all of the aspects indicate the need for improvement. The different results of IPR between restricting the inclusion of items with the score of 0 and including the scores of 0 and 1, needs to be considered for future studies. It can be argued that including the scores of 0 and 1 in the IPR calculation of ILO-PATRIS may give a better understanding of the improvements that should be done.

The most notable aspect of improvement based on the IPR is PPE, of which the IPR values are 1 on both IPR calculations. This is caused by the score of 0 in the item scoring, as not any type of PPE was used nor available in the workplace. PPE is often not used in small businesses due to some reasons such as negligence with regards to safety risk and preventive measures (Astuti & Ramdhan, 2024). This is also indicated in the workplace of this study. The result that PPE is an aspect which needs improvement with an IPR value of 1 is similar to the finding by Sukapto et al (2019). In their study, PPE also has an IPR value of 1, on which they suggested that companies need to provide PPE for the workers.

Other notable items with fairly high IPR values are physical environment, premises, and ergonomics. Various studies such as Rahayuningsih (2019) and Ushada & Okayama (2018) mentioned the relatively poor working conditions of small businesses, including hot environment and poor work postures. These were also understood in the observed workplace of this study, such as hot working conditions, noisy environment, inappropriate work postures, and poorly-designed equipment. The high IPR values indicate that these aspects need to be improved. This is similar to the suggestion by Ushada & Okayama (2018), that a hot working environment needs to be controlled. Rahayuningsih (2019) also suggested that extra caution or attention needs to be taken in operating a poorly-designed equipment, to avoid injury or accident.

As stated in the introduction section, this study was not aimed to formulate the recommendations for improvements of the working conditions. Rather, this study was aimed to explore the applicability of ILO-PATRIS as an instrument to observe the working conditions of an Indonesian small food-producing business. To formulate the more specific and practical recommendations for improvements, further study is needed. However, to have insights as to how the improvements may be done, some recommendations may be considered as follows. As discussed earlier, the provision of PPE should be the priority of improvement. The business should provide basic PPE for the workers, such as gloves or appropriate shoes. The business should consider reducing the heat exposure experienced by the workers. The business should also improve the cleanliness and housekeeping of the work area. Necessary emergency equipment, such as fire extinguisher or first aid kit, should also be provided by the business.

3.3. Applicability and recommendations of the use of ILO-PATRIS in Indonesian small food-producing business

This study has presented the applicability and usefulness of using ILO-PATRIS in observing the workplace of Indonesian small food-producing businesses. As discussed in the previous section, the ILO-PATRIS check sheet was able to yield a comprehensive description and analysis of the working conditions of Indonesian small food-producing businesses. This would present an alternative approach for researchers studying the workplace or working conditions of similar businesses.

In the potential application of ILO-PATRIS in an Indonesian small food-producing business, some considerations may be considered as in the following. Firstly, there was a consideration about the suitability of using all of the 29 monitoring items of the ILO-PATRIS check sheet. For example, the availability of showers is unusual and rarely found in Indonesian small food-producing businesses. Similarly, as most Indonesian small food-producing businesses are in informal organisation with a few workers, there is no delegation of safety responsibilities. This is also emphasised by Hasle & Limborg (2006) that implementing safety in small business is challenging, both formally and structurally. These could make the monitoring items irrelevant for Indonesian small food-producing businesses, which suggest a review of the suitability for future research.

Secondly, a focus group session was carried out to produce an agreement on the scores of the monitoring items among the respondents. Although this was useful and added more explanations to the scores, another step to yield an aggregate score of the monitoring items might be considered. The calculation of aggregate scores in similar methods such as the WISE may be considered, as demonstrated by Saputra & Kusmindari (2023).

Thirdly, this study concludes with the calculation of IPR values, showing the usefulness of ILO-PATRIS analysis to identify the category or monitoring item which needs to be prioritised for improvements. However, this study does not provide the specific recommendations for improvements, partly because of the inability of the ILO-PATRIS to do so. Therefore, it can be recommended that a similar study may be followed by another tool or method, to formulate the specific recommendations regarding the improvement of the work conditions.

Lastly, this study only involved one Indonesian small food-producing business. This makes the generalisation of this study should be interpreted carefully. However, it has been argued that the characteristics of Indonesian small food-producing businesses are similar, with regards to their manual tasks, work safety, and ergonomics (Silalahi et al., 2021). Therefore, it can be suggested that similar

studies using ILO-PATRIS or similar tools such as WISE or WISH may be conducted in similar businesses. By comparing the use of these similar tools in similar businesses, the applicability, advantages, and disadvantages may be understood in more detail.

4. Conclusions

It can be concluded that ILO-PATRIS would be applicable and useful as a tool to assist an observation of the work conditions of the workplace of an Indonesian small food-producing business. As presented in the results and discussion section, the ILO-PATRIS was useful to provide a description of several aspects related to the working conditions. It can be understood that, generally, the level of ILO-PATRIS score in the observed Indonesian small food-producing business is low. This refers to the aggregate score of 30 out of 58, indicating the need for improvements. Some aspects containing the score of 0 indicating the need for major improvement, are PPE, physical environment, and premises.

Additionally, the IPR analysis that was done on the ILO-PATRIS results was useful in providing an initial insight of improvements that can be done, in regards to the working conditions of the observed Indonesian small food-producing businesses. Based on the obtained IPR values, generally, the categories of PPE, physical environment, premises, and ergonomics are the categories which should be prioritised for improvement with IPR values of 1, 0.8, 0.75, and 0.75, respectively. The determination of IPR indicates that the analysis of ILO-PATRIS would be useful to give an insight of the improvements that may be needed. However, the specific recommendations for improvements of the work conditions need to be formulated with a further study.

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