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Development of Instrument to Measure the Impact of COVID-19 And Movement Control Order to Safety and Health Competent Person and Training Provider

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ABSTRACT

The issue of pandemic COVID-19 is a matter of great concern as it will lead to mortality and its implication on social and economic damage are also devastating. The purpose of this study is to develop an instrument to measure the impact of Covid-19 and Movement Control Order (MCO) to Safety and Health competent person (SHCP) and training provider (TP) in Malaysia. The effects and consequences of the Covid-19 Pandemic and MCO among SHCPs and TPs will be studied so that necessary guidelines and standard operating procedures can be formulated and developed. The instrument is developed based on generally accepted principles of instrument development processes. The content of the instrument was derived through extant literature reviews and OSH expert's opinions. The pilot study responses were collected from 35 SHCPs and 5 TPs. The reliability and validity of the instrument were determined through Cronbach's Alpha and face and content validity. Face and content validity was high, and Cronbach's Alpha values range from 0.96 and 0.97. In conclusion, an empirically tested and the validated instrument has been developed to measure the impact of COVID-19 and MCO to SHCP and TP. The instrument demonstrated adequate reliability and validity and should be tested on a wider sample among SHCP and TP in Malaysia.

Keywords:
Covid-19, Movement Control Order (MCO), Safety and Health Competent Person (SHCP), and Training Provider (TP)

1. Introduction

Coronavirus is an ongoing pandemic that is causing fatalities globally. The outbreak started with the first case reported in Wuhan, Hubei, China, in December 2019 [1]. Individuals diagnosed with the disease experience fever, dry cough, fatigue, and occasional gastrointestinal symptoms that initially spread through social interactions. More than 2.1 million cases were reported worldwide as of 18th April 2020, and 5,305 cases were from Malaysia [2]. In mid-March 2020, Malaysia recorded a rapid increase in the number of positive cases. The statistics have shown that COVID-19 has spread exponentially across the world, prompting many countries to implement social distancing and lockdown/movement control orders. The Malaysian government has imposed a partial lockdown or

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known as the Movement Control Order (MCO) to help combat the COVID-19 pandemics, effective on 18th March 2020. During the MCO, the government, through the Malaysian National Security Councils (NSC) or *Majlis Keselamatan Negara* (MKN), conducted roadblocks throughout the country [3] to monitor the movement of the people and warned all MCO violators that they would be penalized [4]. Malaysia's military forces also joined hands with the Royal Malaysia Police (PDRM) to enforce MCO on 22nd March 2020. The MCO order was extended three times, each for a further two weeks, until 12th May 2020. On 13th May 2020, Malaysia moved into the Conditional Movement Control Order (CMCO). Meanwhile, on 8th June 2020, the government introduced the Recovery Movement Control Order (RMCO), which will run until 31st December 2020**.** This control is made under the Prevention and Control of Infectious Diseases Act 1988 and the Police Act 1967.

Crises fall hardest on the most vulnerable. Occupational safety and health (OSH) practitioners make up one such group, particularly when it comes to the social and economic impact of the virus pandemic. The COVID-19 emergency is affecting almost everyone in the world, regardless of age, income or country. However, Health and Safety Practitioners, as frontline professionals advocating for the OSH conditions at work, have a pivotal role in an organization. They are likely to be particularly hard hit by the economic fallout of the crisis since they have to attend any continuous education program (CEP) at least once in a year for renewal of registration.

Under Regulation 8 of the Occupational Safety and Health (Safety and Health Officer) Regulations 1997, OSH Officer, who is registered with the department, shall attend any continuous education program at least once in a year for renewal of registration. The definition of the CEP is mainly limited to attend courses recognized by the department with 15 CEP points. Department, however, has broadened the definition of CEP to six (6) activities, which will allow safety and health competent persons (SHCP) to conform with Regulation 8 [5]. The details of these new activities which bring CEP points can be found in Grading System Scoring Schedule. In other words, a competent person needs to acquire CEP points for renewal of registration regardless of the current pandemic situation. In that such situation, this will hinder the OSH competent person from gaining the acquired CEP. Thus the objective of the study is to identify the effects of Coronavirus Disease (COVID-19) and MCO on competent person careers and training providers operations by developing a reliable and valid instrument.

2. Literature Review

Several provisions in Arahan Pematuhan Kepada Akta Keselamatan dan Kesihatan Pekerjaan (AKKP) 1994 Berkaitan Langkah - Langkah Pencegahan Terhadap Wabak Jangkitan Coronavirus Diseases 2019 (COVID-19) Di Tempat Kerja [6] dated 4th March 2020 and its recommendation offer prevention and protection measures to mitigate the negative safety and health effects of pandemics such as COVID-19 in the workplace. Therefore, SHCP and TP as an OSH professional at the workplace need to take appropriate measures to protect workers – so far as is reasonably practicable – from the occupational risks of contagion to the infectious disease, SHCP and TP should carry out and lead a risk assessment. The findings of a study regarding industry requirements on competent persons (CP) in enhancing the occupational safety and health (OSH) level towards advanced country status by NIOSH have shown that SHCP in Malaysia in 2016 has matched the roles and tasks played by occupational and occupational health practitioners in developed countries based on data in 2006.

Among the role items and tasks referred to are the task of identifying the problem and analysis, developing and implementing the OSH solution, training, information and communication, inspection and research, emergency and recovery procedures, work related to the development of legal and management and finance related to OSH and finally knowledge management. While SHCP knowledge

management items in Malaysia are only slightly different from developed country data, the findings show that SHO Malaysia is 70% compared to the United Kingdom of 73%, Singapore by 75% and Australia 72%.

However, items related to the task of emergency procedures and SHO data recovery in Malaysia are higher than developed countries, namely SHO Malaysia by 74% compared to the United Kingdom at 40%, Singapore at 50%, and Australia at 39%. This situation indicates that occupational safety and health practitioners in developed countries are less involved in emergency-related tasks. It can be said that what is practiced by SHCP in Malaysia now is already equal to what is practiced in developed countries. Although some of the roles and tasks of SHCP Malaysia have exceeded the role played by developed countries. However, this should not be a reason to feel comfortable because the data compared is the roles and tasks played by developed countries in 2006 due to constraints of data sources obtained from secondary sources. However, it can be used as a benchmark to organize and plan to improve further the quality and role of SHCP and TP tasks in Malaysia, especially in facing the problems of COVID-19 pandemic and post-MCO.

3. Methodology

3.1 Construction of Instrument

The instrument consisted of 36 items with six main sections: (A) demographics of respondents, (B) general impact of COVID-19 and MCO, (C) employer cooperation, (D) competent license of SHCP, (E) effect of COVID-19 and MCO to TP registered with DOSH Malaysia, and (F) suggestion and recommendation from respondents. In section C of question number four, the level of readiness in terms of knowledge (components number 1-6) and capacity (components number 7-17) of employers, as well as SHCP in curbing the spread of COVID-19 and compliance during MCO, is assessed through 17 components found in the items.

3.2 Validity and Reliability

To ensure content validity of the instrument, Focus Group Discussion (FGD) was conducted. Expert panels from academia and OSH practitioners were asked to review the instrument in two aspects. The first is semantic, the sentence compatible with the target population (SHCP and TP in Malaysia), and content. The items are suitable and adequate to verify the objective of this study. The instrument were edited and corrected based on the comment of the team of experts.[7]. 10% of the required sample size was used in the pilot study to ensure face validity and reliability of the instrument. A total of 40 respondents were chosen randomly from various sectors to determine if the respondents understand the content of the instrument. The reliability of the instrument has been assessed by using Cronbach's alpha (α) considering the minimum value of 0.6 [8].

3.3 Respondents

Pilot testing was conducted by using a convenience sample of 40 respondents. They were asked to provide responses and opinions about questions that were difficult to understand. Finally, questions identified as being difficult to understand were edited and revised. Meanwhile, a full-blown survey involving 318 respondents from registrants of DOSH database was carried out.

3.4 Statistical Analysis

For analysis, the data were entered and processed using SPSS 22.0 software. Descriptive statistics consist of mean and standard deviation (SD) was carried out. The mean and the SD were calculated for each of the Likert scale questions. Perceived weak knowledge was defined as a mean between 1.00 and 2.99. Perceived moderate knowledge was defined as a mean between 3.00 to 3.99, and perceived strong knowledge was defined as a mean between 4.00 and 5.00. This was applied for both individual items and overall score. Frequencies analysis were conducted for demographic variables.

4. Results and Discussions

4.1 Construction of The Instrument

The objective of this study is to develop an instrument to assess the impact of COVID-19 and MCO by measuring SHCP and TP perceptions on different aspects. Developing a valid and reliable instrument involves taking several significant steps. This study sets out the sequential stages involved in the development and testing of the instrument used to collect data. Figure 1 shows the five sequential stages involved in the development and testing of the instrument. Each stage depends on fine-tuning and testing. Previous stage that must be completed before the next stage is taken. A brief description of each of them is shown in Figure 1.

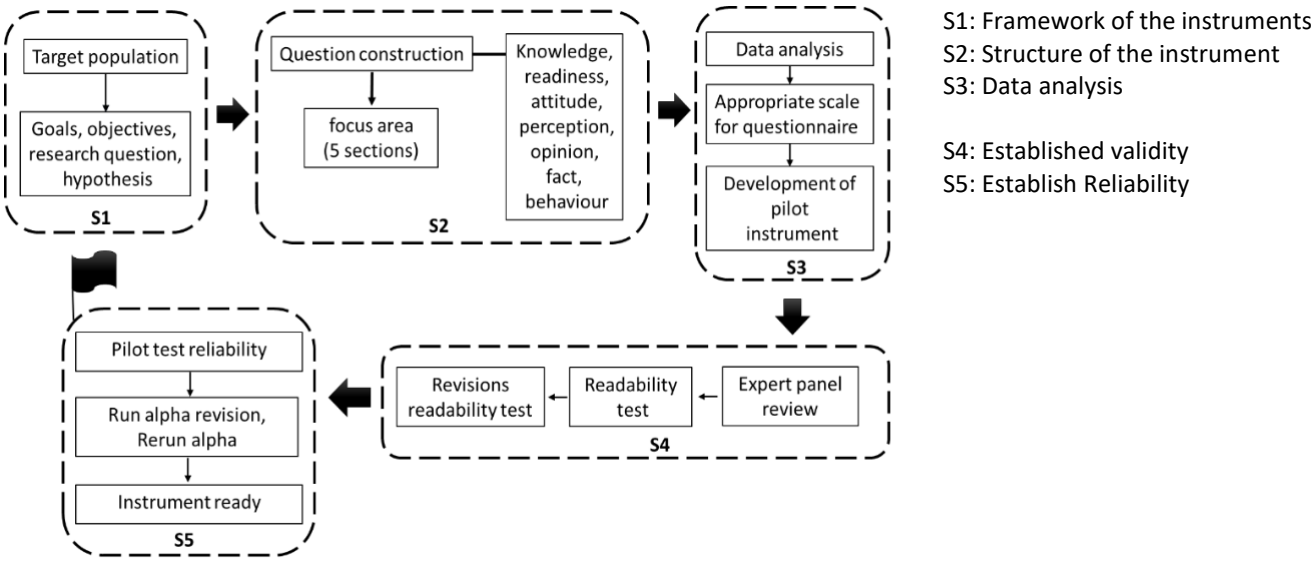

Fig. 1. Simplified graphical illustration of the process of instrument development

Firstly, is to examine the goals, objectives, research questions, and hypotheses of the proposed research. Part of this process is deciding who is the target respondent, their background, particularly their demographic levels. A thorough understanding of the problem through extensive literature search and review is crucial. Proper preparation and understanding of stage 1 provide the basis for stage 2. Next is to generate questions for the instruments. In this stage, the content extracted from the literature/theoretical framework is transformed into structures of the questions being developed.

Additionally, a link is established between the study objectives and their translation into the content. In stage 3, the emphasis is on writing questions, choosing the correct measuring scales, layout of the instruments, format, question order, front and back cover, and proposed data analysis. Scales are devices used to quantify a subject's response to a particular variable. As in stage 4, a draft

instrument is developed. In this study, validity of the instrument is established using panel of experts from academics and OSH practitioners.

In stage 5, the reliability of the instruments using a pilot test is carried out. Reliability refers to random error in measurement. Reliability indicates whether the measuring instrument is precise and accurate [9]. This instrument consist of six sections and 43 items. The six sections, are crucial in order to understand the impacts of the pandemic and MCO in Malaysia.

Section A is a demographics section that will solicit information on qualification, age group, type of sector, work status, company category, and competent person category. The organizations were selected from the directory of the public sector and private sector, ensuring confidentiality and anonymity of every response. The organizations selected for pilot study cover diverse fields, in conformance with research objectives and the willingness of the industry practitioners to participate in this study.

Section B contained five multiple-choice questions based on the general effects of COVID-19 outbreaks and MCO. Studies show that the outbreak of the COVID-19 pandemic and MCO has harmed a competent person's career, finances, and quality of life. The majority of respondents believed that competent persons prepared in terms of knowledge, skills, SOP screening, and social distancing as well as essential equipment to control the spread of the COVID-19 outbreak in the workplace.

Section C was designed to access the willingness of employers and organizations to address the post-MCO using a combination of multiple choices and five points Likert scale questions. Among the points of concern are the questions of the willingness of employers to provide a budget to cover the daily costs of decontaminating operations, the use of PPE, space provision, and other screening facilities.

Section D includes a 10-item on competent person and training provider licensing. The findings of the study found that the majority of respondents had problems renewing their SHCP licenses with the Malaysian DOSH, and one of the main constraints was inadequate CEP points. SHCP also states that their careers may be affected if the license fails to renew. The majority of respondents suggested that the number of CEP points should be reduced and that the mechanisms for the CEP score should be diversified.

Section E, a 10-item measure on the impact of COVID-19 and MCO on educators, this section found that the majority of the DOSH certified training providers (TP) said their companies were severely affected and that some had to lay off workers without pay. Many programs had to be canceled, causing TP to suffer significant losses and to disrupt the company's image. The majority of TPs are capable of organizing online courses but have issues regarding the recognition of DOSH and HRDF issue.

Section F, in order to determine content validity of the instrument, expert panels were asked to provide comments and feedbacks on the accuracy and comprehensiveness of the instrument questions, the suitability of the scale items used and the readability of the questions.

4.2 Instrument Administration

A total of 40 respondents (n=35 for SHCP and n=5 for TP) from various sectors completed the instrument, e.g., construction, manufacturing, finance, insurance, real estate, and business services, and public services and statutory authorities. The construction and public and statutory authorities sectors recorded the highest percentage of responses as compared to other sectors at 65 % and 54 %, respectively. The organizations are a mix of small medium-sized enterprises (47%) and large establishments (53%).

4.3 Analysis and Discussion

The instrument's reliability depends on how well these items represent the same construct. In this analysis, the Reliability Coefficient or Cronbach's α is used to measure the internal consistency [8]. This Cronbach's α was developed in 1951 by Lee Cronbach to provide a measure of the test's internal consistency. The α reliability coefficient of the Cronbach usually is between 0 and 1. The coefficient of reliability of 0.6 is considered appropriate as per the rule of thumb. If the value of the α of Cronbach is less than 0.6, the α of a bad Cronbach is recommended to rewrite/rephrase questions and change their objects. George and Mallery [10] have mentioned the thumb rules for Cronbach's α values 0.9 – Incredible, 0.8 – Nice, 0.7 – Acceptable, 0.6 – Controversial, 0.5 – Bad, and 0.5 – Unacceptable. This study showed high reliability, with a Cronbach's α score of 0.95 and 0.96 for SHCP and TP, respectively.

The validity of a measure is defined as the extent to which it measures what it is intended to measure. Face validity refers to the degree to which a measure "appears" in order to assess what it is to be measuring. This is possibly the worst way of trying to demonstrate construct validity. Proper wording understandable to SHCP, and TP is used in the construct to enhance face validity. The face validity of the instrument was high following the editing and modification of the instrument. The criteria used to modify the instrument includes ensuring that the responses for each question in Section B are five answers so that it is easy to do analysis and interpretation. The choice of answers is ONLY ONE and arranged to form an order of responses (1 = most negative, 2 = negative, 3 = normal, 4 = positive, 5 = most positive). Some of the questions were rephrased so that it will reflect the existing knowledge and practice of TP and SHCP on the issue of COVID-19 and MCO. The responses were also revised to the Likert scale as such that the readiness of SHTP and TP will be evaluated more comprehensively. The face validity of all 43 items was found to be good as they can measure the impact of MCO and pandemic COVID-19. In content validity, one essentially checks the operationalization against the relevant content domain for the construct. Thus, content validity depends on how well the researchers created measurement items to cover the content domain of the variable being measured. The content domain of the variable were based on comprehensive review of the literatures and the screening of academics and OSH practitioners.

5. Conclusion

In this study, the empirically tested reliable, and valid instrument has been developed based analysis of pilot testing samples. In general, an excellent Cronbach α was obtained. Next research may be required to corroborate these pilot testing results from a larger data set. The findings from the larger data sets will be used as inputs to the DOSH Malaysia to measure the effect of COVID-19 on competent person and training provider for policy plan formulation.

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