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Original Article

The Correlations between Language Barriers and Occupational Safety and Health Communication: A Descriptive Study in Indonesia

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ABSTRACT

Introduction: Miscommunication can cause accidents in workplaces due to ineffective occupational safety and health (OSH) communication. There are many factors of ineffective OSH communication, one of which is the language barrier. The research aims to unveil the types of language barriers and their relation to the effectiveness of OSH communication in Indonesia.

Methods: A descriptive cross-sectional approach using a structured questionnaire was done in this research. The structured questionnaire survey was done among 102 workers in West Java, Indonesia. Spearman rho was used to determine the correlation between language barriers and effective OSH communication. The research was conducted between August and November 2022.

Results: All of the types of language barriers except vernacular correlate positively, strongly, and significantly to the effectivity of OSH communication ($0.50 \leq r \leq 0.699$, p-value < 0.05). Vernacular correlates positively, moderately, and significantly to the effectivity of OSH communication (r 0.497, p-value < 0.05).

Conclusion: Based on the findings, OSH communication should be communicated accurately, clearly, and concisely in a language that everyone can understand.

Keywords: Communication, Language barriers, Occupational health, Occupational safety, OSH

Introduction

In Indonesia, the Social Security Administering Body on Employment (BPJAMSOSTEK) reports that the number of total work accidents has been increasing by 22.11% for the past three years, from 182,835 cases in 2019 to 234,370 in 2021.[1] The number is apprehensive regardless not all of the cases cause fatality. The government has enacted Act Number 13 Year 2003 concerning Manpower Affairs which stated in Article 87 that any company is obliged to apply the OSH Management System to protect the safety of workers to achieve optimally higher productivity.[2]

To implement Article 87, the government has established the Regulation of the Government Number 50 Year 2012 known as OSH Management System.[3] This management system is in line with ISO 45001:2018, an international standard regarding OSH Management Systems. Within the standard, there is an aspect of OSH communication, which is routine communication regarding safety matters between stakeholders in an organization to improve safety in the workplace.[4] This aspect is very important because

it has the purpose of eliminating hazards and minimizing OSH risk.[5] The communication can be implemented through several methods including newsletters, emails, memorandums, caution signs, signposts, and other indications of safety.[6] Another aim of safety communication is making sure that everyone comprehends their roles and responsibilities concerning OSH, regardless of the safety managers play significant roles in ensuring all stakeholders are fully informed about OSH policies, practices, concerns, and other information.[4,7]

It is revealed that OSH communication mediates the association between safety culture and safety performance partially.[8] However, as mentioned earlier, accidents still happened due to the ineffectiveness of OSH communication. The ineffectiveness of communication can be caused by many factors, one of which is the language used. As conscious individuals who are aware of the existence of others, we utilize language as our primary tool to communicate and interact with them during every encounter.[9–13] Nevertheless, language remains the main impediment to effective communication due to the barriers it carries. Language barriers cause adversities in the capital market, healthcare, scientific community, and safety of workers.[14–17]

Language barriers avert people from comprehending each other which causes miscommunication; something that should be avoided especially when it comes to safety in the workplace. The Tenerife Tragedy, the deadliest accident in aviation history, is one of the examples of accidents due to miscommunication in the workplace. Language barriers or sometimes known as linguistic barriers appeared when at least two parties who do not share the same language try to communicate but failed to interpret the messages, leading to the absence of communication.[12] Considered as one the most impeding factors to communication, language barriers derive from foreign languages, dialects, pidgins, accents, jargon, slang, word choice, literacy, lexical, grammar, and spelling.[18] Language barriers create difficulties for workers in communicating occupational hazards and understanding OSH information, which may enhance the workers' exposure to OSH risks.[17]

In recent years, much research regarding language barriers has been conducted as well as safety communication. The research related to language barriers generally discusses immigrants' difficulties outside of Indonesia in communicating which caused them to have difficulty in getting access to health care.[9,10,19,20] Meanwhile, the research regarding safety communication generally discusses the use of communication for improving safety.[21–24] However, research regarding language barriers and their relation to effective OSH communication in Indonesia has not been widely disseminated. Hence, this research aims to reveal the correlation between language barriers, consisting of foreign language, vernacular, jargon, word choice, and spelling, and effective OSH communication in the Indonesian context.

Methods

The research employed a descriptive cross-sectional approach using a structured questionnaire which was developed based on the CoLB-q questionnaire and safety communication with some modifications relevant to the research.[25–27] The population of the study comprised outsourced security guards who worked for PT ABC, a security service company in Indonesia. PT ABC assigns its outsourced security guards to companies from various types of industries throughout Indonesia. The sampling method used in this study was purposive sampling, with the inclusion of those assigned to the power plant, as it posed the highest level of risk based on the hazard identification, risk assessment, and control determination (HIRADC) conducted by PT ABC.[28] The power plant mentioned was the DEF power plant, located in West Java, Indonesia. More than 70% of the stages of work carried out by the outsourced security guards in this power plant were classified as significant. One hundred and two (102) outsourced security guards were working at the DEF power plant who were the respondents in this research conducted between August and November 2022.

To obtain the data for analysis, an online questionnaire was distributed to the respondents. The respondents filled out the consent form before proceeding to the questionnaire. Since the respondents in this research are mostly Indonesians, the questionnaire was prepared in Indonesian, regardless of whether the original instrument was developed in English. Next, the questionnaire was pre-tested to ensure validity by discussing it with two experts in the field of OSH and a linguist. The questionnaire used a five-point Likert scale item; (1) strongly disagree, (2) disagree, (3) neutral (neither agree nor disagree), (4) agree, and (5) strongly agree.[28] After that, statistical analysis was used to test the validity (p-value < 0.05; valid) and reliability (Cronbach's Alpha > 0.7; reliable) of the items.[29]

The collected questionnaire was processed by the statistical software, Minitab 21. The approach used to determine the correlation between language barriers and effective OSH communication was Spearman's rho. The correlation coefficients of 1.00 or -1.00 implied a perfect correlation, which had never been discovered in any social science research.[30] Thus, the intervals were used to interpret the correlation. The coefficient ranging from 0.70 to 1.0 (or -0.70 to -1.0) was considered a very strong relationship; the coefficient ranging from 0.50 to 0.699 (or -0.50 to -0.699) was considered a strong relationship; the coefficient ranging from 0.20 to 0.499 (or -0.20 to -0.499) was considered as moderate relationship; and the coefficient ranging from 0.00 to 0.199 (or -0.00 to -0.199) was considered as a weak relationship.

The correlation between variables would be considered statistically significant if the p-value <0.05. The hypotheses for the research were (1) H_0: There is no significant positive correlation between language barriers (consisting of foreign language, vernacular, jargon, word choice, and spelling) and effective OSH communication and (2) H_a: There is a significant positive correlation between language barriers (consisting of foreign language, vernacular, jargon, word choice, and spelling) and effective OSH communication.

Results

The demographic profile of the respondents consisting of age, educational level, and working experience are shown below (Table 1). The age distribution of the respondents revealed that the majority (approximately 88%, n = 90) fell within the 20 to 50-year age range. Additionally, a significant proportion of the participants (79%, n = 81) reported having a senior high school educational background. Furthermore, more than half of the respondents (52%, n = 53) possessed work experience spanning a duration of 5 to 10 years.

Table 1: The age, educational level, and working experience of the respondents

Description	Characterization	Frequency
Age	> 50	6 (6%)
	40 to 50	27 (26%)
	30 to 40	32 (31%)
	20 to 30	31 (30%)
	< 20	6 (6%)
	Total	102 (100%)
Educational Level	Undergraduate Degree	2 (2%)
	Senior High School	81 (79%)
	Junior High School	19 (19%)
	Total	102 (100%)
Working Experience	> 10 years	4 (4%)
	5 to 10 years	53 (52%)
	3 to 4 years	36 (35%)
	1 to 2 years	5 (5%)
	< a year	4 (4%)
	Total	102 (100%)

Table 2: Validity test of language barriers

Types of Language Barriers	Statement	Correlation	P-Value
Foreign Language	I can only understand OSH procedures/instructions in Indonesian.	0.629	0.000
	Toolbox meetings and/or safety induction and/or safety talks are easier to understand in Indonesian than in foreign languages.	0.683	0.000
	OSH banners and/or bulletins are easier to understand in Indonesian than in foreign languages.	0.73	0.000
	OSH promotion should use Indonesian to make it easier to understand.	0.667	0.000
Vernacular	I have difficulty understanding when my colleagues speak their vernacular during working hours.	0.602	0.000
	My colleagues have difficulty understanding when I speak my vernacular.	0.651	0.000
Jargon	I understand the abbreviations for OSH, PPE, fire extinguishers, and first aid.	0.631	0.000
	Incidents and accidents are two different things.	0.671	0.000
Word Choice	Clear and concise writings on OSH banners and/or bulletin boards make it easy for me to understand the information.	0.692	0.000
	OSH signs without writing are more difficult to understand.	0.629	0.000
	The company's policy on OSH should be written as concisely as possible so that it is easier to understand.	0.704	0.000
	The colors of OSH signs should vary to make them easier to understand.	0.725	0.000
Spelling	The misspelling on the OSH banner and/or signs and/or bulletin boards makes it difficult for me to understand the information.	0.727	0.000
	Writing the wrong digits of accidents on the OSH bulletin boards make me misunderstand the information.	0.684	0.000

Table 3: Validity test of effective OSH communication

Description	Correlation	P-Value
There is a written OSH policy related to the prevention of work-related accidents & diseases at your workplace.	0.783	0.000
You know the person in charge of OSH at your workplace.	0.685	0.000
Information regarding OSH (including work accidents) is easy to get at your workplace.	0.797	0.000
OSH signs have been installed following the standards and technical guidelines at your workplace.	0.79	0.000
You receive instructions and training on emergency procedures appropriate to the level of risk.	0.715	0.000
Emergency instructions/procedures and emergency liaison are clearly and conspicuously displayed at your workplace.	0.774	0.000
There is a procedure for reporting hazards related to OSH at your workplace.	0.704	0.000
The warning signs for chemical hazardous substances are installed following the requirements of the relevant laws and/or standards.	0.707	0.000
Training is provided to all workers, including new and transferred workers so that they can carry out their duties safely.	0.801	0.000
The employer/ management provides refresher training to you.	0.778	0.000

Next, the result of the validity test for the variables used in this research is given in Table 2 and Table 3. From Table 2 and Table 3, the p-values for all of the items are less than 0.05. Thus, all of the items are valid.

The Cronbach's Alpha values in Table 4 are 0.8992 for language barriers and 0.9148 for effective communication, respectively. Both values are more than 0.7 implying that all of the items are reliable.

Table 4: Reliability test

Language Barriers	Effective OSH Communication
0.8992	0.9148

The result of the correlation between language barriers, consisting of jargon, word choice, foreign language, spelling, and vernacular, and effective OSH communication are presented below (Figures 1 to 5).

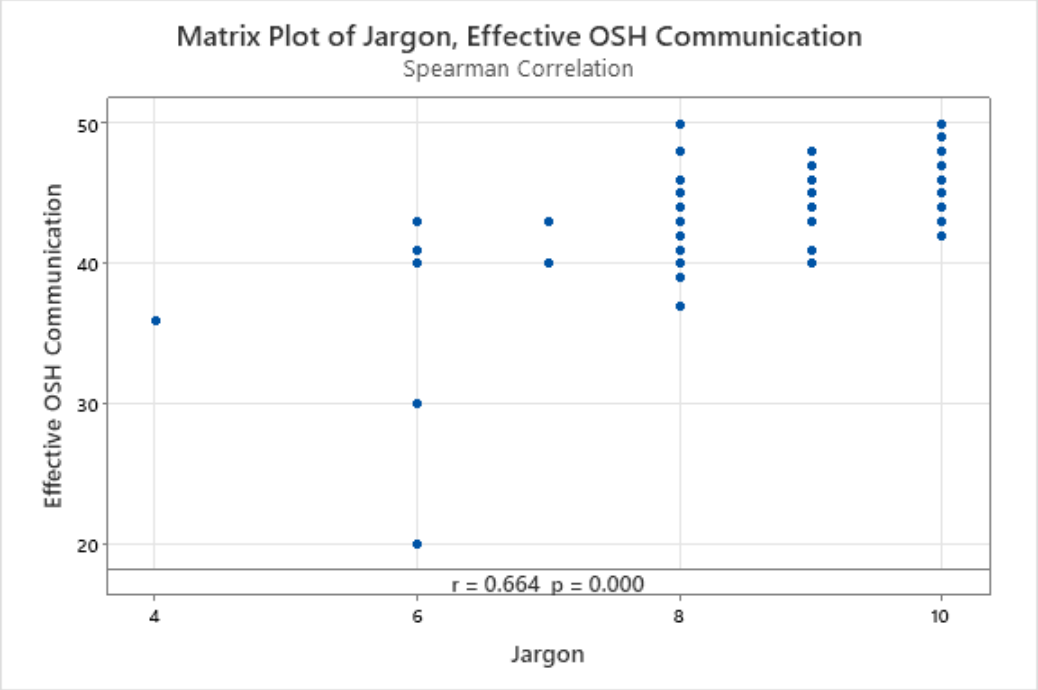

Figure 1: Correlation of jargon and effective OSH communication

Among the various types of language barriers, jargon exhibited the strongest and statistically significant correlation with effective occupational safety and health (OSH) communication, as indicated by a strong positive correlation coefficient ($r = 0.664$, $p < 0.05$) (Figure 1). The incorporation of jargon in OSH communication was commonly observed through the utilization of specific terminology, including OSH, personal protective equipment (PPE), fire extinguishers, first aid, accidents, and incidents. Consequently, the alternative hypothesis (H_a) is supported and accepted.

The subsequent factor identified in the study was word choice, which exhibited a strong and statistically significant positive correlation ($r = 0.622$, $p < 0.05$) with the effectiveness of OSH communication, as illustrated in Figure 2. This finding indicates that the selection of appropriate vocabulary plays a crucial role in facilitating successful OSH communication. The aspects of word choice examined in the study encompassed clear and concise writing styles, the presence or absence of written content on OSH signs, the extent of verbosity in written materials, and the use of colors. Therefore, the study's hypothesis (H_a) concerning the significant impact of word choice on OSH communication is supported by the empirical evidence obtained.

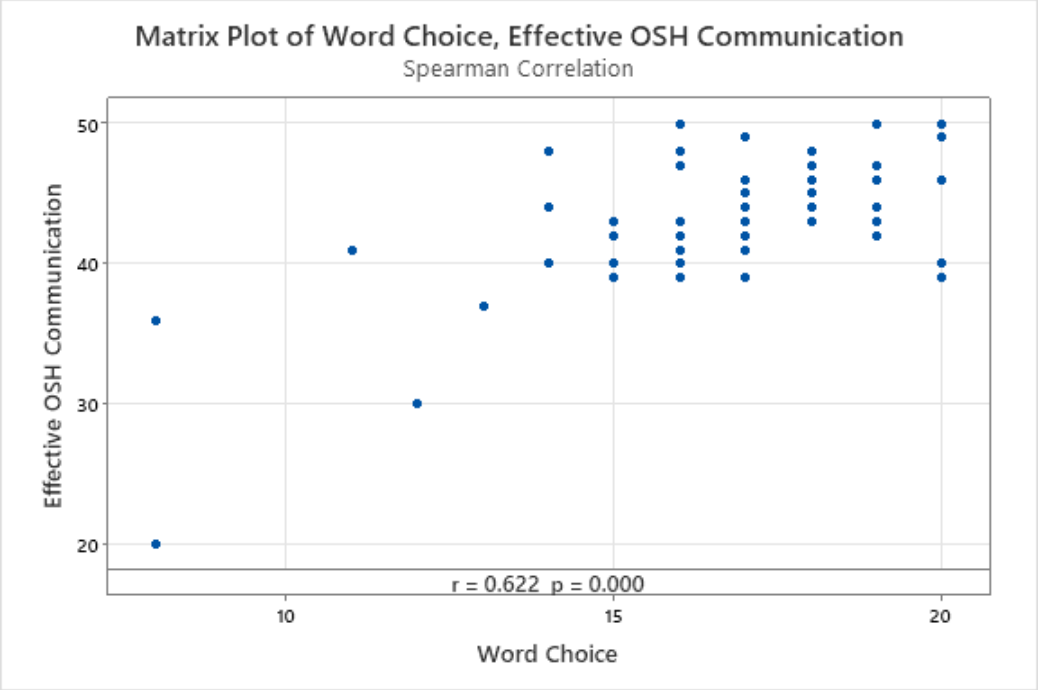

Figure 2: Correlation of word choice and effective OSH communication

Among the language barriers encountered, the third type identified was the presence of a foreign language. The analysis revealed a strong and statistically significant positive correlation ($r = 0.573$, $p < 0.05$) between the use of a foreign language and the effectiveness of OSH communication, as depicted in Figure 3. The use of a foreign language encompassed various aspects, such as the utilization of non-native languages in OSH procedures, instructions, toolbox meetings, safety inductions, safety talks, OSH banners, bulletins, and OSH promotional materials. Consequently, the hypothesis (H_a) positing the significant influence of foreign languages on OSH communication is supported by the empirical findings.

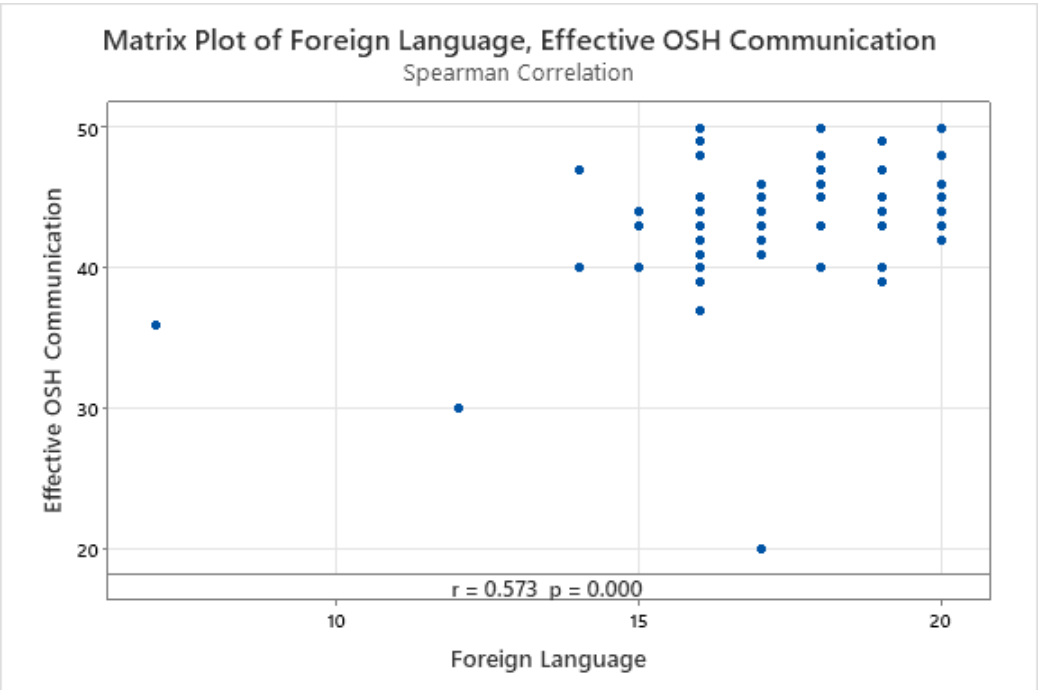

Figure 3: Correlation of foreign language and effective OSH communication

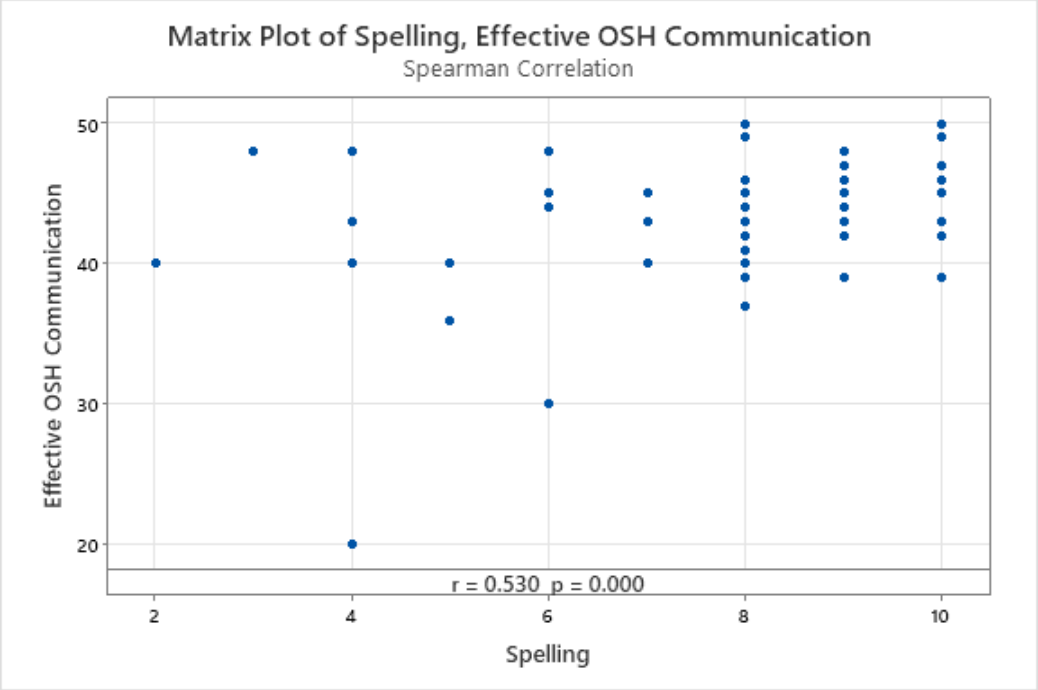

Figure 4: Correlation of spelling and effective OSH communication

Within the context of this study, the fourth category of language barriers identified pertained to spelling errors. Specifically, these errors manifested as misspelled words and/or digits found on various OSH media, such as banners, safety signs, and bulletin boards. The analysis revealed a strong and statistically significant positive correlation ($r = 0.530$, $p < 0.05$) between spelling errors and the effectiveness of OSH communication, as illustrated in Figure 4. Therefore, the hypothesis (H_a) proposing a significant impact of spelling errors on OSH communication is supported by the empirical evidence obtained in this study.

The final category of language barriers identified in this study pertained to the utilization of vernacular languages spoken among colleagues during working hours. The analysis indicated a moderate, positive correlation ($r = 0.497$) that was statistically significant ($p < 0.05$) between the use of vernacular languages and the effectiveness of occupational safety and health (OSH) communication. Consequently, the alternative hypothesis (H_a) is supported, as illustrated in Figure 5.

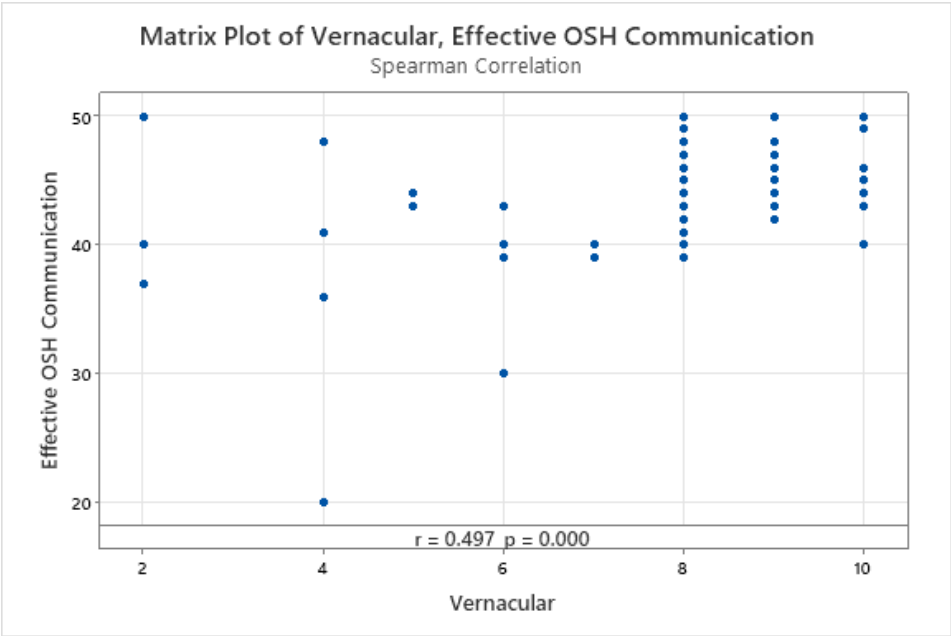

Figure 5: Correlation of vernacular and effective OSH communication

Discussion

Communication becomes ineffective when two people or more speak different languages which have no similarity, especially in terms of lexical. It is also applied not only to foreign languages but also vernaculars. The respondents of this research have difficulty understanding OSH communication when the messages are in a foreign language namely English because they speak Indonesian daily; sometimes vernacular which causes the same problem again. The research is in line with several studies regarding the language barriers that affect migrant workers.[9,17]

Distinct terms or expressions are something that people cannot avoid in the workplace; the failure to understand the terms or expressions will cause unintelligibility. In a workplace that has a high risk of accidents like a DEF power plant, unintelligibility should be avoided by using effective OSH communication.

Other types of barriers that can lead to ineffective OSH communication are wordy messages or writings, signs without descriptions and distinct colors, and misspellings or typos. Clear, concise, and accurate messages are the most preferable messages in communicating OSH to workers in every workplace. Otherwise, the OSH communication will become ineffective or fail. The result supports the study conducted by Buarqoub on language barriers to effective communication regardless he did not specifically mention the rest of the language barriers in the context of OSH.[12]

This research provides details on the types of language barriers in effective OSH communication and specifically discusses the context of OSH communication in Indonesia. However, the respondents in this study are only from one company and all of them are males which may not represent the overall population of workers in Indonesia. Based on the overall findings, the language barriers and effective OSH communication are strongly related, but the direct factors and causes are not scrutinized.

Conclusions

OSH communication is one of the most important aspects to encourage the workers' safety but an ineffective communication system leads to miscommunication. Ineffective OSH communication can be attributed to several factors, including language barriers as one of the significant contributors. Based on the results, the language barriers derived from a foreign language, vernacular, jargon, word choice, and spelling have a positive correlation with effective OSH communication. Thus, OSH communication should be communicated clearly, concisely, and accurately in a language that everyone can understand.

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