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Evaluating the COVID-19 Preventive Measures Practised at Two Petrol Stations in Johor Bahru, Malaysia

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Abstract

In conjunction with the pandemic situation of COVID-19 around the world, the Prime Minister of Malaysia announced the first Movement Control Order (MCO) in March 2020 which forbade mass gatherings activities and international travels. The MCO imposed the closure of most sectors and premises except for essential sectors and services, including petrol pump stations as listed by the Ministry of Domestic Trade and Consumer Affairs of Malaysia under strict standard operating procedures (SOPs). The transmission of COVID-19 at petrol pump stations is one of the biggest concerns due to the high traffic and frequent visits by many individuals. The existing COVID-19 preventive measures at petrol pump stations were compared with safe work procedures for the prevention of COVID-19 in the workplace from the literature review from various sources. The results conclude that workers at Station A have better safe practices on COVID-19 preventive measures compared to those at Station B with a higher percentage of safe practices for most of the questions listed. The analysed data collected through the observations were used as input to evaluate the practicality of existing COVID-19 preventive measures at petrol pump stations among workers and customers based on the frequency of safe and unsafe practices conducted. The activities with a high frequency of unsafe practices were used as input to propose a framework of COVID-19 preventive measures specifically for petrol pump stations in Malaysia to increase the practicality of such measures.

Keywords: COVID-19; Movement Control Order; Preventive Measures; Petrol Stations; Safe Work Procedures.

1.0 INTRODUCTION

COVID-19 has become a global concern since the first human case of COVID-19 was reported in December 2019 in Wuhan, China. The COVID-19 virus, which was temporarily named “2019-nCoV”, comes from a large family of coronaviruses (CoV) that commonly cause illnesses ranging from the common cold to more severe diseases. In early 2020, the number of cases in 18 countries outside China was 98 with no death cases reported. Unfortunately, the World Health Organization (WHO) Director-General declared COVID-19 a pandemic in March 2020 due to its widespread nature with more than 118,000 cases and 4291 deaths recorded in 114 countries. Since the emergence of the virus, WHO has advised the public to take preventive measures against COVID-19 to stop its spread all over the world. In conjunction with the pandemic situation of COVID-19 around the world, the Prime Minister of Malaysia announced the first Movement Control Order (MCO) in March 2020, which forbade mass gathering activities and international travels. In addition, the MCO imposed the closure of education sectors and many premises including worship houses and business premises, except for essential stores (i.e., supermarkets, public markets, and convenience stores) and essential services [1].

The petrol pump station is one of the essential services listed by the Ministry of Domestic Trade and Consumer Affairs of Malaysia and was allowed to conduct business during the MCO period on strict Standard Operating Procedures (SOPs) [2]. The risk of COVID-19 exposure at petrol pump stations was found to be low, but preventive measures recommended by WHO and the government must be followed at petrol pump stations. The virus may be transmitted at petrol pump stations through contact surfaces; for example, if an infected individual sneezes or coughs and the droplets land on common things like nozzles, automated teller machines (ATMs), or door handles at the stations, or if the individual touches these places. Hence, good hygiene practices must be applied at petrol pump stations to avoid the spread of the COVID-19 virus [3]. The transmission of COVID-19 at petrol pump stations is one of the biggest concerns due to the high traffic and frequent visits by many individuals from many places. In addition, necessary precaution needs to be taken during the use of common facilities in petrol pump stations like nozzles, toilets, convenience stores, and ATMs as COVID-19 can be transmitted via surfaces contaminated by the virus [4]. As reported by WHO, this virus may infect those who touch their eyes, nose, or mouth without properly cleaning their hands after touching the contaminated surfaces.

In the "Safe Work Procedure for Prevention of COVID-19 at Workplace" guideline by Malaysian Department of Occupational Safety and Health [5] encouraged all sectors to follow the preventive measures listed, which include wearing a facemask all the time, screening for symptoms, measuring body temperature, practising physical distancing among employees, washing hands frequently, and cleaning and disinfecting the workplace regularly. However, the guideline was insufficient to prevent the spread of the COVID-19 virus at petrol stations since there have been several closures of petrol pump stations for sanitisation purposes due to close contact cases among petrol pump workers with positive patients.

The implementation of preventive measures at petrol pump stations is sometimes neglected due to the absence of specific guidelines for the prevention of COVID-19 spread. For example, to ensure physical distancing inside convenience stores at the petrol pump stations, the maximum number of customers allowed inside the store is determined by the stations. Unfortunately, even though the notice on the maximum number of customers is displayed outside the store, most customers are not aware of the notice, which results in the number of customers inside the store exceeding the allowable limit. Hence, to overcome the problem, each station needs to ensure the presence of workers responsible to control the number of customers inside the store. Besides that, studies on COVID-19 prevention at petrol pump stations in Malaysia are lacking compared to other sectors. Hence, this study investigates the preventive measures at two different petrol pump stations in Johor Bahru using thorough observations with the support of literature reviews which later can be used to improve the existing preventive measures against COVID-19 at petrol pump stations. This study aims i) to compare existing COVID-19 preventive measures at two different petrol pump stations in Johor Bahru with general safe work procedures for the prevention of COVID-19, ii) to evaluate the practicality of existing COVID-19 preventive measures among workers and customers at these petrol pump stations, and iii) to propose a framework of COVID-19 preventive measures specifically for petrol pump stations in Malaysia.

Existing COVID-19 preventive measures at two petrol pump stations were compared with general safe work procedures for prevention of COVID-19 at the workplace through literature reviews. The data were collected through observations at two petrol pump stations in Johor Bahru, Johor. Observers were selected among the petrol pump workers and the COVID-19 prevention checklist was given to the observers as they observe the situation at the petrol pump stations. Data collected from the observations were analysed using SPSS Statistics version 26 to evaluate the implementation of COVID-19 preventive measures at petrol pump stations. Findings from the data analysis with the support of literature review were used to investigate and improve the existing guidelines. Hence, better preventive measures were proposed to maximise the prevention of COVID-19 spread at petrol pump stations.

2.0 METHODOLOGY

The research methodology included the comparison between existing COVID-19 preventive measures at petrol pump stations with safe work procedures for prevention of COVID-19 at the workplace, which was conducted through literature review, collection of data through observations with COVID-19 prevention checklists at two petrol pump stations in Johor Bahru, Johor by the petrol pump workers, analysis of data from the observations using SPSS Statistics version 26 to evaluate the implementation of COVID-19 preventive measures at petrol pump stations, and investigation on inadequacy in existing guidelines using literature review to propose better preventive measures for COVID-19 at petrol pump stations. The general flow of research methodology is summarised in the flowchart in Figure 1.

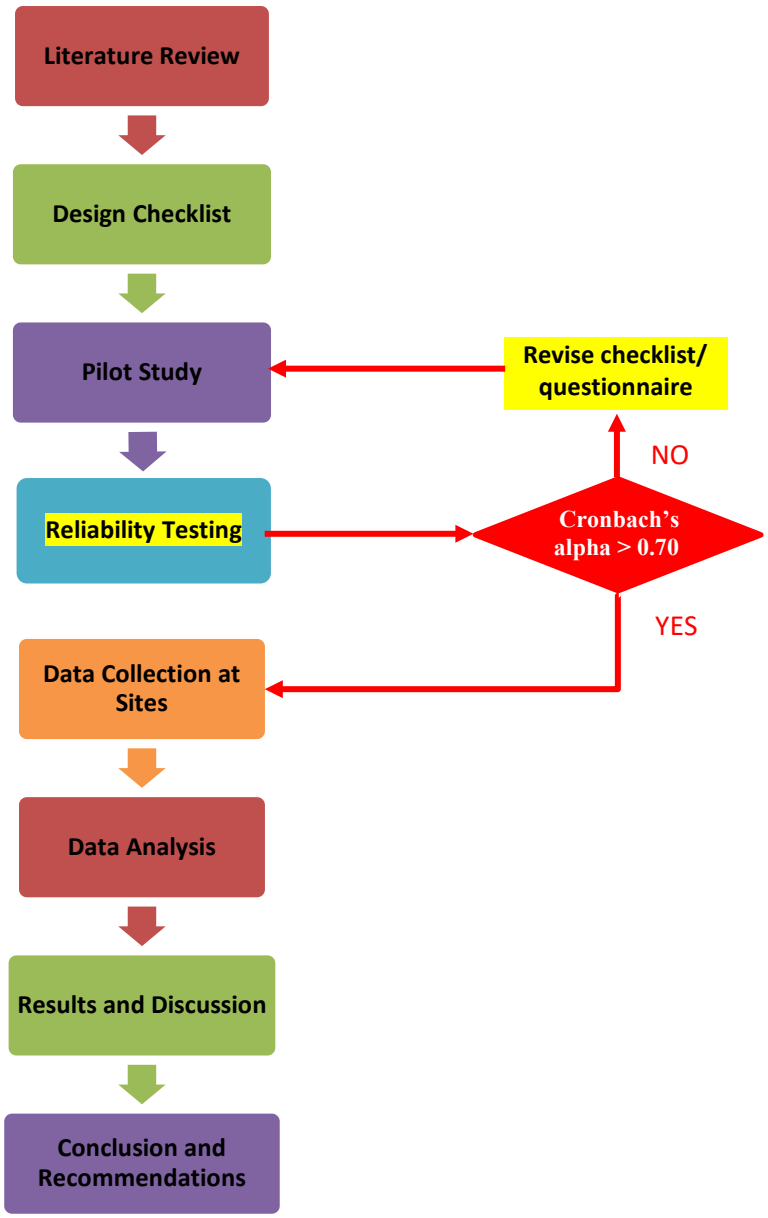

Figure 1. Flowchart of the study.

2.1 Literature Review

The study drew on resources that describe COVID-19 preventive measures made by various organisations like the World Health Organization (WHO), Malaysian Ministry of Health, Ministry of Domestic Trade and Consumer Affairs, Department of Occupational Safety and Health (DOSH) Malaysia, and American Petroleum Institute (API). The aforementioned resources are obtained from open access sources and readily available to public such as https://covid19.who.int.

2.2 Checklist Design for Observation

The study implemented the process of a Behaviour-Based Safety tool [6-7] for COVID-19 prevention at petrol pump stations. The study aims to determine the real practices of at-risk behaviours and unsafe acts committed by petrol pump workers and customers at petrol pump stations in Johor Bahru, Johor. The observation activities focused on personal preventive measures among the employees and customers. The activities listed were based on the SOPs made by the World Health Organization (WHO), Malaysian Ministry of Health, Ministry of Domestic Trade and Consumer Affairs, Department of Occupational Safety and Health (DOSH) Malaysia, and American Petroleum Institute (API). A pilot test was conducted among petrol pump workers to determine the validity and reliability of the checklist by obtaining the Cronbach's alpha values (> 0.70).

2.3 Subjects and Data Sources

This study employed a universal sampling whereby all petrol pump workers at two petrol pump stations in Johor Bahru, Johor observed each other via peer observation. These two petrol pump stations were selected because only these two stations gave permission to collect data for the study. Besides that, all workers observed the customers' behaviour during their visit to the petrol pump station. The observation was based on the checklist designed specifically for COVID-19 prevention at petrol pump stations and conducted within three weeks.

2.4 Instrumentation

The checklists for workers and customers consisted of two parts of observer's details and observation activities. The observer's details included the name of the observer, the time of the observation, and the number of employees or customers observed. Meanwhile, observation activities consisted of a list of COVID-19 preventive measures that needed to be followed by the employees and customers at petrol pump stations such as scanning MySejahtera, wearing a face mask, washing hand regularly, disinfecting common surfaces, using gloves, practising physical distancing, and others. For each activity, the observer was required to identify and record safe and unsafe behaviours practised by other workers and customers. The checklist was printed and distributed among the petrol pump workers. All workers were introduced and briefed about the study conducted and the checklist before the observations began with the help of the supervisors from each station. The workers were instructed to observe their colleagues and customers on the COVID-19 preventive measure practices as listed in the checklist. The observation feedback received was recorded and analysed using SPSS Statistics version 26.

2.5 Statistical Analysis

The observation was conducted within three weeks at two pump stations in Johor Bahru, Johor. The data collected from the checklist was recorded and analysed using Microsoft Excel and SPSS. In the analysis, the total number of observers who participated will be calculated using Eq. 1. Next, the total number of feedbacks observed for each activity was calculated using Eq. 2. Finally, Eq. 3 was used to calculate the total safe or unsafe practice observed in the percentage using the outcome from the previous two calculations.

$$Total\ participation\ of\ employees = Observer\ 1 + Observer\ 2 + \cdots + Observer\ n \quad (1)$$

$$Total\ safe\ or\ unsafe\ practice\ observed = Feedback\ by\ Observer\ 1 + Feedback\ by\ Observer\ 2 + \cdots + Feedback\ by\ Observer\ n \quad (2)$$

$$Total\ safe\ or\ unsafe\ practice\ observed\ in\ percentage = \frac{Total\ safe\ or\ unsafe\ practice\ observed}{Total\ participation\ of\ employees} \times 100\% \quad (3)$$

The observers' sociodemographic details were summarised using descriptive analysis. The significant difference in observation activity of workers and customers between two different petrol pump stations was determined using the Mann–Whitney U test. Then, the practicality of COVID-19 preventive measures at petrol pump stations were evaluated. From the results, the inadequacies in the safety measures were identified among the activities with highly unsafe practices.

2.6 Input of Framework

The input retrieved from data analysis was differentiated between safe and unsafe practices conducted at petrol pump stations during the COVID-19 situation by the employees and the customers. The unsafe practices identified throughout the analysis were used as the input for the framework analysis for COVID-19 preventive measures at petrol pump stations. This framework aims to improve the COVID-19 preventive measures with better safety measures to maximise the protection among the workers and customers against COVID-19 infections.

3.0 RESULTS AND DISCUSSION

3.1 Pilot Study and Reliability Test

A reliability test for the checklist was conducted among eight petrol pump workers from Station A. The outcomes of the pilot study were utilised to improve the checklist by removing, modifying, or adding questions to the checklist, which was later used during the data collection at Stations A and B. The test results are presented in Table 1. The total observation activity shows significant reliability, yielding a Cronbach's alpha coefficient value of 0.836. This value is

higher than 0.7, indicating it as reliable [8].

Table 1. The results of reliability test of the pilot study.

Section	Number of Items	Cronbach's Alpha
Observation activity for workers	15	0.799
Observation activity for customers	14	0.635
Total observation activity	29	0.836

3.2 Literature Review

The existing COVID-19 preventive measures at petrol pump stations were compared with general safe work procedures for prevention of COVID-19 at the workplace through literature review. The results are summarised in Table 2. Guidelines from WHO (2020), MyHEALTH (2020), and DOSH (2020) focused more on activities at workplaces in general, compared to more detailed SOPs on essential services by the Ministry of Domestic Trade and Consumer Affairs (2020) and specific guidelines for petrol pump stations by the American Petroleum Institute (2020) and Shell Trading Sdn. Bhd. (2021).

3.3 Data Analysis

3.3.1 Sociodemographic Characteristics

The distribution among gender of 14 observers (petrol pump workers), time, and the number of workers and customers observed by the petrol pump workers are summarised in Tables 3, 4, and 5 respectively. As shown in Figure 2, both stations have more female workers which are 75% in Station A and 66.7% in Station B, while the remaining 25% in Station A and 33.3% in Station B are male workers. Female workers usually work as cashiers, while male workers work as pump attendants at the petrol pump stations. Figure 3 presents the time of observation by the respondents starting from 6.00 am to 11:59 pm. Both stations showed a high percentage of employees and customers observations from 8.00 pm to 9:59 pm due to non-peak hours of the stations. A low percentage of observations is identified from 10.00 pm to 11:59 pm because it is near to the closing time and the workers would be commonly occupied with the closing tasks. Table 5 summarises the mean number of workers observed for Station A, which is 3.897 ± 1.589 and 3.375 ± 1.088 for Station B. Most of the time, only three to four workers were on duty for each shift (morning/evening). On the other hand, the mean number of customers observed for Station A is 8.722 ± 9.340 and 7.750 ± 4.703 for Station B, which indicates that an average of seven to eight customers visited the petrol station within the time range.

Table 2. Summary of COVID-19 preventive measures recommended for petrol pump stations.

Author and Year	Objectives	Preventive Measures
WHO (2020) [9]	• To practise preventive measures against COVID-19 from continuing to spread all over the world • To encourage people to adapt to the new normal	• Avoid the 3 Cs (crowded places, confined spaces, and close conversation) • Continue to practise protective measures • Continue to protect ourselves and others • Cover your coughs and sneezes with your flexed elbow to help prevent spread of virus • Wash your hands with soap and water or alcohol-based hand rub • Clean your hands before and after you touch your face
MyHEALTH (2020) [12]	• To remind public to break COVID-19 chain	• Avoid 3 Cs • Practice 3Ws (wash, wear, and warn)
Ministry of Domestic Trade and Consumer Affairs (2020) [2]	• To explain the essential services under the distributive trade sector during the first phase of total MCO nationwide	• List of sectors categorised as essential services during the MCO phase one period with the worker capacity and the SOPs (Gas station: 60% worker capacity) • Operating hours for essential services are from 8:00 am to 8:00 pm except for petrol stations, which are allowed to operate from 6:00 am to 8:00 pm and petrol stations on toll highways, which are allowed to operate 24 hours
Department of Occupational Safety and Health (2020) [5]	• To explain the safe work procedures for prevention of COVID-19 at the workplace	• Guidelines on the roles and responsibilities of the employer, coordinator, emergency response team, supervisor, and employees during a pandemic situation to all general activities at the workplaces except for working from home
American Petroleum Institute (2020) [3]	• To provide helpful information to help everyone protect themselves at gas pump in times of COVID-19	• Provide hand sanitiser to be used by customers after touching possible contaminated surfaces • Sanitise regularly to minimise virus transmission along with practising physical distancing between everyone • Wear face mask upon visiting the petrol pump station to prevent virus deposition through droplets and aerosol particles when coughing, talking, laughing, or sneezing
Shell Trading Sdn. Bhd. (2021) [13]	• To provide a guideline to be followed by all petrol pump stations during MCO phase one	• Operating hours for fuel stations/forecourt (6:00 am–8:00 pm), convenient stores (8:00 am–8:00 pm), and stations located at highway (24 hours) • Physical distancing practice for small shops (300–500 sq. ft): maximum 3 to 5 customers, medium shops (500–800 sq. ft): maximum 7 to 9 customers, and large shops (800 sq. ft above): maximum 11 to 14 customers • The number limit of customers is displayed together with *On-site COVID-19 preventive measures* sign at the shop entrance to inform employees and workers about the related information • The *Staff Health Board* sign, which comprises employees' names, temperature, and list of common COVID-19 symptoms like fever, cough, and flu, needs to be displayed at the entrance • The *Pump Health Board* sign must be displayed at each pump and needs to be filled by the person responsible after sanitisation activity has been done every hour • Follow the *Fully Vaccinated Guidelines* and ensure that only workers allowed those with permissible status to enter the shop area. • Guideline for handling customers with quarantine tag at petrol pump station is included in the company guideline

Table 3. Distribution of observers based on gender (n = 14).

Gender	Number of observers or respondents (%)	
	Station A	Station B
Male	2 (25.0)	2 (33.3)
Female	6 (75.0)	4 (66.67)

Table 4. Distribution of time of observation in Stations A and B.

Time	Number of observed workers and customers (%)	
	Station A	Station B
0600 – 0759	26 (11.7)	0 (0.0)
0800 – 0959	28 (12.6)	11 (19.6)
1000 – 1159	37 (16.6)	3 (5.4)
1200 – 1359	20 (9.0)	1 (1.8)
1400 – 1559	21 (9.4)	9 (16.1)
1600 – 1759	33 (14.8)	7 (12.5)
1800 – 1959	12 (5.4)	9 (16.1)
2000 – 2159	34 (15.2)	14 (25.0)
2200 – 2359	12 (5.4)	2 (3.6)

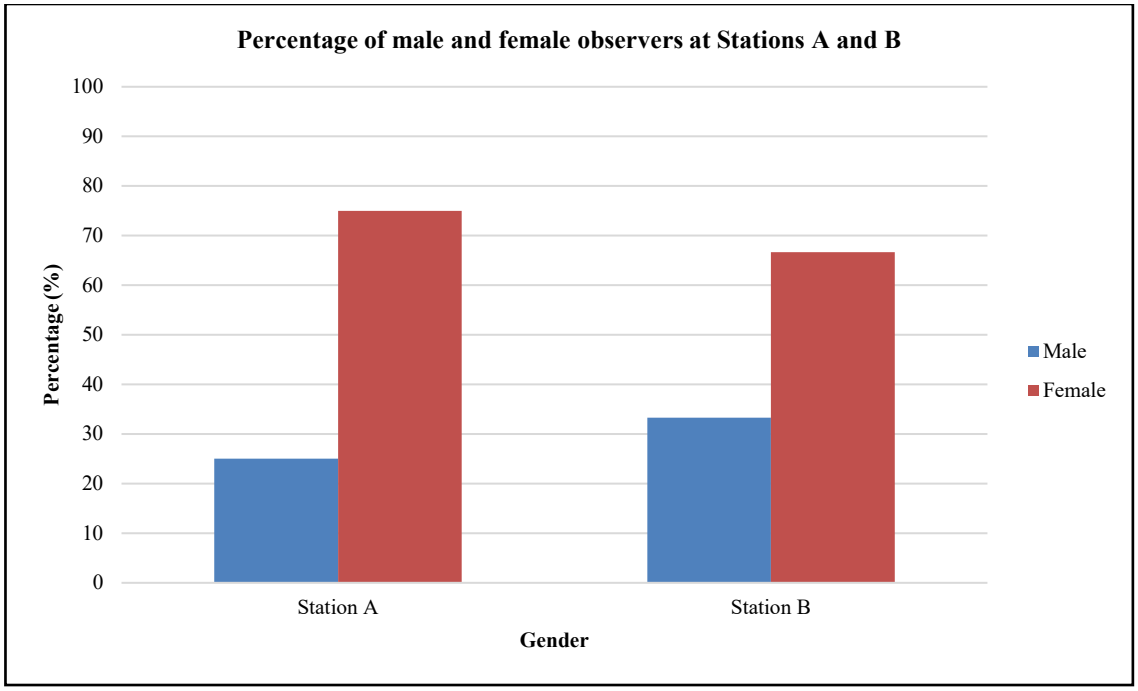

Figure 2. Percentage of male and female observers at Stations A and B.

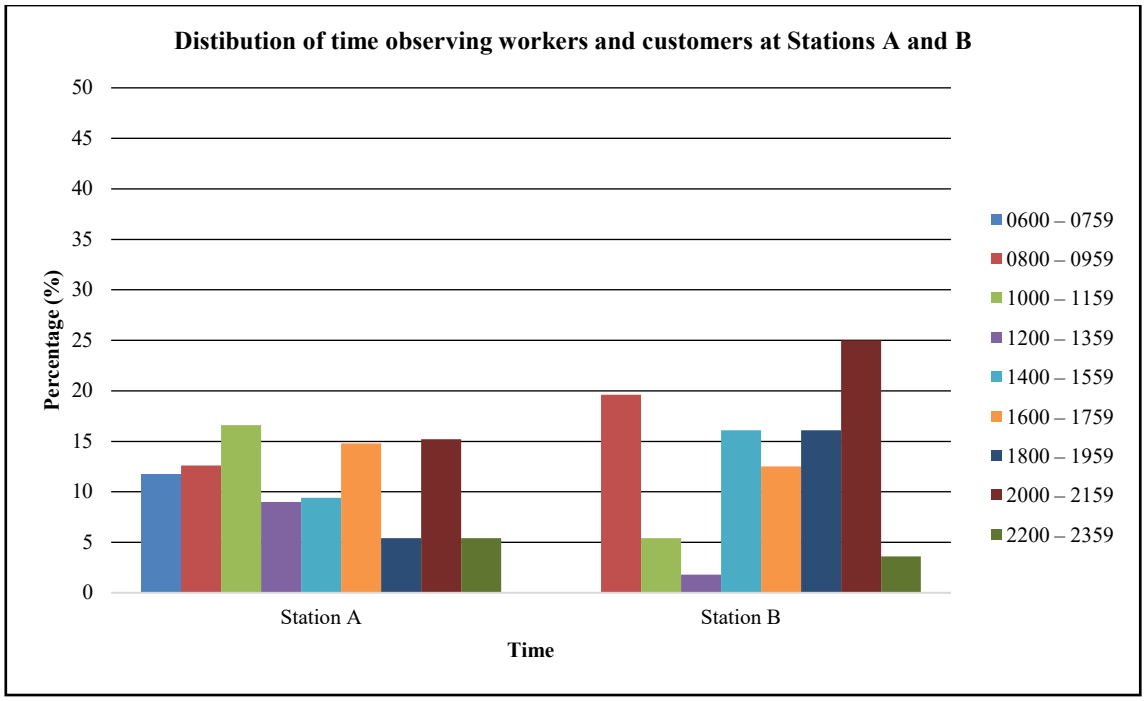

Figure 3. Distribution of time in percentage of observed workers and customers at Stations A and B.

Table 5. Mean number of workers and customers being observed.

Variables	Mean ± SD	
	Station A	Station B
Number of workers being observed	3.897 ± 1.589	3.375 ± 1.088
Number of customers being observed	8.722 ± 9.340	7.750 ± 4.703

3.3.2 COVID-19 Preventive Measures Practised by Workers

The distribution of COVID-19 preventive measures practised by workers of Station A and Station B is summarised in Table 6. As shown in Figure 4, the distribution of COVID-19 preventive measures practised by workers shows that Station A has good safe practices, in which most of the safe practice percentages were higher than 90% except for questions on sneezing or coughing into paper tissue or handkerchief (79.4%), sneezing or coughing into an elbow (61.0%), and disinfecting areas using disinfectant spray (82.5%). Meanwhile, Station B also has good safe practices as it obtained more than 89% in safe practice for most questions. However, there are also some unsafe practices by the workers of Station B, referring to the high percentage of unsafe practices including questions on scanning QR codes using MySejahtera upon arrival at the station (100%) and scanning body temperature upon arrival at or before entering the station (100%). It is reported that workers at Station B normally do not scan the QR code using MySejahtera upon arrival at the station and do not scan body temperature upon arrival at or before entering the station. These two procedures are important to be followed by all individuals because the COVID-19 symptoms include fever [9]; thus, body temperature scanning can help early detection and identification among workers or customers at the petrol pump stations. The Malaysian Ministry of Health has decided to remove the body temperature scanning from mandatory SOPs due to the emergence of new COVID-19 variants that may not cause fever in the affected person. The body temperature scanning could cause false-negative detection to occur. Nevertheless, the MySejahtera QR code scan is still required upon entering any premises with the latest update by the government to allow MySejahtera users to detect affected individuals around them via the Bluetooth features [10].

Table 6. Total observations of COVID-19 preventive measures practised by workers of Stations A and B.

Questions	Station A (%)		Station B (%)	
	Safe practice	Unsafe practice	Safe practice	Unsafe practice
Q1 Co-workers who had close contact of COVID-19 patients come to work.	223 (100)	0 (0.0)	50 (89.3)	6 (10.7)
Q2 Co-workers who are under quarantine come to work.	223 (100)	0 (0.0)	50 (89.3)	6 (10.7)
Q3 Co-workers scan QR code using MySejahtera upon arrival at the station.	219 (98.2)	4 (1.8)	0 (0.0)	56 (100)
Q4 Co-workers scan body temperature upon arrival at or before entering the station.	219 (98.2)	4 (1.8)	0 (0.0)	56 (100)
Q5 Co-workers wear face masks properly while working.	223 (100)	0 (0.0)	55 (98.2)	1 (1.8)
Q6 Co-workers check how much hand sanitiser is left to be used by workers and customers.	21.5 (96.4)	8 (3.6)	54 (96.4)	2 (3.6)
Q7 Co-workers sanitise hands before attending to the customers.	217 (97.3)	6 (2.7)	55 (1.0)	1 (1.8)
Q8 Co-workers practise 1.5 m physical distancing from other people.	220 (98.7)	3 (1.3)	54 (96.4)	2 (3.6)
Q9 Co-workers sneeze or cough into a paper tissue or handkerchief.	177 (79.4)	46 (20.6)	56 (100)	0 (0.0)
Q10 Co-workers sneeze or cough into an elbow.	136 (61.0)	87 (39.0)	54 (96.4)	2 (3.6)
Q11 Co-workers regularly disinfect premise in accordance with the duty roster.	212 (95.1)	11 (4.9)	55 (98.2)	1 (1.8)
Q12 Co-workers disinfect surfaces of common areas regularly used by many customers.	218 (97.8)	97.8 (17.5)	55 (98.2)	1 (1.8)
Q13 Co-workers disinfect areas using disinfectant spray.	184 (82.5)	39 (17.5)	56 (100)	0 (0.0)
Q14 Co-workers ensure all customers follow the number limit of customers inside the store as displayed at the notice.	218 (97.8)	5 (2.2)	56 (100)	0 (0.0)
Q15 Co-workers dispose used face masks properly in the waste bin.	221 (99.1)	2 (0.9)	56 (100)	0 (0.0)

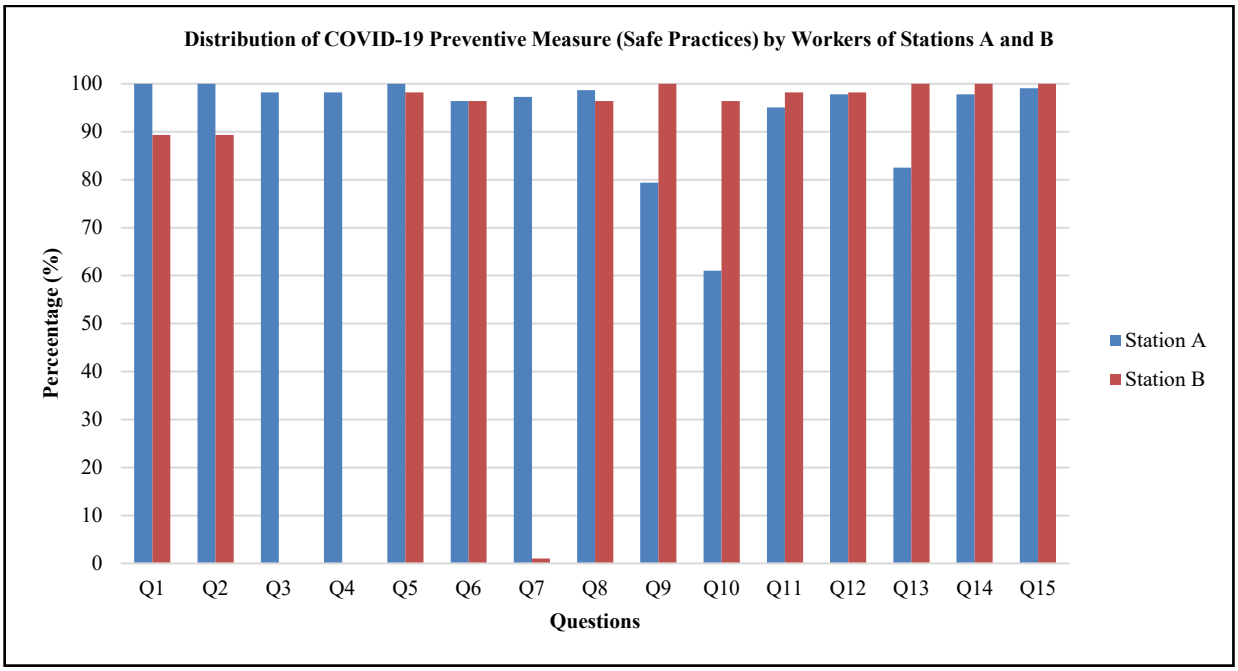

Figure 4. Distribution of COVID-19 preventive measure (safe practices) by workers of Stations A and B.

3.3.3 COVID-19 Preventive Measures Practised by Customers

The distribution of COVID-19 preventive measures practised by customers at Stations A and B is summarised in Table 7. The result shows that Station A has good safe practices and most of the safe practice percentages were higher than 90% except for questions on sneezing and coughing into the elbow (50.7%), sneezing and coughing into a paper tissue or handkerchief (69.5%), wearing plastic gloves while using the pump to refuel vehicle (78.5%), and using hand sanitiser after handling the pump (61.0%). Meanwhile, Station B also has moderately good safety practices for obtaining more than 60% in safe practices for most questions except for questions on scanning QR codes using MySejahtera before entering the premise (51.8%) and scanning body temperature before entering the convenience store (50.0%). As shown in Figure 5, customers at Station A have better safe practices on COVID-19 preventive measures with unsafe practice percentages being less than 50% for all questions compared to customers at Station B, which obtained 50% and below for most questions except for the question on wearing plastic gloves while using the pump to refuel vehicle (80.4%). Due to the nature of COVID-19 that can be transmitted through contact surface [3], some customers chose to use plastic gloves while using the pump to refuel their vehicle and expected the gloves to protect their skin from touching the surfaces. Unfortunately, this practice, as reported by the centers for disease control and prevention (US CDC) guidelines, does not provide protection against COVID-19; proper handwashing after touching surfaces is enough to prevent the transmission of the viruses. In addition, instead of preventing transmission, the gloves may become the source of transmission if they are not properly disposed of [11].

Table 7. Total observations of safe and unsafe practices by customers at Stations A and B.

Questions	Station A (%)		Station B (%)	
	Safe practice	Unsafe practice	Safe practice	Unsafe practice
Q1 Customers scan QR code using MySejahtera before entering the premise.	221 (99.1)	2 (0.9)	29 (51.8)	27 (48.2)
Q2 Customers scan their body temperature before entering the convenient store.	220 (98.7)	3 (1.3)	28 (50.0)	28 (50.0)
Q3 Customers wear face mask properly (i.e., covers both nose and mouth) at the petrol station.	215 (96.4)	8 (3.6)	43 (76.8)	13 (23.2)
Q4 Customers use hand sanitiser before entering the premise.	217 (97.3)	6 (2.7)	43 (76.8)	13 (23.2)
Q5 Customers practise 1.5 m physical distancing from other people.	210 (94.2)	13 (5.8)	36 (64.3)	20 (35.7)
Q6 Customers queue in accordance with sign or indicator for physical distancing.	212 (95.1)	11 (4.9)	42 (75.0)	14 (25.0)
Q7 Customers sneeze and cough into elbow.	113 (50.7)	110 (49.3)	38 (67.9)	18 (32.1)
Q8 Customers sneeze and cough into a paper tissue or handkerchief.	155 (69.5)	68 (30.5)	39 (69.6)	17 (30.4)
Q9 Customers check/read notice on the number limit of people inside the premise displayed at the notice.	217 (97.3)	6 (2.7)	42 (75.0)	14 (25.0)
Q10 Customers follow the number limit of people inside the premise as displayed at the notice.	216 (96.9)	7 (3.1)	40 (71.4)	16 (28.6)
Q11 Customers wear plastic gloves while using the pump to refuel vehicle.	175 (78.5)	48 (21.5)	11 (19.6)	45 (80.4)
Q12 Customers use hand sanitiser after handling the pump.	138 (61.0)	85 (38.1)	45 (80.4)	11 (19.6)

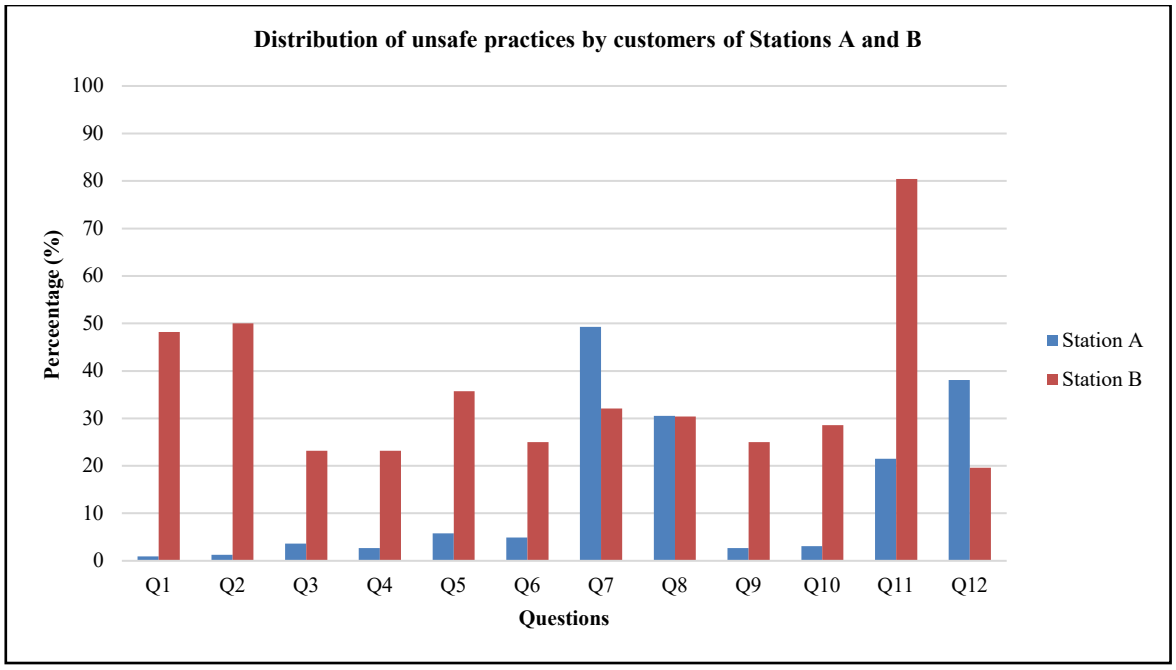

Figure 5. Distribution of unsafe practices by customers of Stations A and B.

3.3.4 Overall COVID-19 Preventive Measures Practised by Workers and Customers

The total mean scores for COVID-19 preventive measures at petrol pump stations by workers, by customers, and by workers and customers were calculated to compare the safe practices conducted at Station A and Station B. The mean scores for all variables are summarised in Table 8. Station A has better safe practices among the workers (15.987 ± 1.357) compared to Station B (15.393 ± 0.779). Station B, on the other hand, shows higher mean scores on safe practices among the customers (16.214 ± 2.820) and workers and customers (31.607 ± 2.858) which are both higher than the mean scores of 13.646 ± 1.338 for safe practices among customers and 29.632 ± 2.143 for safe practices among workers and customers at Station A. The difference in the number of responses between both stations may have influenced the mean score results [14][15]. Increasing the sample size usually contributes to increasing the certainty and significance of the results. In addition, a large sample size gives the advantage to generalise the samples to the study population [16]. Hence, future study with larger sample size is expected to produce more significant findings that can be used to generalise the study population.

Table 8. Mean scores of COVID-19 preventive measures practised by workers and customers of Stations A and B.

Variables	Mean ± SD	
	Station A	Station B
COVID-19 preventive measures practised by workers	15.987 ± 1.357	15.393 ± 0.779
COVID-19 preventive measures practised by customers	13.646 ± 1.338	16.214 ± 2.820
COVID-19 preventive measures practised by workers and customers	29.632 ± 2.143	31.607 ± 2.858

3.3.5 Framework of COVID-19 Preventive Measures at Petrol Pump Station

A framework specifically for petrol pump stations is proposed to maximise the prevention of COVID-19 infections. The inputs or ideas for designing the framework is based on the results for COVID-19 preventive measures at petrol pump stations among workers and customers. The framework is shown in Figure 6.

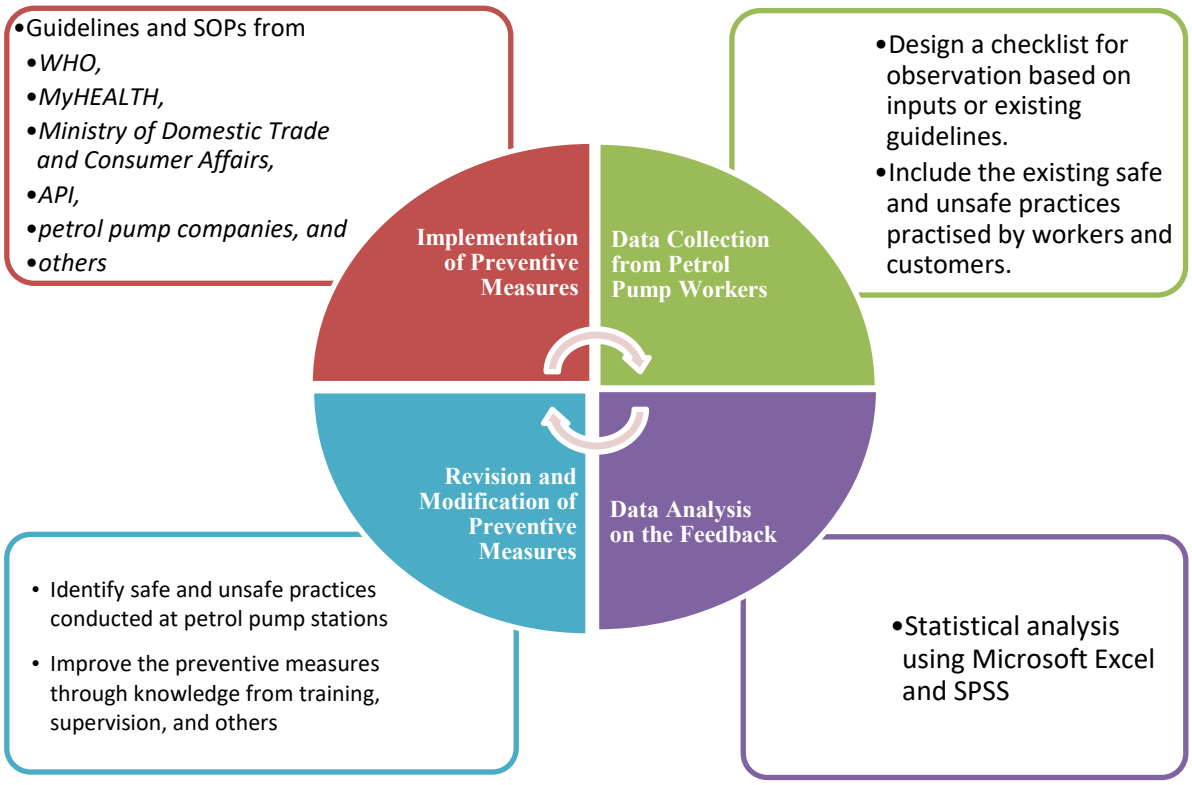

Figure 6. The framework for COVID-19 preventive measures for petrol pump station in Malaysia.

4.0 CONCLUSION

In this study, the existing COVID-19 preventive measures at two different petrol pump stations in Johor Bahru were compared with safe work procedures for the prevention of COVID-19 from the literature review from various sources. The results conclude that the workers at Station A exercise better safe practices on COVID-19 preventive measures compared to those at Station B with a higher percentage of safe practices for most of the questions listed. Meanwhile, the mean scores of COVID-19 preventive measures practised by workers and customers at Station B are higher than those at Station A. The data is collected through the observations and analysed using the Microsoft Excel and SPSS. The results were used as input to evaluate the practicality of existing COVID-19 preventive measures at petrol pump stations among workers and customers based on the frequency of safe and unsafe practices conducted. The activities with a high frequency of unsafe practices such as scanning QR codes using MySejahtera upon arrival at the station, scanning body temperature upon arrival at or before entering the station among workers, and wearing plastic gloves while using the pumps to refuel vehicles among customers were investigated and used as input to propose a framework of COVID-19 preventive measures specifically for petrol pump stations in Malaysia. As a result, a better preventive measure is constructed and increases the practicality of the COVID-19 preventive measures at the petrol pump station.

The observations were only conducted for three weeks at two petrol pump stations in Johor Bahru, Johor. These limitations are associated with the COVID-19 situation that happened in Malaysia and the confidentiality issue of the petrol station which is related to the confidentiality of the company's data. The observation from two petrol pump stations resulted in less data for this study. Hence, an extended observation period of up to three weeks was applied to maximise the data collection within the allocated period. To obtain better results on the COVID-19 preventive measures at petrol pump stations, a more comprehensive study that involves many petrol pump stations from many different areas should be done. Hence, a shorter observation period can be imposed on the petrol pump workers. A bigger sample size can be achieved with a wider study area, and thus, better feedback on COVID-19 preventive measures at petrol pump stations can be obtained. Besides that, it is important for petrol pump station owners or managers to be aware of COVID-19 preventive measures at petrol pump stations and the importance of this kind of research. This is so that full cooperation for future studies can be achieved, which will benefit many people in the future.

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