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Exposure to Contagion: Perceived Risks and Travel Behavioural Shifts in Malaysia during COVID-19 Pandemic

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Abstract— At the beginning of March 2020, the Coronavirus pandemic was acknowledged as a great confrontation that shook the travel organisations' core. Indeed, it provides such a profound disturbance to the industry. It gives a preview of Malaysian travellers' discernments in a distinctive point of time - the times of the COVID-19 linked to the worldwide lockdown and restriction movement order. Therefore, this study examines the relationship between perceived risks and Malaysian travel behaviour due to the COVID-19 pandemic and identifies the risk factors that influenced Malaysian travel behaviour. This study was focused on a random sampling among Malaysians who had experienced the pleasure of travelling. The questionnaire was designed to measure travel behaviour and several perceived risks, including travel, psychological, safety, security, financial, and health. Ordered Probit regression and test statistic scores disclosed that perceived psychological risk, perceived financial risk, and perceived health risk significantly impacted and positively correlated to Malaysian travelling behaviours due to COVID-19. The perceived risk factors further showed that anxious feelings existed to enjoy travelling during the pandemic. It shows that Malaysians travel behavioural had shifted due to the COVID-19 outbreak.

Keywords— Travel Behaviour; Perceived Risks; Covid-19; Pandemic; Malaysia.

I. INTRODUCTION

A new highly infectious virus, commonly known as SARS-Cov-2, was confirmed in November 2019, triggering an acute respiratory syndrome outbreak, COVID-19. The outbreak diverted into a global pandemic begins in its focal point of source in Hubei province, Wuhan City, China. Not far after that, on January 30th, the World Health Organization perceived this viral outbreak and issued a pandemic red alert

on the Coronavirus Disease 2019, even more regularly referred to as the "COVID-19" in January 2020 [1],[2]. As of September 27th, 2020, over 33,058,557 positive cases of COVID-19 have been reported, and more than 998,000 fatalities have been documented [3]. Reference [4] pointed out that all economic sectors experienced unexpected consequences from border closures, quarantine, and lockdown. The most significant and generally speedy collapses from this emergency crisis are the travel and tourism

industries, following [5]. Borders were closed, which drive blocking booked flights. The authorities' isolated measures constrained the chances to make a travel trip to a great extent.

On top of that, these regulations affected socioeconomics globally [6]. Mobility styles are typically resilient to shift in ordinary conditions amongst other aspects of their activity-travel behaviour, however not certainly during prolonged, extremed pandemics [7]-[9]. COVID-19 has been considered mild-to-severe despite its fast transmission of the virus from one person to another, where more stringent measures have been introduced. For instance, shut down businesses, put significant travel limitations, and quarantine orders (stay-at-home). Consequently, the significant drops in the number of travellers driven by the infection fears had constrained residents to remain at home. Nearly all people are avoiding travelling, which has further contributed to the low demand for travel and tourism.

Due to the endorsed regulatory actions, quick and extreme shifts have gotten apparent in individuals' mobility styles; among other activity-travel action phases, the world is currently facing a 'new normal' where they adapt to this contagious outbreak. Somehow it tied with the public fear of contagion compliance with the governments' regulations and orders. One of the high sectors confronting a great deal from the Coronavirus Disease 2019 pandemic is the travel and tourism industry. The UNWTO first assessed the impact of Coronavirus Disease 2019 on the tourism industry, which marked an overall loss of up to \$50 billion in government expenditure and a decrease of wide-reaching traveller arrivals of up to 3% globally on March 6th [10].

Nevertheless, the UNWTO changed their assessment and determined to reduce worldwide traveller appearances by 20–30% in 2020 and 2019, with \$300–450 billion losses [11]. Again, this was adjusted to assessed 60–80%, dependent on a drop of 57% appearances for March's entire month [12]. Prior studies, health emergencies impacted the travel industry and travel performance of travellers, for example, the outbreak of Severe Acute Respiratory Syndrome, Swine Flu (H1N1), and Ebola [13]–[16]. According to [10], Coronavirus Disease 2019 has grown into a critical broad of media events. A worldwide emergency hugely affects tourists' travel behaviour and tourism and travel industries worldwide.

The behavioural intention had significantly affected by perceived risk. Emotional concerns and dread may prevent people from travelling during the pandemic regardless of their positive approach to minimising direct contact with the travel and tourism industry. This psychological element indicates the essential part of attitude being a noteworthy intermediary between perceived risk and behavioural intention [17]. Philosophy is a crucial intermediary between perceived risk and behavioural discretion, supporting [18] findings. The past investigation's results affirmed that people's decision-making might be influenced by perceived risk [19]. As perceived risk was estimated as Coronavirus fear, it was aligned with a greater likelihood of heading out from self-restriction for leisure mode of travelling, social life, and sport activities purposes. Therefore, Coronavirus pandemic threats likewise increase the possibility of reducing trip frequencies and developing the option to remain at home [8].

Along with all the subsequent problems stated earlier; thus, this research aims to examine the relationship between

perceived risks and Malaysian travel behaviour due to the COVID-19 pandemic as well as to identify the risk factors influencing Malaysian travel behaviour using an Ordered Probit Regression.

II. LITERATURE REVIEW

A. *Contagion: Risk and travel behaviour during health crises*

Perceiving risk as a multi-dimensional structure can have diverse repercussions for travellers in their dynamic. At least one risk element can change travellers' assessment of a travel destination and intention to make the journey [20],[21]. For this purpose, scholars set up that apparent risk intensifies fear, worry, and other adverse disturbing behaviour that can adversely affect a traveller's plan to travel [22]. Typically, it encourages them to refrain from a travel destination that they might recognise as hazardous [23]–[26].

Thus far, significant worry and anxiety among international visitors have been reliably discovered to be a perceived risk [16],[27]. To date, travellers who encountered the threat may postpone, re-evaluate, or drop their trips entirely [25]. The evasion of tourism destination assigns Cognitive Dissonance arises from the moderate traveller's inherent travel motivations by the perceived risk related to travel and tourism industries [28]. Reference [14] also unveiled that the outbreak of the infectious H1N1 flu in 2009 brought about a 4% decline in international tourism appearances worldwide.

Focusing on perceived risk, risk of its alarming situation dependent on its features and seriousness, [29] evaluated that an individual's behaviour can be influenced by perceived risk. Therefore, the risk is perceived differently based on external and internal factors like the individuals' characteristics, cultural beliefs and background, demographic factors, social structures, experience, media, and other information sources [30]. A person who feels in danger of catching an illness will involve themselves with preventive measures to contain the risk and break away from travelling activity [31]. During a health emergency, perceived travel risk is highly manipulated by mass media and society opinions [32].

The very recent released research of the post-pandemic travel behavioural changes are in Bulgaria [33], Chicago [34], Greece [35], Indonesia [36], Japan [8], and United States of America [37]. This behaviour signifies that the COVID-19 pandemic appears to create concern and vulnerability in numerous parts of the consumer's daily life. Furthermore, based on prior research, both epidemic and pandemic generally alluded to adverse effects on global tourism in China, the Gambia, Thailand, and Hong Kong [26],[38],[39]. Yet, people still have an inspiring mentality and attitude about travelling and do not disclose any extreme nervousness [36].

B. *Perceived Travel Risk*

Perceived travel risk can drive to a reduction in travel demand under prevailing conditions of the disease [14],[16],[40], assassinations and terrorism [41], mammoth events [27], and natural catastrophes [42]. Reference [43] stressed that experiences, economic and social, psychographics, demographic characteristics, and knowledge shaped perceived risk and influence travel intentions. The

travel and tourism industry are frequently at risk due to direct or indirect events that could potentially restrain visitors' safety and security [44]. Besides, travellers regularly become anxious whenever something goes amiss or awry [45]. Some research has been performed in the section on risk and decision-making on travel. These research studies revealed a decline in the tourism industry demand and evidenced from the Bali bombings [46], Severe Acute Respiratory Syndrome (SARS) [16] and Avian Flu in Asia on the Olympic Games in London [27].

Once people know that potential risk surpasses benefits, they are more prone to revise their travel plans. Sequentially, this adversely influences the tourism-related business and images related to a destination. SARS's consequences show how a nation's economy can be affected by the dread of a virus outbreak [40]. Focusing on travel, researched on travel behaviour amidst the flurry of H1N1 in 2009 among residents of Queensland, Australia [14]. They found out that the vast majority of the respondents might not be rescheduled or even withdraw their travel even if they show symptoms following the pandemic. Even most of these studies are case-based, consisting of investigation in the region of pandemic, hazard, and travel is essential. Somehow it delivers information to the travel industry to improve response during health-related crises.

C. Perceived Psychological Risk

Psychological risk has been well-defined as a sentiment of anxiety and fear [47]. The psychological risk is customarily associated with disease epidemics and rose with the growth of new cases and insufficient, anxiety-provoking information presented by mass media [48]. The psychological responses to the COVID-19 pandemic may differ from panic behaviour [49], linked to negative consequences. Reference [50] described perceived risk factors of psychological risk as generalised fears. They were evaluated by the degree of anxiety for safety [51] and painful experience [52] and also confronting excessive pressure [51].

On top of that, research on the risk factors associated with psychological and mental distress in light of the coronavirus pandemics are also highlighted [53]. It also evaluated perceived stress, anxiety, and worries about contracting the disease. Lack of sanitation and fear of disease is a further example of risk [30]. Potential travellers are disheartened to visit, and travel operators doubt offering vacations to destinations with a high chance of infections or diseases. Staying away from places with an outbreak of SARS, bird flu, and COVID-19 is sensible consumer behaviour. SARS's repercussions illustrate how this virus can disrupt an area's economy as an outcome of the dread of disease and an abrupt drop in the number of travellers visiting the region. In mid-2006, a comparative concern seemed to turn into a potential threat for the Mediterranean's travel industry due to the chicken flu (bird flu).

Perceived severity is associated with a person's worry and concern and the seriousness of a situation [31]. In another study, the same thing has been emphasized on individuals who perceived a disease as dangerous; they are prone to practice defensive procedures and measures [54]. This behaviour is similar to the theory that typically recommends that humans evade deviant stimuli in many circumstances.

None of the investigations brings in a positive correlation between high-level perceived severity and involvement in preventive measures. An example is an analysis of the use of condoms in Africa that discovered a person's impression of AIDS/HIV's seriousness had not enhanced the usage of condoms [55].

D. Perceived Safety and Security Risk

Turnšek et al. [56] stated that safety and security had become essential in settling travel decisions. Besides, the worldwide importance and the measurement of tourism as an economic activity have initiated security issues that influence the person, travel decisions, financial and political steadiness of whole regions. The term "human security" coordinates the idea of security toward endurance, safety, security, and freedom of persons [57]. In comparison, [58] referring to them as security concepts that strive to assure people, communities, and association's security. Somehow there is a shortage of accordance on its meaning of subject across "freedom from dread" and "freedom from desire". Human security implies protecting personal safety and liberty against diseases (i.e., indirect violence, natural corruption, and overpopulation) in the United Nations Human Development Survey. The coronavirus pandemic has featured the worldwide populace's outrageous susceptibility, both financially and physically. Hence, protective policies should be implemented to reduce the populace's extremely vulnerable segment.

Moreover, the Coronavirus Disease 2019 pandemic has demonstrated a worldwide health emergency as a security hazard that has tremendously hit the global travel movement and tourism industry. When a security threat occurs in the destination locales, it will reduce travellers' appearances in the more extensive territory of effect. Notwithstanding, rare events in global tourism are much more affected if the security threat is global. Transnational security threats such as information networking can rapidly spread the news from one end of the world to the other. Therefore, intensifying information on security risks that reaches potential travellers in real-time will dissuade them from settling a travel decision [59]. Worldwide security threats (specifically, pandemics) do not develop all alone. Yet, they form the security climate and insecurity, which in SARS-Cov-2 is presented in advance as a person's healthcare system [56].

E. Perceived Financial Risk

Perceived financial risk describes the possibility that products and services provided or travel experience will neglect to offer some incentive for the cash spent [60],[61] Similarly, reference [42] emphasised that the formation of perceived financial risk is when travellers see their travel expectancy as not satisfying. In another study, scholars found that travellers would perceive an economic threat where their trip would acquire sudden expenditures before the trip and destination [62]. As well as the trip would negatively affect the travellers' financial situation. Therefore, they will feel the economic weight when buying travel goods and services costs higher than expected. Reference [63] stated that an excessive amount of expenditure than the price of tourism products and services generally worried travellers.

Moreover, a financial threat was mentioned as one of the biggest obstacles for backpackers and travellers on many occasions. Where not having enough money was not sensed risk itself. Instead, it was a preventive measure for them to enjoy travelling as much as they wanted [64]. From an air travel perspective, perceive financial risk is described as the possibility of not getting the best-invested money worth following an overpriced ticket. To sum it up, it is the risk that the service bought probably would not merit the cash paid for it. Numerous researchers affirmed the effect of perceived financial risk on consumers' behavioural intentions [62],[65]. Interesting studies has been found on unfavourable passengers' preferences to travel via air, including a few risks such as socio-psychological, financial, and performance [66]. Likewise, regression analyses performed disclosed that financial risk, physical risk, and psychological risk negatively affected travellers' intention to travel overseas [67].

F. Perceived Health Risk

The perceived health risk is significantly connected with uncertainty. Uncertainty is formed by the physical world's intrinsic and indecision variability [68]. Analysis of travellers' behavioural and perceived health risks has been done [69], during the Avian Influenza pandemics challenge. The authors analysed the association of psychological influences and the ability to take health threats on vacation and business travel. The findings disclosed that young travellers are more willing to take healthrisks on holidays than the elderly. Different types of travellers are confronting various types of risk. Even though there are not many investigations on the theme, they imply that individuals perceive and take health risks differently [70]. Travellers regularly pose risks connected to seeking experiences and pleasure-seeking lifestyles, enhancing the danger of contamination of diseases, such as HIV, food-related illnesses, and accidents [71],[72].

There is a sincere need to get answers concerning individuals' behaviours and perceived health threats and risk-taking tendencies related to various kinds of travel during the present time of worldwide travel and pandemic threat [69]. It is significantly advancing appropriate preventive behaviours, planning health advancement, and evading social and financial disturbance due to pandemic threats. Perceived risk reflects a more extensive set of beliefs (i.e., cognitive and affective) than mere assessments of an occasion [73]. A person's judgments depend on bias accessibility and heuristic processing [74]. Study-related behaviours and perceived contamination diseases during pandemics have not yet built up their theoretical. It has been done in a similar sense, generally in chronic and lifestyle diseases. Therefore, there is still a shortage of literature on the determining factors of health threat from pandemics while travelling.

III. RESEARCH METHODOLOGY

A. Data Collection

This study used primary quantitative data. There will be several sections that consist of several items (questions) for each factor tested. This study has collected 408 respondents' feedbacks, and the survey questionnaire was disseminated

through an online platform. Therefore, a five-point Likert scale has been implemented in this study from 1= strongly disagree to 5=strongly agree based on Ivanova et al. (2020) in measuring the latent variable [33]. This study also asked for a total of 7 sections of the questionnaire. The first section is about demographic attributes such as age, gender, marital status, occupation, education level, income level, frequencies of travelling domestically or internationally for the past 12 months, and behavioural travel changes—section 2 until 6, each for every variable. These respondents are focused on adults aged 18 and above [75] with regular travelling experiences in a year.

B. Pilot Test

The primary surveyed questions are piloted in 40 respondents before dissemination to certify the instrument and address minor changes to the survey questions if required. This test will raise the probability of getting accurate results. Extant literature suggests that a pilot study sample should be 10% of the sample project for the more extensive parent study [76].

C. Cronbach's Alpha

The scale's reliability is measured using Cronbach's alpha test in this study. It also measured the internal consistency of answering the question. Hair et al. [77] stressed that the construct variables' coefficient value is acceptable if Cronbach's alpha is more significant than 0.70. Omitting variables that do not achieve a reliability coefficient minimum of 0.7 will be made. The study will use the rest of the variables for further analysis.

D. Hypothesis Testing

This method assists decision-making using experimental data, which means accepting or rejecting the statistical hypothesis. There are two kinds of statistical theory: null hypothesis, denoted as H_0 , and alternative hypothesis, denoted as H_1 . In this case, if the factor is significantly influencing the dependent variable ($p < 0.005$), then the null hypothesis, H_0 , will be rejected while the alternative hypothesis, H_1 , will be accepted.

E. P-value

This study conducted the p-value to make conclusions in significance testing, whether to deny or accept the null hypothesis. More specifically, by comparing the p-value calculated to a significance level, α can conclude the hypotheses. The calculated p-values must be lower than or equal to the chosen significance level, α , to be considered the null hypothesis is rejected in other means significant. This study will conduct a 95% confidence level. The computed p-value must be lower than the 0.05 significance level to be considered effective, thus rejecting the null hypothesis.

F. Ordered Probit Regression

An ordered probit model generalises the widely used probit analysis in the case of more than two outcomes of an ordinal dependent variable. For example, the dependent variable for which the potential values have a natural ordering of strongly disagree, disagree, neutral, agree, and strongly agree. This analysis will help develop results, showing any significant

relationship between the user's perception and the variable selected. If the result shows, the significance value is lower than 0.05 of the p-value. Thus, the research has some significant relationships and may proceed with further analysis. Besides, this analysis can also generate results that show the marginal effect of the independent variable on the probability of the j-th categories level.

An Ordered Probit Regression analysis revealed any significant relationship between the user's perception and the variable selected. An Ordered Probit model was used to meet the objective. The model is shown as follows:

$$\begin{aligned} y_i^* &= \beta'x_i + \varepsilon_i, & \varepsilon_i &\sim N[0,1] \\ y_i &= 0 \text{ if } y_i^* \leq \mu_0 \\ y_i &= 1 \text{ if } \mu_0 < y_i^* \leq \mu_1 \\ y_i &= 2 \text{ if } \mu_1 < y_i^* \leq \mu_2 \\ &\dots \\ y_i &= j \text{ if } \mu_{j-1} < y_i^* \leq \mu_j \end{aligned} \quad (1)$$

where y_i = observed counterpart of y_i^*
 β = vector coefficient to be estimated
 x_i = matrix of independent variables
 μ_i = distance variable
 ε_i = error term

and equation represented as follows:

$$MTB = \beta_0 + \beta_1PTR + \beta_2PPR + \beta_3PSR + \beta_4PFR + \beta_5PHR + \varepsilon,$$

where MTB = Malaysian Travel Behaviour
 PTR = Perceived Travel Risk
 PPR = Perceived Safety and Security Risk
 PFR = Perceived Financial Risk
 PHR = Perceived Health Risk

The variance of the error term is assumed to be 1.00 (Greene, 2000). The ordinal variable y_i is defined to take a value of j if y_i^* falls into the j -th category:

$$y = j \text{ if } \zeta_{j-1} < y^* < \zeta_j, \quad \text{for } j = 1, \dots, J,$$

where ζ' = unknown thresholds parameters that must be estimated along with β assuming $\zeta_{-1} = -\infty$, $\zeta_0 = 0$, and $\zeta_j = \infty$. The probability of obtaining an observation with $y = j$ is equal to

$$Prob(y = j) = F(\zeta_j - \beta'x) - F(\zeta_{j-1} - \beta'x),$$

where F is the cumulative standard normal distribution function. The effect of the independent variable on the probability of the j -th level is given by:

$$\partial Prob(y = j) / \partial x = \beta [f(\zeta_{j-1} - \beta'x) - f(\zeta_j - \beta'x)],$$

where f is the standard normal density function (Tansel, 2002). The following model was estimated using the maximum likelihood method to have consistent and efficient parameter estimates.

IV. RESULTS AND DISCUSSION

A. Descriptive Statistics

The total participants' demographic information (N=406) is compared in the following sections. Females are a substantial majority of respondents, whereas the total sampling comprises 20.2% male and 79.8% female respondents from the subsequent ethnicities: 93.3% Malay, 1.5% Chinese, and 0.7% Indian, and 4.4% others. Most of the respondents are between 18–29 years of age (81%) with higher education (75.9%); they are either undergraduate students or have graduated with bachelor's or masters. In terms of travel frequency for the past 12 months, 74.4% (travel 1–3 times) of respondents had a pleasurable travel mode, almost 16.5% travel 4–6 times, and 9.1% more than seven times. An intense travel experience shows that respondents were active travellers from youngster generations.

B. Ordered Probit Regression Results

An ordered probit analysis results are shown in Table I below. The dependent variable is Malaysian Travel Behaviour (MTB). The independent variables are Perceived Travel Risk (PTR), Perceived Psychological Risk (PPR), Perceived Safety and Security Risk (PSR), Perceived Financial Risk (PFR), and Perceived Health Risk (PHR). The coefficient indicates the odds ratios for each independent variable, while the marginal effects the change in probability when the predictor or independent variable increases by one unit. Besides, the marginal effects give an overview of how the independent variables shift the likelihood of statement agreement between the five ordinal levels. These effects were measured after the estimated ordered probit model. The marginal consequences for Malaysian travel behaviour amidst the COVID-19 pandemic are displayed in Table II.

Table I displayed that the significant risk factors contributing to the shifting of Malaysian travel behaviour during the COVID-19 pandemic are PPR, PFR, and PHR. These risk factors have a significant and positive relationship with the dependent variables. It also reveals the relative odds ratios, which allows a more straightforward interpretation of the probit coefficients. They are the exponential value of the probit coefficients. The first significant risk factor is PPR. The odds ratio correspondingly is 1.5533, which indicates keeping all other variables constant; when PPR increases one unit, it is 1.5533 times more likely to be in a higher category. In other words, the odds of moving to a higher category in the outcome variable is 55.33% when PPR moves one unit (1.5533-1). The coefficient is significant.

Next, the significant coefficient for the dependent variable PFR is 1.3799. Illustrating, keeping all other variables constant, when PFR increases one unit, it is 1.3799 times more likely to be in a higher category. Putting it another way, the odds of moving to a higher category in the outcome variable is 37.99% when PFR moves one unit. Henceforth, the coefficient is significant. Lastly, the significant and positive relationship with Malaysian travel behaviour is PHR. The corresponding odds ratio is 2.3801, which also marked the highest significant coefficient among other independent variables. Hence, keeping all other variables constant, when PHR is increased by one unit, it is 2.3801 times more likely to be in a higher category. Therefore, the outcome variable is

138.01% when PHR moves one unit. Thus, the PHR coefficient is also significant.

TABLE I
ORDERED PROBIT REGRESSION RESULTS

Variable	Coefficient	Odds Ratio	P values
PPR	0.4404***	1.5533	0.00
PFR	0.3220**	1.3799	0.03
PHR	0.8671***	2.3801	0.00

Residual Deviance: 672.8177, AIC: 690.8177

Note: **p<0.05; ***p<0.01

Note: ** and *** shows the coefficient is statistically significant at 0.05 and 0.01 level of significance. '1' represents strongly disagree, '2' represents disagree, '3' represent Neutral, '4' represents strongly disagree, and '5' represent strongly agree.

As indicated in Table I, Malaysians significantly perceived the highest health risk for leisure mode of travelling during the pandemic. This finding is consistent with the previous literature wherein a review of studies related to leisure mode of travel related to the health crisis and perceived threat during an outbreak. Hotele et al. [37] found that societies' perceived health risk tends to increase amidst the COVID-19 attack, and they worry more about their leisure mode of travel. The author also revealed that higher perceived health risk escalates with higher travel-related health protection behaviour during the COVID-19 pandemic aftermath. Similar to these findings in the context of severe acute respiratory syndrome (SARS), those with relevant symptoms were more likely to take precautionary measures [80],[81]. Likewise, if the participant or someone within their household had been affected with influenza in the past, that person had heightened perceived risk at all locations having a tremendous increase [37].

TABLE II
MARGINAL EFFECTS FOR ORDERED PROBIT MODEL

Var.	Marginal Effects				
	P(Y=1 X)	P(Y=2 X)	P(Y=3 X)	P(Y=4 X)	P(Y=5 X)
PPR	0.003* (0.082)	-0.003* (0.066)	-0.017* (0.007)	-0.078*** (0.001)	0.095*** (0.001)
PFR	0.002 (0.128)	-0.002 (0.116)	-0.013** (0.044)	-0.057** (0.026)	0.070** (0.026)
PHR	0.006* (0.065)	-0.006*** (0.050)	-0.034*** (0.001)	-0.153*** (0.000)	0.188*** (0.000)

Note: *p<0.1; **p<0.05; ***p<0.01

Note: *, **, and *** shows the coefficient is statistically significant at 0.1, 0.05 and 0.01 level of significance. '1' represents strongly disagree, '2' represents disagree, '3' represent Neutral, '4' represents strongly disagree, and '5' represent strongly agree.

The marginal effects of variable PPR have a positive and significant relationship with Malaysian travelling behaviour for response 'strongly agree' and 'strongly disagree'. In contrast, it has a significant negative association with the response 'disagree', 'neutral', and 'agree'. It shows that a person who has the perceived psychological risk has 9.5% and 0.3% of more probability of 'strongly agree' and 'strongly disagree' on the given statement. While decreased by 0.3%, 1.7% and 7.8% correspondingly on the probability of response 'disagree', 'neutral', and 'agree'.

On the other hand, the PFR has a significant positive relationship with Malaysian travelling behaviour for the response 'strongly agree', which is likely to increase by 7%. In contrast, it decreased by 1.3% and 5.7%, respectively, as it has a significant negative relationship with the response 'neutral' and 'agree'. Similarly, the reaction 'strongly agrees' and 'strongly disagree' probability for the variable PHR increased by 18.8% and 0.6% each, respectively, as it has a positive sign and relationship with Malaysian travelling behaviour. Adversely, the probability of the response 'disagrees', 'neutral', and 'agree' showed a decrease by 0.6%, 3.4%, and 15.3% for each, accordingly, as it shows a significant negative relationship.

IV. CONCLUSIONS

The COVID-19 pandemic episode arose in December 2019, primarily in China, and by March 2020 affected the entire globe. The consequences of worldwide lockdowns, borders closures, and movement restrictions can be witnessed as a global emergency and disturbance within and beyond the travel industry. This research aimed to examine the significant risk factors that influence Malaysian travel behaviour due to the current COVID-19 pandemic. This study was based on travel behaviour, perceived travel risk, perceived psychological risk, perceived safety and security risks, perceived health risk, and perceived financial risk as independent variables. It also developed insights into the connection between perceived risks and travelling behaviour in the period of the COVID-19 episode. Furthermore, this research provides a few distinct aspects to the literature of health emergencies; observing travellers' behaviour based on their perceived risks amidst a contagious pandemic disease is fundamental. The similarity of results throughout the period showed consistency with previous research.

The Ordered Probit Regression Model has been implemented as the dependent variable in this study is not continuous data. It revealed only three significant independent variables: PPR, PHR, and PFR. It explains variation in an ordered categorical dependent variable as a function of more independent variables where categories are ranked/ordered (strongly agree to disagree strongly). These risk factors are significant and have a positive relationship with the dependent variables, thus achieving this study's objectives. Apart from that, this research also provides essential information and consumer understandings for destinations and tourism associations from a practical perspective. It helps the advancement of communication strategies for travel organisations post-COVID-19. Depending on the outcome, several implications could be provided to the tourism industry.

Concerning communication strategies, travel industry associations typically abide by governments and health organisations' objectives to essentially lessen society's spread of the infection. Nonetheless, it is also fundamental to reduce tourists' perceived risk to enable the industry to rebound rapidly once the threat of COVID-19 decreases. Subsequently, media travel and correspondence with travellers should not solely provide information that can cause rising perceived risks. They instead should inform them about the withdrawal or reimbursement policies, health coverage, and safety

measures to ensure that tourists can feel safe and assured once travel restrictions are lifted.

Domestic tourism is also essential to emphasise the safety and health procedures and any mobility activities that could make tourists feel assured and safer to travel again and lessening their perceived risk. Nevertheless, the tourism industry's recovery from the COVID-19 health emergency consequences is unforeseeable. It is primarily dependent upon the economy's rebound worldwide [82].

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