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Impacts of COVID-19 Pandemic on Malaysians' Visit to Nature-Based Destinations

新型コロナウイルス感染症パンデミックが
マレーシア人の自然への訪問に与える影響

by

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Abstract

Exposure of people to nature can bring many benefits to them especially to their physical and mental health such as in the reduction of stress. When people spend their time in nature-based environments, they can improve their positive mood such as being happy, which eventually might also motivate them to have concern and love towards the environments. Many studies conducted found the benefits of nature to people's well-being such as nature walk experience that were able to reduce anxiety, ruminations, and negative affect.

The emergence of the COVID-19 pandemic has pushed the governments from all over the world to implement measures such as lockdowns, quarantines, and prohibitions for unnecessary travels towards their people. These pandemic and preventions proved to have impacts on people's physical and mental well-being through all the restrictions. In some places in the world like Hong Kong and Norway, there were increase in visitation to nature-based spaces during the COVID-19 pandemic compared to before pandemic. Even though people had high perceived risk towards being infected with the coronavirus, they still wanted to visit the country parks and country side with the main purpose to release stress brought by the pandemic. Since Malaysia was one of the South East Asian countries that badly hit with the COVID-19, the government had to implement their lockdown measure called Movement Control Order (MCO) to tackle the infection, which lasted for a long time. The restrictions were very strict as people were urged to not go out without essential reasons and permissions, which consequently put the people under isolation period.

Previous studies in Malaysia showed the negative psychological impacts due to the COVID-19 pandemic and the MCO especially anxiety and stress among young people. To improve their mental well-being, this study assumed that people would change their

preference to nature-based destinations and motivate them more to visit nature-based destinations such as beach, waterfall/river, forest, and mountain during the COVID-19 pandemic, compared to before pandemic. Therefore, this study was conducted to figure out the impacts of COVID-19 pandemic on Malaysians' visit to nature-based destinations, through the Google Mobility Reports that demonstrated the trends for people's movement to parks and outdoor spaces during pandemic especially during MCO, and online survey questionnaire on Malaysians' preference of visit to nature-based destinations before pandemic, in 2019 and their preference to visit nature-based destinations during pandemic. Four common nature-based destinations in Malaysia which were beach, waterfall/river, forest, and mountain were focused in this study.

Google Mobility Reports showed the impacts of pandemic especially during MCO to people's movement to parks and outdoor spaces. The number of visitors to parks and outdoor spaces dropped significantly below the baseline during MCO as people were instructed to stay home and the number of visitors started to increase again until above the baseline once the MCO ended. In addition, the number of visitors to retail and recreation places such as shopping malls and movie theaters was still under the baseline even though it showed increment when MCO ended. This showed that people in Malaysia were motivated to visit parks and outdoor spaces such as national parks, beaches, and forest during the COVID-19 pandemic, rather than retail and recreation places.

Besides that, through the online survey conducted, this study found that even though respondents had high risk perceptions towards the virus and acknowledged about the level of risk to being infected at each nature-based destination if they visited the destinations during the pandemic, it did not significantly affect their preference to visit. Most people agreed with the beach as the riskiest area to get exposed with the coronavirus, nevertheless, they still generally did not change their preference to visit

nature-based destinations during pandemic compared to before pandemic where beach still became their top choice to visit, followed by waterfall/river, forest, and mountain. Interestingly, some of the respondents showed sudden interest to visit forest and mountain during pandemic, which contradicted with the results before pandemic. In addition, results also revealed that respondents wanted to travel more far and spent more time at nature-based destinations during pandemic than before, accompanied by their family members.

This study, which demonstrated that people in Malaysia generally showed their interest to visit nature-based destinations and had high risk perceptions towards the virus even after the emergence of COVID-19 proved the needs to make nature-based destinations accessible, safe, and hygienic for people, especially during this time. Nature-based destinations not only can be the spaces where people are able to refresh their mental well-being and relief stress brought by the COVID-19, but also give chance for people to have better appreciation and engagement with the natural environment. Therefore, it is crucial for the countries like Malaysia to have good and proper nature-based spaces for the benefits of their people during virus outbreak and for the environment

要旨

自然との関わりは、ストレスの軽減など、身体的・精神的な健康に多くの恩恵をもたらす。自然環境の中で時間を過ごすことは、人をポジティブな気持ちにさせ、さらには環境に対する関心の向上につながる可能性がある。自然散策の経験が不安などのネガティブな感情を軽減するなど、自然との関わりが心身の健康を増進することは多くの研究で明らかになっている。

新型コロナウイルス感染症（COVID-19）の出現に対し、世界各国の政府は、ロックダウン、検疫、不要不急の渡航禁止などの措置を取っている。これらのパンデミックとその予防策は、あらゆる制限を含むことから、人々の心身の健康に影響を与えることが分かっている。世界には、香港やノルウェーなど、COVID-19 パンデミック時にパンデミック前と比べ自然空間への訪問が増加した国がある。コロナウイルスに感染する危険性が高いにも関わらず、人々はパンデミックによるストレスを発散するために、郊外や郊外の公園を訪れようとしたのである。マレーシアは、COVID-19 で多大な被害を受けた東南アジアの国の一つである。そのため、政府は移動規制令（Movement Control Order, MCO）と呼ばれる封鎖措置を長期にわたって実施した。市民は許可なしに外出しないよう求められるなど、この措置は非常に厳しく、その結果人々は長期的に隔離された状態に置かれた。

先行研究では、マレーシアにおける COVID-19 の流行と MCO の実施による心理的な悪影響、特に若者の抱える不安やストレスが指摘されている。そのため本研究では、COVID-19 のパンデミック時にはパンデミック前と比較して、心身の健康を増進するため、ビーチ、滝・川、森、山などの自然観光地に対する嗜好が変化し、観光へのモチベーションが高まると仮定した。そこで本研究では、パンデミック時、特に MCO 期間中のマレーシアの屋外空間への人々の移動傾向を示した Google Mobility Reports と、パンデミック前（2019 年）とパンデミック時のマレーシア人の自然観光地への訪問嗜好に関するオンラインアンケート調査を通して、COVID-19 のパンデミックがマレーシアの自然観光地

訪問に与える影響について明らかにすることを目的とした。本研究では、マレーシアで一般的なビーチ、滝・川、森、山の 4 つの自然観光地に焦点を当てた。

Google Mobility Reports では、特に MCO 期間中の公園や屋外スペースへの人々の移動において、パンデミックの影響がみられた。公園や屋外スペースへの訪問者数は、MCO 期間中は自宅待機が指示されたためにベースラインを大きく下回り、MCO 終了後に再び増加に転じ、ベースラインを上回るようになった。また、ショッピングモールなどの小売店や映画館などのレクリエーション施設への訪問者数は、MCO 終了後に増加したものの、ベースラインは下回っていた。そのため、マレーシア人は、COVID-19 流行時には、小売店やレクリエーション施設よりも、国立公園、ビーチ、森林などの公園や屋外スペースへの訪問意思が高いことが明らかになった。

また、本研究で実施したオンライン調査で、回答者のウイルスに対するリスク認知や、パンデミック時に自然観光地を訪れた場合の感染リスクの認識は、訪問意思に影響を与えていないことが明らかになった。ほとんどの人が、コロナウイルスに感染するリスクが最も高いのはビーチだと考えていた。しかし、パンデミック発生後も自然観光地の嗜好性は変化しておらず、パンデミック中の訪問意思が最も高かったのはビーチであり、次いで滝・川、森、山が続いた。また、パンデミック前には自然観光地への訪問意思がなかったにもかかわらず、パンデミック時には自然観光地に訪問したいと回答した人も一部いた。また、パンデミック時には、パンデミック前と比較して、家族同伴での遠出や自然観光地での滞在が増加することも明らかになった。

本研究では、マレーシア人が COVID-19 のパンデミック発生後も一般に自然観光地への訪問に興味を示しており、またウイルスに対して高いリスク認知を持っていることが明らかになった。そのため本研究は、アクセスのしやすい、安全、衛生的な自然観光地の必要性を証明するものである。自然観光地は、COVID-19 によってもたらされたストレスを解消でき、人々の心身の健康を増進することのできる空間であるだけでなく、人々が自然環境と関わり、理解を

持つきっかけとなる。したがってマレーシアのような国では、環境のため、そして特にパンデミック時の人々の利益となるため、適切な自然観光地を確保することは非常に重要である。

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List of Abbreviations

Conditional Movement Control Order (CMCO)

Movement Control Order (MCO)

National Park (NP)

Nature-Based Destination (NBD)

Recovery Movement Control Order (RMCO)

World Health Organization (WHO)

Introduction

Importance of Nature Experience

Studies found that exposure of people to nature could leave positive effects to them (Bratman, Daily, Levy, & Gross, 2015; Beil & Hanes, 2013; Capaldi, Dopko, & Zelenski, 2014). Even though not all parts of nature could give benefits for people, however for those who were more exposed to nature would receive more advantages than those who were not (Capaldi et al., 2014). People who had experience with the natural environments would have consistent personality, attitude, behaviour, as well as their well-being (Nisbet, Zelenski, & Murphy, 2009). They would also engage in pro-environmental behaviour such as buying green products (Nisbet et al., 2009). This is because the nature connectedness made them concern with their living things, the community, and the future generations. When people spend a lot of time in nature, they can improve their positive mood such as being happy, which then may motivate them to care and have concern for the natural environments (Nisbet & Zelenski, 2013). In short, being in nature could increase the appreciation of people towards the natural environments. Many studies that were conducted using different types of nature experiences such as using photographs, window views, and physical presence in nature with different exposure durations found improvement to the psychological well-being of the respondents (Bratman et al., 2015). For example, Verderber (1986) found that patients that underwent surgery in a hospital with window views had improve their healing process through the reduction of pain medication level and speed of recovery. Most importantly, in relation to this present study, exposure to nature could also result in the reduction of stress (Hunter, Gillespie, & Chen, 2019).

Since stress could be one of the factors that lead to some health problems like cardiovascular diseases, anxiety disorders, and depression, it is essential to know that

even with short exposure to nature could give advantages for people. Therefore, the health benefits of nature especially in reducing stress may be very important to look at (Grinde & Patil, 2009). A study by Beil & Hanes (2013) was conducted in four different types of urban environments ranging from the less to the most natural settings proved the benefits of exposure to natural settings were higher than in built settings, especially in stress reduction. Vitality was also found to be the most associated with nature connectedness, followed by positive affect, and life satisfaction (Capaldi et al., 2014). For example, nature's restorative benefits could reduce the feeling of fatigue in people and increase their energy (Kaplan, 1995). Another study by Bratman et al. (2015) that compared the benefits of nature walk experience and urban walk experience reported that respondents had higher affective advantages from nature walk experience than urban walk experience. The nature walk experience had reduced their anxiety, rumination, and negative affect. The study also found that participants had improvement on cognitive functioning after nature walk experience compared to before the walk. Ulrich (1999) stated that nature is giving its benefits for people through the physical activities that often being done when they are in natural environments which clearly improve health, enhance their social networks through spending time and communicating with friends and family, as well as giving them chance for escaping from their everyday lives.

The COVID-19 Pandemic

The coronavirus or COVID-19 was first started in Wuhan, China at the end of 2019 and it was officially announced by the Chinese authorities on 7 January 2020. The World Health Organization (WHO) then declared the outbreak as their highest level of alarm and officially announced the outbreak as a global pandemic due to the increasing number of COVID-19 cases in both China and other countries in just a short time (World Health Organization). Since the outbreak, the WHO has been working to help and

support the countries around the world in responding to the COVID-19 and contain the infection (World Health Organization). Due to that, preventions were taken by most of countries by implementing measures such as lockdown, quarantines, cancelling outdoor events, closing of academic institutions, and encouraging companies to work from home (Gossling, Scott, & Hall, 2020).

The alarming SARS epidemic that appeared 17 years ago in 2003 had killed 10% from over 8000 people who were infected in 26 countries from all over the world (WHO, 2003). It was expected that the impacts of the COVID-19 would be worse than the SARS outbreak, thus the time for this COVID-19 pandemic to end is still unpredictable (Chung, Xu, & Zhang, 2020). Up until 24 October 2021, over 243 million confirmed cases and over 4.9 million deaths have been reported since the start of the pandemic (WHO, 2021). Therefore, starting from self-practice social distancing to military-enforced lockdown, these unexpected public health measures and interventions have caused sudden massive disruptions to the global tourism, economy, education, and especially the routine of daily life for billions of people in the world (He, Deng, & Li, 2020).

COVID-19 Pandemic in Malaysia

COVID-19 had rapidly spread to Asian countries and later on to all of countries around the world within just a month from its first outbreak in China (Wong & Alias, 2020). In Malaysia, the first confirmed case was reported on 25th January 2020 and the first confirmed death on 17th March 2020. The country and its neighboring countries such as Thailand and Singapore were among the first few countries to report COVID-19 cases outside of China. The first wave of COVID-19 in Malaysia in January started from the infected individuals arriving from China and subsequently brought Malaysia to the second wave of COVID-19 at the end of February 2020 which mainly transmitted among the communities (Ministry of Health, 2020). Following the rapid increase in the cases of COVID-19 in Malaysia in the second wave, various measures were taken by the Malaysian

government to control the infection (Wong & Alias, 2020; Mohd Hanafiah & Wan, 2016). Ranging from banning international travels to and from countries with high cases such as Italy, Iran and South Korea, the government eventually implemented a Movement Control Order (MCO) to the whole country to restrain the outbreak as the cases kept escalating (Wong & Alias, 2020). Table 1 below is the list of measures taken by the Malaysian government including the MCO as the government ways to curb the infection after the arrival of the virus to the country.

Table 1 Measures by the Malaysian Government to tackle the COVID-19

Table 1 Covid-19 containment measures in Malaysia (Bernama 2020a, 2020b; Ministry of Health Malaysia 2020; Prime Minister's Office of Malaysia 2020a, 2020b)

Date	Measure
27 Jan 2020	26 hospitals were identified as centres for further examination and treatment of individuals with suspected Covid-19 infection. The entry of Chinese nationals from Wuhan city and Hubei province was suspended.
28 Jan 2020	A committee comprising the National Disaster Management Agency, the Ministry of Foreign Affairs, the Ministry of Health, the Malaysian Armed Forces, and the National Security Council was established to facilitate the return of Malaysians from the Hubei province of China. The Sabah Government suspended all flights to China.
1 February 2020	All Chinese citizens and non-Malaysian citizens who visited China in the last 14 days were prohibited from entering Sarawak. Those with employment passes, student passes, or long-term social visit passes had a 14-day self-quarantine imposed .
8 February 2020	Travel restriction was imposed in Sabah on non-Sabah citizens and 14-day self-quarantine mandated for Sabah citizens with recent travel history to or returning from China.
11 February 2020	Agreement was attained between Malaysia and Singapore to form a Covid-19 containment joint committee headed by the deputy health ministers of both nations.
5 March – 14 March 2020	The Malaysian Government expanded the travel restriction list, and began full restriction of foreign nationals coming from Italy, Iran, and South Korea on 13 March.
16 March 2020	The Prime Minister of Malaysia announced the implementation of the MCO commencing on 18 March.
18 March 2020	The first phase of the MCO came into effect until 31 March.
25 March 2020	Announcement was made on the extension of the MCO from 1 April to 14 April, namely the second phase of the MCO.
10 April 2020	Announcement was made on the extension of the MCO from 15 April to 28 April, namely the third phase of the MCO.
21 April 2020	Announcement was made on the extension of the MCO from 29 April to 12 May, and this is called the fourth phase of the MCO.
1 May 2020	Conditional MCO which allowed conditional resumption of certain businesses to ease economic losses was announced. The businesses excluded those requiring close contacts and crowding such as cinemas, entertainment centers, exhibitions and theme parks. States were given autonomy in their adoption of the conditional MCO.

Source: (Tang, 2020)

The MCO in Malaysia

The 2020 MCO (MCO 1.0), known as partial lockdown was a major move taken by the Malaysian government to curb the COVID-19 infection (Tang, 2020). The MCO prohibited any mass gatherings and movements to all places in the whole country including religious activities were not allowed. All businesses except for essential businesses and services such as manufacturers, suppliers, retailer, and food outlets were required to close (Kumar, Malviya, & Sharma, 2020; Prime Minister Office, 2020a). Not only that, all types of learning institutions such as schools and universities and most of workplaces were closed which people were encouraged to learn and work from home. Since the situation in Malaysia did not seem to get better after the implementation of the first phase of MCO 1.0, the enforcement got even more strict with the road blocks established across the country and the military forces mobilized to control people's movements (Bernama, 2020a). All citizens were only allowed to travel to 10-km radius from their residency and travelling for buying daily necessities was limited to only one person from each household (Bernama, 2020b). For those who lived in the areas that were identified as high risk underwent stricter MCO with the prohibition of leaving their areas and prohibition of outside people to enter (Prime Minister Office, 2020b).

During the first phase of MCO 1.0, official media played their roles in providing latest information and updates about MCO and urging the people to stay at home, minimize unnecessary travels, practice personal hygiene, and keep social distances. The stringent enforcement seemed to bring more compliance from the citizens especially in the second and third phase of the MCO 1.0 (Zolkepli & Sivanandam, 2020). The MCO 1.0 in Malaysia lasted for a long period of time until early May 2020, where the country then entered a new and less strict order, which called Conditional Movement Control Order (CMCO), followed by an even less strict Recovery Movement Control Order (RMCO) after the cases seemed to reduce and under control. However, in January 2021, Malaysia

received another wave of COVID-19, which subsequently putting the country under MCO 2.0 until March 2021. Eventually, Malaysia hit the highest number of cases in May 2021 which consequently putting them under MCO 3.0 until June 2021. The implementation of the MCO by the government for a long time was effective to curb the COVID-19 infection in Malaysia as the COVID-19 cases showed decrease trends during the MCO 1.0 and 2.0 periods. Figure 1 below, provided by Google presented the daily positive cases in Malaysia since the COVID-19 pandemic and how it rapidly increased especially in 2021 which eventually caused the government to implement MCO 2.0 and MCO 3.0.

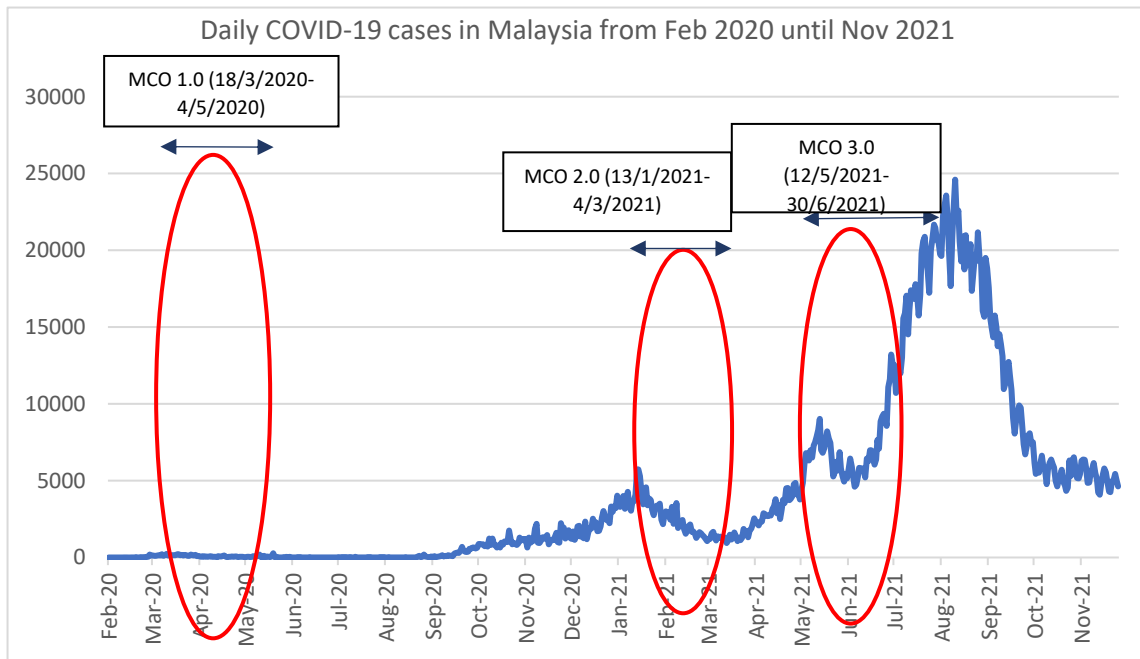


Figure 1: COVID-19 Daily New Cases in Malaysia

Impacts of Previous SARS Pandemic & COVID-19

The impacts of the previous diseases could be seen not only to the economic and social, but psychological health of people was also affected. A lot of evidence from the previous studies showed significant impacts from the infectious diseases such as SARS, Ebola, and H1N1. Psychological effects from the SARS outbreak that appeared 17 years ago were seen in long term. A study by Wu, Liu, Fang et al. (2008) found strong association between current alcohol abuse symptoms with having been quarantined or worked in high-risk locations among hospital employees after 3 years from the outbreak. Not only that, being quarantined had led people to engage in avoidance behaviors (Brooks, Webster, Smith et al., 2020). More than half of those who had to be quarantined due to the potential of SARS contact would avoid people who coughed and sneezed, some avoided crowded enclosed spaces, and some would not go to any public spaces few weeks after their quarantine period (Reynolds, Garay, Deamond et al., 2008). Besides that, a study by Cava, Fay, Beanlands et al. (2005) in Toronto, Canada reported behavioural changes in their respondents such as vigilant handwashing, avoidance of crowds, and the delayed of their daily lives to back to normal. Thus, from all those studies, Brooks et al. (2020) concluded that the stressors during quarantine include the duration of quarantine, fears of infection, frustration and boredom, inadequate supplies and information, financial loss, and stigma.

COVID-19 pandemic has been spread to most of all countries around the world, hence the impacts were expected to be worse than the SARS outbreak. Since the governments from the countries have been taking drastic measures to control the infection especially urging their citizens to stay home and implementing quarantine for those who suspected to have contact with the virus, mental health consequences from those measures have been observed. Vindegaard and Benros (2020) in their study found that respondents who had experience of being infected with the coronavirus had high

level of post-traumatic stress symptoms and higher level of depressive symptoms than those whom were not. The study also reported that those who already had psychiatric disorders had worse psychiatric symptoms during the COVID-19 pandemic. In addition, general public respondents showed lower psychological health, higher level of anxiety and depression compared to before the outbreak. Besides that, another study that was conducted in China through a social media called Weibo as a medium for assessing the impacts of COVID-19 reported that not only there were increase in their negative emotions such as anxiety, depression, and anger, but also in their susceptibility to social risks. In fact, respondents had lower positive emotions and life satisfaction after the emergence of COVID-19 in China. People showed much worry for their health and family, and less concern for leisure and friends (Li, Wang, Xue, Zhao, & Zhu, 2020).

Impacts of COVID-19 on Malaysians

After the first COVID-19 case in Malaysia in January 2020 reported, the local outbreaks started to appear in March 2020 that mainly was connected with a big religious gathering called Tablighi Jumaat, which eventually caused sudden surge in the local cases. Due to that, MCO 1.0 was issued by the government to reduce the transmission, which Malaysians had to be confined to a long period of social isolation (Sundarassen et al., 2020). Thus, studies were conducted to examine the impacts of pandemic and the MCO implementation to Malaysians especially on their mental health.

The Human Resources Ministry reported that 99,696 Malaysians had lost their jobs since the implementation of the MCO 1.0 in March 2020 up until November 27 2020 (The Star, 2020). Besides that, the Ministry of Health of Malaysia reported that the Royal Malaysia Police (PDRM) revealed on the statistics for suicides had increased from January to July 2021, as compared to the previous year (BH Online, 2021). Apart from that, there were increase in psychological and behavioral responses of Malaysians along the progression of the pandemic. Most of them practiced high preventive measures, had high

perceived severity if they got infected, while overall respondents generally demonstrated high anxiety level due to high perception of severity and susceptibility, impacts, and fear of COVID-19 (Wong & Alias, 2021). A study by Dai, Zhang, Looi et al. (2020) found that during MCO 1.0, younger adults showed worse mental health problems such as insomnia, anxiety, depression, and distress, meanwhile adults with bad health conditions also had worse mental health problems. Psychological impacts among university students in Malaysia were also observed. It was found that 20.4% of the university students had minimal to moderate anxiety level, 6.6% had moderate to severe, and 2.8% had most extreme anxiety level where the factors were financial problems, online learning, and their concern to their academics and career (Sundarassen, Chinna, Kamaludin et al., 2020). It was also found that female and single people had higher chance to be exposed with psychological problems because of the COVID-19 such as depression and anxiety and those who lived in rural areas had higher level of fear to COVID-19 (Kassim, Pang, Mohamed et al., 2021). There were also temporal changes in psychobehavioural responses during the early pandemic in Malaysia. In the early phase of the outbreak, people in Malaysia generally developed avoidance behaviour especially by avoiding abroad travelling, crowded places, taking public transport, and public places, but at the same time, they also practiced protective behaviour such as covering themselves when sneezes or coughs, washing hands frequently, and staying home if they were sick. As the pandemic progressed, people seemed to practice even higher avoidance and protective behaviour (Wong & Alias, 2021). This shows that people in Malaysia were concern and cautious towards the virus.

How Contact to Nature Help People During Disease Outbreak

During the time of health scare, people would avoid visiting places like shopping malls, theater centers, and plaza. Instead, they would prefer to choose outdoor spaces like countryside and country parks since some of the places have less people and less risk to be exposed with the virus. Participation of people in leisure outdoor activities can help

people to release stress brought by the virus. When people engaged in those activities, not only they could reduce the negative psychological feelings that came with the health scare, but also strengthen their relationship with their company such as friends and family (Marafa & Tung, 2004). Ma et al. (2020) stated that making nature-based spaces as areas for pandemic disease adaptation not just lower the risk from getting infected with the virus, but also help people to cope with their anxiety, pressure, or other psychological impacts. One of the studies in Hong Kong during the SARS outbreak reported an increase in visitation to countryside areas at that time. 14% of the respondents stated that their visitation was because of the SARS outbreak and almost 50% of them were pulled by the desperation to relieve stress because of the virus and accompanied by family and friends. The main purposes for their visitation were to get fresh air, get close to nature, the healthy and comfortable environment of countryside, and for doing activities such as hiking and fishing (Marafa & Tung, 2004). The study emphasized the importance of countryside environment that had been receiving interest during disease outbreak for the enhancement of healthy, sustainable, and quality of life of people.

During this critical time of the COVID-19 pandemic, a lot of studies were done to see how nature-based spaces play its role in reducing the psychological impacts such as stress, boredom, and the feeling of loneliness due to sudden changes in their life routine. Quarantines, lockdowns, cancelling of outdoor events, and closure of schools and public facilities (Gossling et al., 2020) had eventually affected mental health of people (Brooks et al., 2020; Ma et al., 2020; Soga, Evans, Tsuchiya et al., 2021). Thus, the demand for recreational space has been increasing (Samuelsson et al., 2020; Venter, Barton, Gundersen et al., 2021). During the early phase of COVID-19 lockdown in Oslo, Norway, there was 240% of increase in recreational activities of people such as cycling, hiking, and walking. Six months after that, the study found that recreational activities remain

89% above the baseline levels and that the people in Oslo, Norway showed their most sudden interest in forest and protected areas during the period. This implied about the value of urban nature and open spaces for the people who are facing with the health scare due to pandemic (Venter et al., 2021). In Hong Kong, it was reported that there was a rise in the number of visitors to country parks during the COVID-19 pandemic. People who had higher perceived risk towards getting infected with the coronavirus and greater experience with the previous SARS outbreak had less visitation frequency to country parks as their way to minimize their possibilities of contracting the virus. Interestingly, those people who had higher dependence and trust towards the government and public adaptation measures had increase in their visits to the country parks. The study suggested that even though people generally had high risk perceptions towards the virus and the fact that they might get exposed to the virus at the country parks, their trust and confidence on the government and public to contain and deal with the COVID-19 made them feel safer for visitation. Not only that, in the study, people had the highest agreement towards the statement that the environment at country parks help to improve their mental well-being by reducing their stress and anxiety because of the COVID-19 pandemic (Ma et al., 2020). This proved that nature-based destinations like the country parks in Hong Kong could be the spaces where people are still able to enjoy themselves even during the COVID-19 pandemic.

Study Framework, Aim, and Objectives

The emergence of the COVID-19 had leave impacts to people's movement in Malaysia especially during the MCO. Their movement to go outside especially to the places with high probability to get infected such as shopping malls, restaurants, and any educational institutions including visit to the parks and outdoor spaces that have better ventilation such as national parks and beaches were very much restricted and not encouraged. For example, during MCO people were only allowed to jog individually at

the parks nearby their residency. Therefore, it was hard for people to go out and enjoy themselves at the less risky places such as at beaches or big parks during the COVID-19 pandemic. Besides that, their movement were not only driven by the strict rules of the MCO, but also could be related to their own fear and perceived risk towards being infected (Mohd Hanafiah & Wan, 2020). However, previous studies in other countries found the rise in the number of visitors to the nature-based spaces like country parks during the SARS and COVID-19 outbreaks compared to before the outbreaks despite their fear to being infected (Marafa & Tung, 2004; Ma et al., 2021; Venter et al., 2021). With high perceived risk towards being infected, their confidence to the government and public that could handle the infection and the ability for the country parks to reduce stress due to pandemic had influenced them for visitation (Ma et al., 2021). Not only that, socio-demographics characteristics were associated with people's movement such as younger people seemed to involve in recreational activities more than older people during pandemic (Venter et.al, 2021). This is because older generation which had possibility to experience previous diseases such as SARS and H1N1 and more vulnerable to COVID-19 could have higher perceived risk towards the disease and thus avoid visiting public spaces (Ma et al., 2021). In addition, a study during Ebola outbreak found that women would more likely to avoid travelling during the outbreak than men due to their "ethic of care" and level of concern more than men (Cahyanto et al., 2016).

Since Malaysia is considered as one of the Asian countries that was most affected with the COVID-19 pandemic (Ministry of Health, 2020), that subsequently putting the citizens under a long period of quarantine or MCO, I found evidence through previous studies about the pandemic that contributes to the negative psychological feelings especially stress and anxiety of the people in Malaysia (Dai t al., 2020; Sundrasen et al., 2020) and how nature-based destinations could be the space for people to relief stress brought by the pandemic (Marafa & Tung, 2004; Ma et al., 2021; Venter et al., 2021).

Hence, due to the pandemic and MCO, I hypothesized that there would be changes to the movement of people in Malaysia, specifically to parks and outdoor spaces, and people’s visit to nature-based destinations would change. Besides that, their visit to nature-based destinations might be associated with their risk perception towards being infected with the COVID-19, level of risk to being infected at each nature-based destination that chosen for this study, and their socio-demographics. However, despite focusing on the socio-demographics factors, this study will emphasize and discuss to see if people’s risk perceptions affect their preference for nature-based destinations during the COVID-19 pandemic.

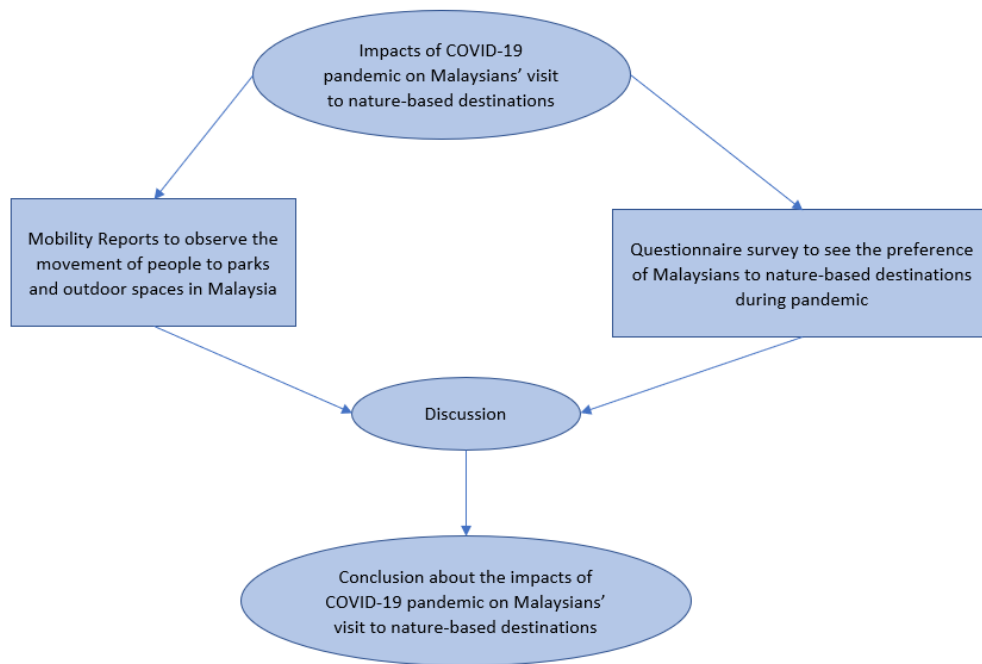


Figure 2: Guiding Framework

Figure 2 above is the guiding framework for this study. According to the framework, to figure out the impacts of COVID-19 pandemic on Malaysians’ visit to nature-based destinations, I will observe the mobility reports that showed the movement of people in Malaysia during pandemic especially during MCO periods to

parks and outdoor spaces. I will also assess their preference for nature-based destinations before pandemic and during pandemic such as their frequency of visits to nature-based destinations in 2019 and their willingness to visit nature-based destinations during pandemic, including the factors that might influence their visits which are risk perceptions to COVID-19, risk perception at each nature-based destination, and their socio-demographics such as gender and age through questionnaire survey. In this study, I will focus on the four common nature-based destinations in Malaysia which are beach, waterfall/river, forest, and mountain. The results from Mobility Reports and questionnaire survey will be discussed and concluded to see how the COVID-19 pandemic has been affecting Malaysian's visit to nature-based destinations.

Therefore, the aim of this study is to understand the impacts of COVID-19 pandemic on Malaysians' visit to nature-based destinations. The first objective is to figure out the movement of people in Malaysia to parks and outdoor spaces during COVID-19 pandemic, especially during MCO. Second objective was to figure out Malaysians' preference on visit to nature-based destinations during pandemic and see if their risk perceptions and socio-demographics influenced their visits.

Methodology

Study Methods & Study Area

For the first objective of this study, I created charts based on Google Mobility Reports data provided by Our World in Data to see the movement of people in Malaysia during the COVID-19 pandemic, specifically during the MCO periods. For the second objective, to see the preference on visit of Malaysians to nature-based destinations for the second objective, I conducted online survey questionnaire to collect all the information.

Through the mobility reports, I observed how the number of visitors to parks and outdoor spaces such as national parks and public beaches had changed during MCO compared to the baseline days. I also saw how the number of visitors changed again when the MCO ended. The movement of people at residential areas and to retail and recreation such as shopping malls and movie theaters were also observed and compared with the movement of people to parks and outdoor spaces.

The online survey through the Google Form consisted with three parts. The first part was about the frequency of visits to each four nature-based destination which were beach, waterfall/river, forest, and mountain in 2019 (before pandemic) and their willingness to visit the four nature-based destinations at this time (during pandemic). Most of regions in Malaysia were still under MCO during the survey conducted where most of visitation were not allowed, hence this study was only able to assess their willingness on how much they wanted to visit the nature-based destinations during pandemic. The first part also included instruments about their company when visiting nature-based destinations in 2019 and their willingness on with whom to visit at this time, how far they travelled to nature-based destinations in 2019 and how far they wanted to travel at this time, and how much time they spent at nature-based destinations in 2019 and their willingness to spend at this time. They also stated about their reasons for why they wanted to visit nature-based destinations at this time. The second part of the survey assessed about respondents' perceived risk towards the COVID-19 and their level of perceived risk to getting infected at each nature-based destination if they visited the destination at this time. The questions about the COVID-19 were also included to assess respondents' level of knowledge about the disease to increase reliability of this study. The last part of the survey collected respondents' basic demographics information such as gender, age, education level, and occupation.

Since Malaysia has been receiving great impacts from the COVID-19 and the

implementation of MCO by the government, I expected changes to their movement and preference on visit to nature-based destinations. Therefore, this study was conducted on Malaysian citizens. A total of 303 citizens of Malaysia had participated in the survey. Most of them were from Peninsular Malaysia and only a few from East Malaysia which were Sabah and Sarawak. Most of the regions in Malaysia were still under MCO during the time this study was conducted, hence the survey was done online through Google Form. The link was randomly shared through social media and I requested the respondents to then share the link to their relatives and friends.

Results

Google Mobility Reports of Malaysians during the COVID-19 Pandemic

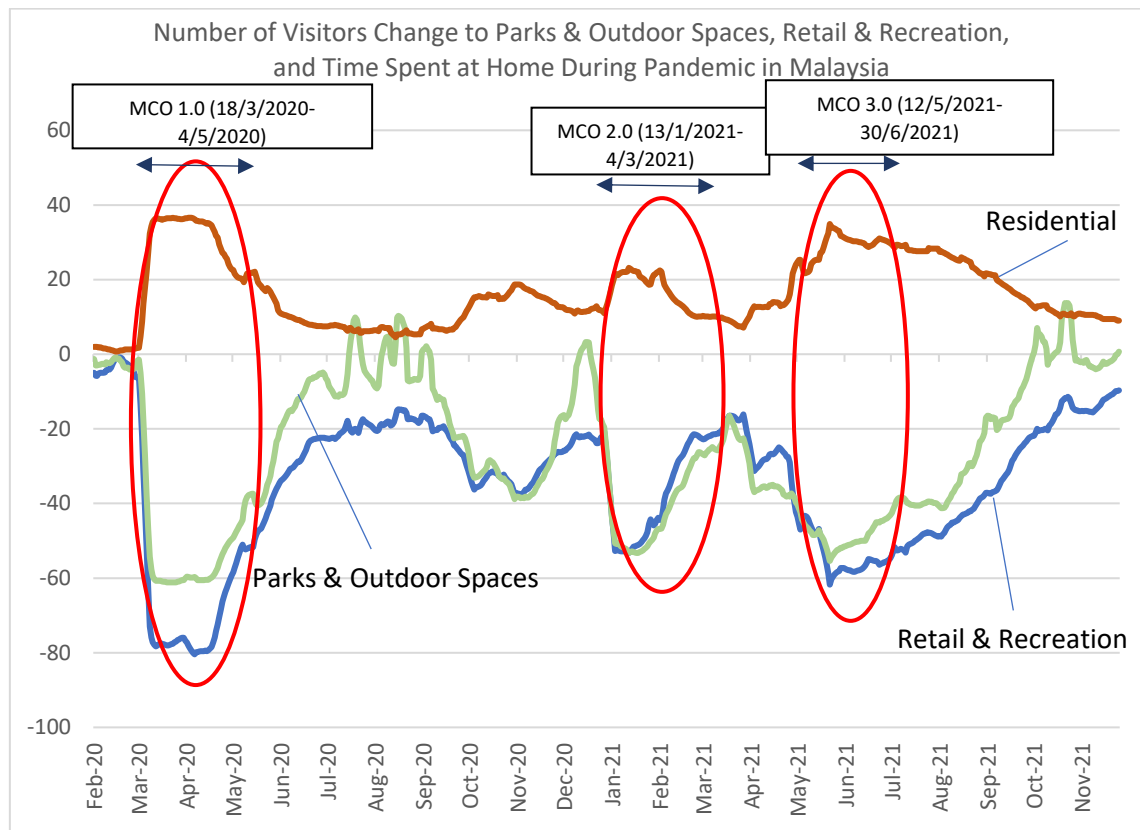


Figure 3: Mobility of People to Parks & Outdoor Spaces, Retail & Recreation, and Residential During COVID-19 Pandemic

The emergence of COVID-19 had caused governments from all nations including Malaysia to implement massive measures especially the MCO to tackle the infection. Figure 3 above, data from Google Mobility Reports, provided by Our World in Data, shows the movement of people in Malaysia to parks and outdoor spaces, retail and recreation, and time spent at home during the COVID-19 pandemic. Overall trends showed that the time spent at home during pandemic increase compared to baseline

whereas the number of visitors to parks and outdoor spaces and retail and recreation decrease below the baseline especially during MCO.

The first red circle shows the changes in the number of visitors in each category during MCO 1.0. The number of visitors to parks and outdoor spaces decreased until 60% below the baseline meanwhile the number of people to retail and recreation dropped until 80% below the baseline. The significant drop proves that the implementation of MCO 1.0 by the government which aimed to make people staying home had successfully received compliance from the people. The second and third red circle presents the change in number of visitors to parks and outdoor spaces, retail and recreation, and residential during MCO 2.0 and MCO 3.0 respectively. The number of visitors to parks and outdoor spaces and retail and recreation seemed to show some increment during both MCO, which probably happened due to the loosen MCO restrictions at that time, thus while adhering to the social distancing measures, people were given some chances to go out. In addition, the number of visitors to parks and outdoor spaces and retail and recreation generally started to increase when the MCO, especially MCO 1.0, ended.

Visiting patterns to nature-based destinations in 2019 and during COVID-19 pandemic among Malaysians

In 2019, before the COVID-19 pandemic, it was found that there were relationships between the four types of nature-based destinations and their frequency of visits in 2019 ($\chi^2 = 158.9$, $df = 9$, $p < 0.05$). Beach was the most common nature-based destination that Malaysians had visited in 2019. This is because 72.6% of the respondents said that they visited beach areas 1 to 3 times in a month. It was followed by waterfall/river areas with 55.8% visited 1 to 3 times per month, forest areas with 40.6% visited 1 to 3 times per month, and mountain areas with 37% visited 1 to 3 times per month. The results in Table 2 and Figure 4 below show that more than half of the respondents had never visited any forest and mountain areas in 2019.

Table 2: Frequency of Visits to Nature-Based Destinations in 2019

Nature-based destination	Never	1 to 3 times/month	4 to 6 times/month	More than 6 times/month
Beach	14.9%	72.6%	7.6%	5.0%
Waterfall/river	38.3%	55.8%	4.3%	1.7%
Forest	55.4%	40.6%	2.6%	1.3%
Mountain	59.1%	37%	2.3%	1.7%

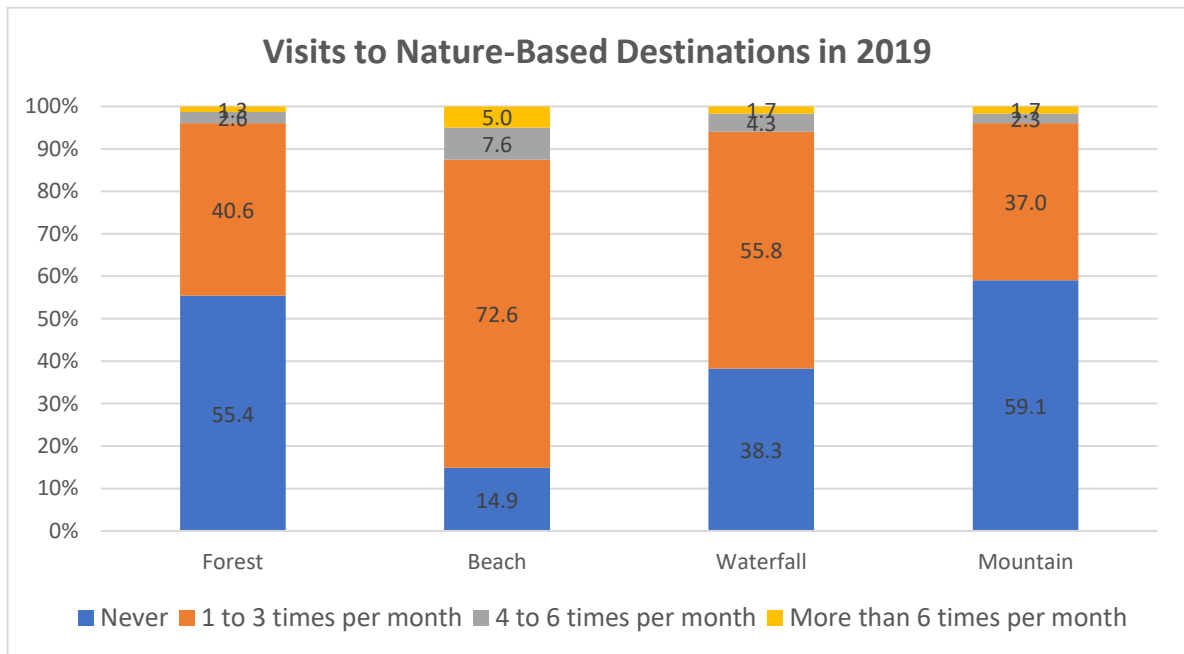


Figure 4: Chart on Frequency of Visits to Nature-Based Destinations in 2019

During the pandemic of COVID-19 in 2021, statistical test showed that there were relationships between the four types of nature-based destinations and respondents' wish to visit the nature-based destinations during that time ($\chi^2 = 53.45$, $df = 12$, $p < 0.05$). According to Table 3 and Figure 5 below, 49.2% of respondents really wanted to visit

beach areas the most, followed by waterfall/river areas with 44.9%, forest areas with 30.4%, and mountain areas with 28.7%. Interestingly, even though more than half of the respondents said they never visited forest and mountain areas in 2019, but majority of respondents wanted to visit these two destinations during the pandemic, where 62.4% wanted to visit forest and 62% wanted to visit mountain areas. 44% from those whom never visited forest in 2019 said they wanted to visit forest during pandemic while 47% from those whom never visited mountain in 2019 chose to visit mountain during this pandemic.

Table 3: Wish to Visit Nature-Based Destinations During Pandemic

Nature-based destination	Really Don't Want	Don't Want	Not Sure	Want	Really Want
Beach	5.9%	5.9%	8.6%	30.4%	49.2%
Waterfall/river	6.6%	9.6%	9.6%	29.4%	44.9%
Forest	8.3%	13.2%	16.2%	32%	30.4%
Mountain	6.6%	15.5%	15.8%	33.3%	28.7%

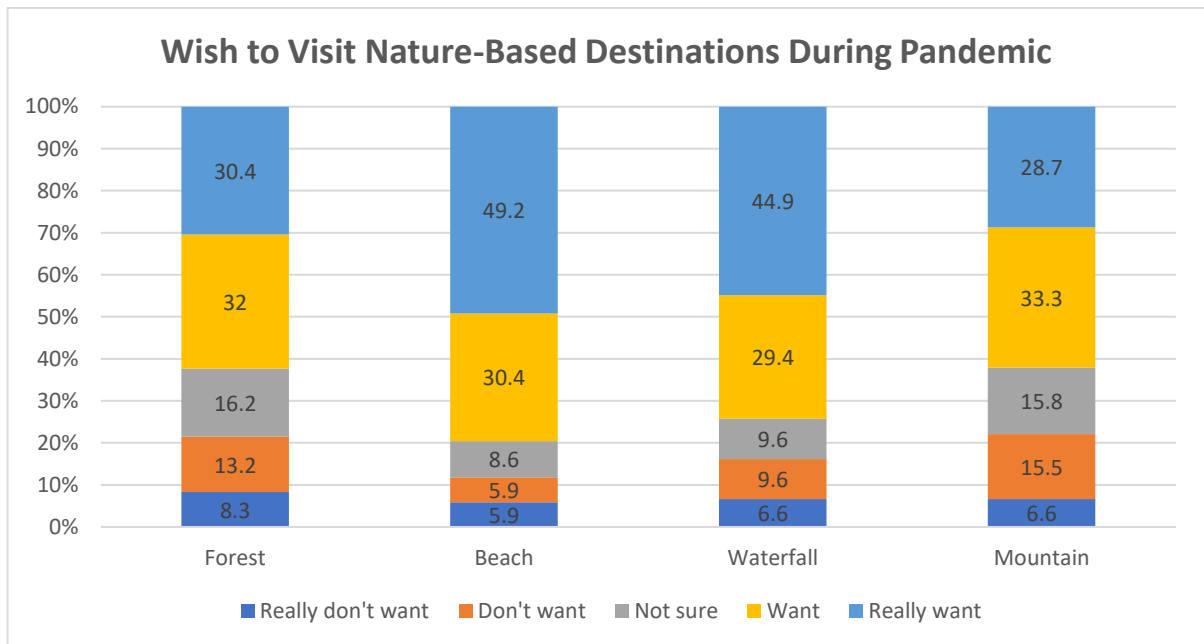


Figure 5: Chart on Wish to Visit Nature-Based Destinations During Pandemic

This means that the preference of Malaysians on choosing to visit nature-based destinations were not changed even after the emergence of COVID-19, where respondents still wanted to visit beach and waterfall/river areas the most. However, there were some changes to their preference to visit forest and mountain areas during the COVID-19 pandemic compared to 2019.

About the time respondents spent and to spend at nature-based destinations, there were relationships between the time respondents spent at ND in 2019 and during pandemic ($p < 0.05$). Malaysians usually spent 2 to 4 hours (40.3%) and more than 4 hours (40.3%) at nature-based destinations in 2019. However, when asked about the time they wish to spend at nature-based destinations during pandemic, it seemed that more respondents (52.5%) wished to spend more than 4 hours. This shows that after the emergence of the COVID-19, Malaysians wished they could spend more time at nature-based destinations now compared to during 2019. Table 4 and Figure 6 below are the

details about the time spent in 2019 or to spend at nature-based destinations during pandemic among Malaysians.

Table 4: Time Spent at NBD in 2019 & To Spend at NBD During Pandemic

	1-2 hours	2-4 hours	> 4 hours	Mean
2019 (Before pandemic)	19.5%	40.3%	40.3%	2.208
2021 (During pandemic)	15.2%	32.3%	52.5%	2.373

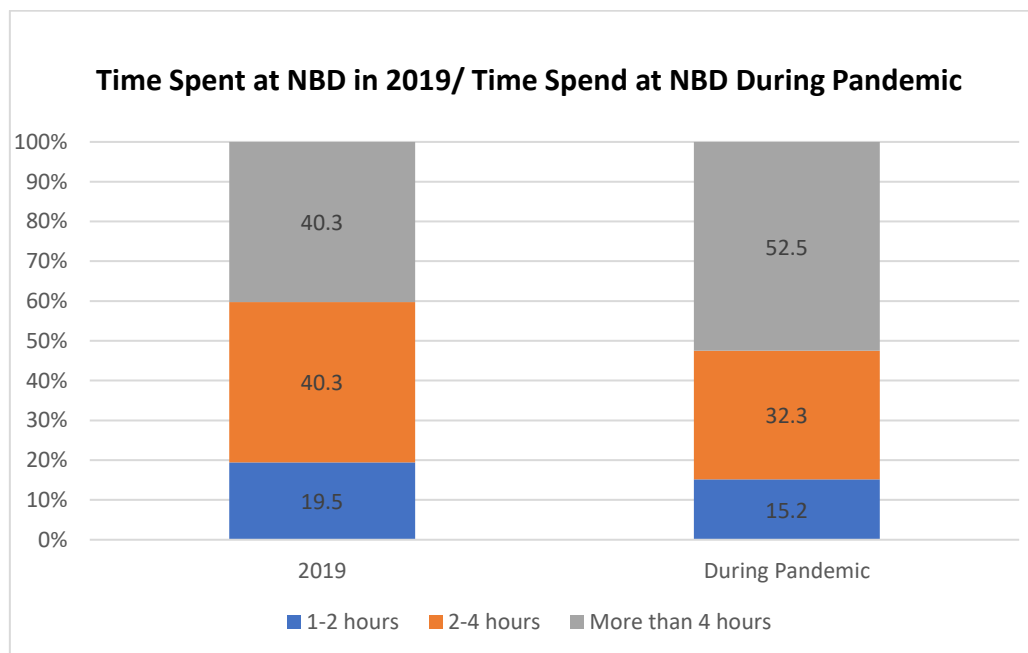


Figure 6: Chart on Time Spent at NBD in 2019 & Time to Spend at NBD During Pandemic

Besides that, statistical test showed that there were no relationships between distance travelled to nature-based destinations in 2019 and distance to travel to NBD during pandemic among respondents ($p > 0.05$). In 2019, respondents usually travelled 10 to 30 km (36.0%), 30 to 50 km (19.5%), and more than 50km (30.4%) to nature-based

destinations. When asked about their wish to how far they wanted to travel to nature-based destinations during this time, a little more respondents (35.6%) wished to travel more than 50 km, 23.4% wished to travel 30 to 50 km, and 28% wished to travel 10 to 30 km. This implies that only some of Malaysians wished to travel more far during this time of the COVID-19 pandemic. Below is Table 5 and Figure 7 that shows the results of distance travelled and to travel to nature-based destinations among respondents.

Table 5: Distance Travelled to NBD in 2019 & Distance to Travel to NBD During Pandemic

	<10 km	10-30 km	30-50 km	>50 km	Mean
2019 (Before pandemic)	14.2%	36%	19.5%	30.4%	2.66
2021 (During pandemic)	12.9%	28.1%	23.4%	35.6%	2.818

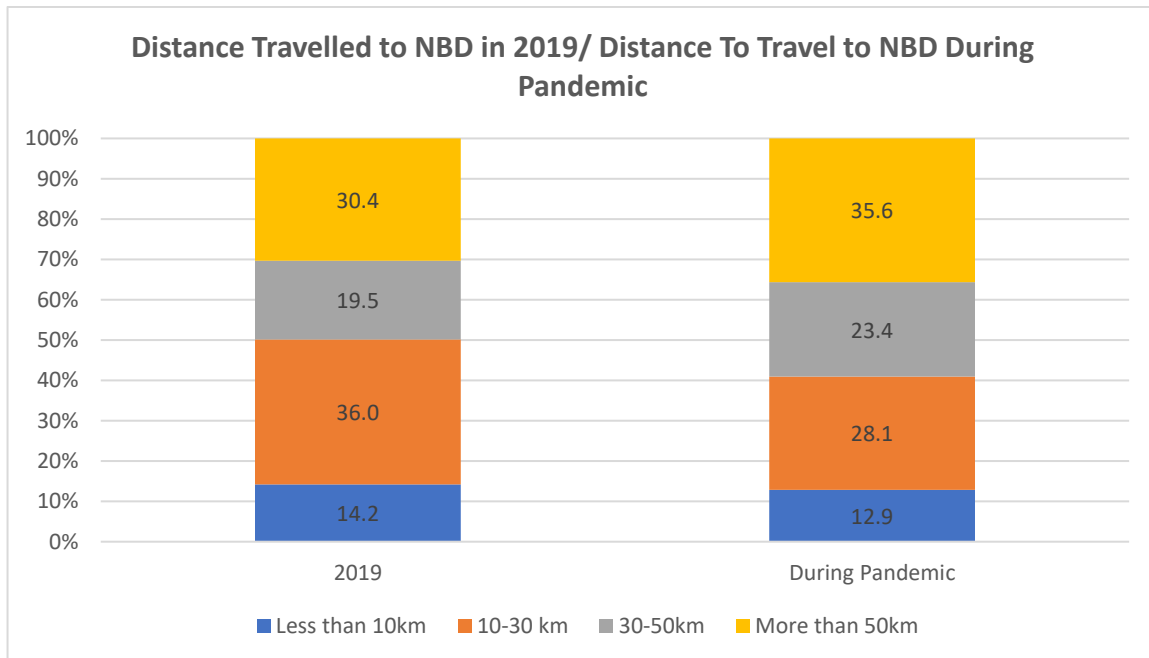


Figure 7: Chart on Distance Travelled to NBD in 2019 & Distance to Travel to NBD During Pandemic

Apart from that, there were relationships between the company respondents visited nature-based destinations with in 2019 and the company they wanted to visit nature-based destinations with during pandemic ($p < 0.05$). In 2019, 50.5% of respondents said they usually visited nature-based destinations with their family, followed by 46.9% with friends, and 2.6% alone. However, during this time, more respondents wished to spend time with their family (60.1%) at nature-based destinations, followed by 32.3% wanted to visit with friends, and 7.6% chose alone. This means that after being confined for a long time, where most of them were staying with their family for quarantine, most of Malaysians still wanted to spend time with their family at nature-based destinations rather than their friends. In addition, a few of them preferred to spend time at nature-based destinations alone during this time. Table 6 and Figure 8 below show the details of the results about the company to nature-based destinations.

Table 6: Company of Visit NBD in 2019 & Company to Visit NBD During Pandemic

	Alone	Family	Friends
2019 (Before pandemic)	2.6%	50.5%	46.9%
2021 (During pandemic)	7.6%	60.1%	32.3%

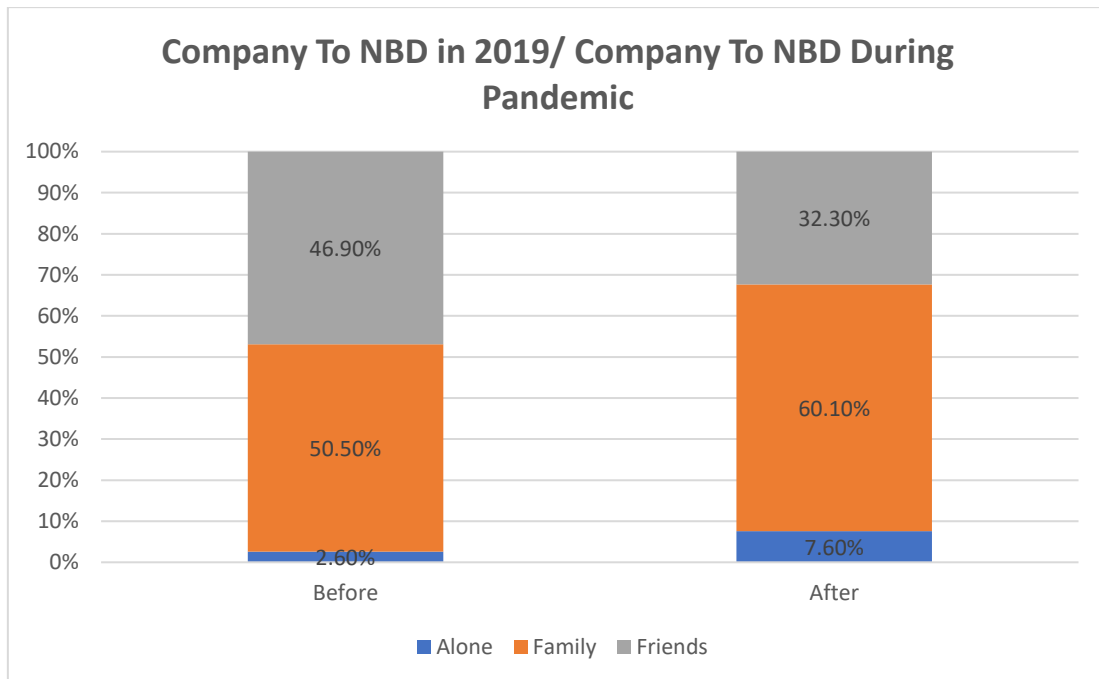


Figure 8: Chart on Company of Visit to NBD in 2019 & Company to Visit NBD During Pandemic

Not only that, respondents also were asked to choose the reasons why they wanted to visit nature-based destinations during this time. The top reasons were to get fresh air, followed by for doing activities like hiking or barbeque, get close to nature, and

exercising. Only 3% of the respondents chose 'fear to COVID-19' reason. Below is Figure 9 that shows the percentage of respondents for each reason.

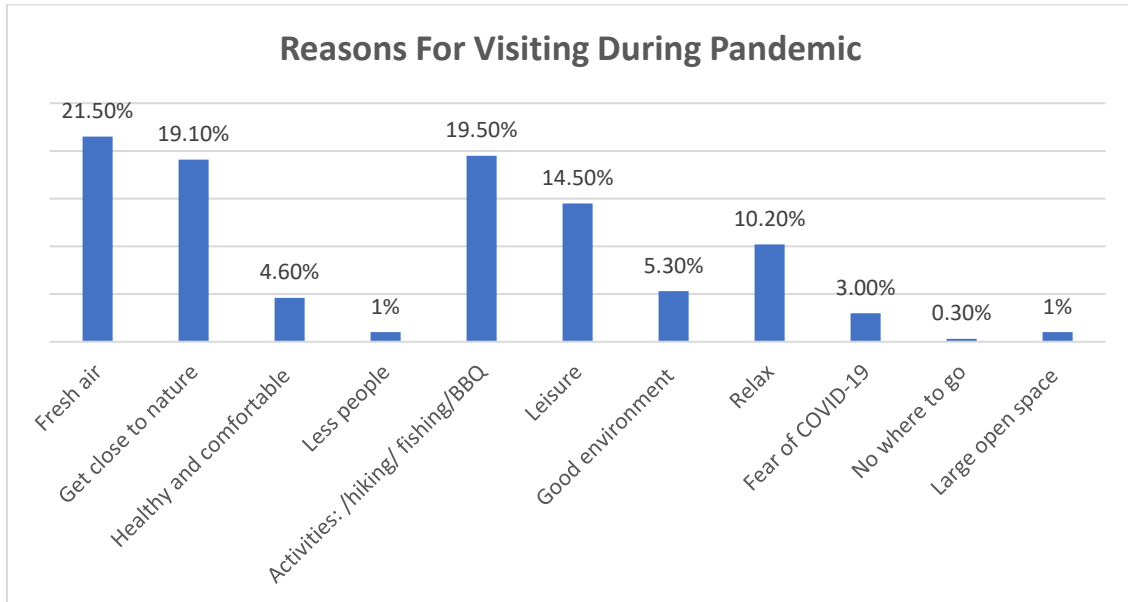


Figure 9: Chart on Reasons for Visiting During Pandemic

Risk perceptions towards COVID-19 and the possibilities being infected at nature-based destinations

There were relationships between worry to myself, family/friends, and community with respondents' level of agreement ($p < 0.05$). 82.8% of them strongly agreed that they worried with their family or friends to being infected while 70% strongly agreed that they worried with themselves to being infected. Besides, 72% chose strongly agreed that they worried with the community of getting infected. These results show that Malaysians generally had high level of perceived risk towards being infected with the COVID-19, especially they were more concern with their loved ones, which were the family, friends, and the community rather than themselves. Below is Table 7 and Figure

10 that show the level of concern of respondents to themselves, family and friends, and community.

Table 7: Level of Worry to Myself, Family/Friends, & Community

	Really Not Agree	Not Agree	Neutral	Agree	Strongly Agree
Myself	1%	0.7%	5.6%	22.8%	70%
Family/Friends	0%	0.3%	1%	15.8%	82.8%
Community	0.3%	0%	3.6%	24.1%	71.9%

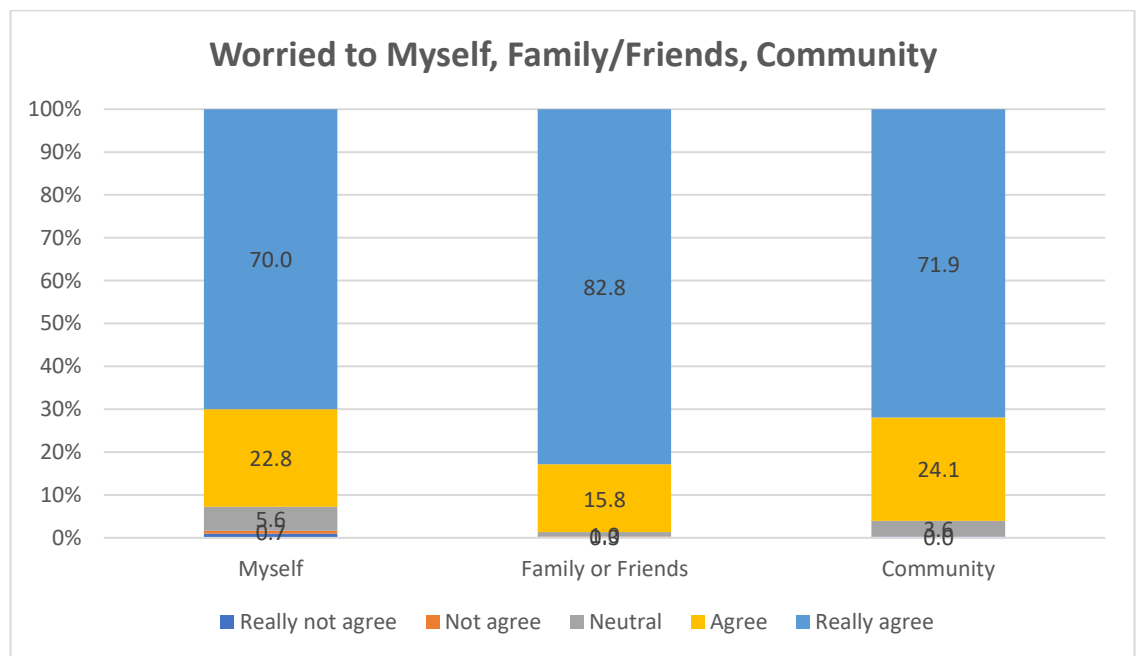


Figure 10: Chart on Level of Worry to Myself, Family/Friends, & Community

Besides that, there were relationships between the four nature-based destinations and respondents' level of risk to being infected with the COVID-19 at each the nature-based destination, $\chi^2 = 44.21$, $df = 9$, ($p < 0.05$). According to the results,

respondents thought that forest was the lowest risk nature-based destination of being infected with the COVID-19, followed by mountain, beach, and waterfall/river. This shows that even though Malaysians had the opinion that forest and mountain were safer than beach and waterfall/river areas, they still wished to visit beach and waterfall/river the most compared to forest and mountain. Their perceived risk on each nature-based destination generally did not affect their preference to visit the destinations during the pandemic. Below is Table 8 and Figure 11 that presents the level of risk to being infected to the COVID-19 at each nature-based destination.

Table 8: Level of Risk to Get Infected at NBD

Nature-based destination	No Risk	Low Risk	Moderate Risk	High Risk
Forest	21.5%	53.8%	19.8%	15%
Mountain	21.5%	46.2%	25.1%	7.3%
Beach	10.2%	48.5%	29.4%	11.9%
Waterfall/river	12.2%	45.9%	28.4%	13.5%

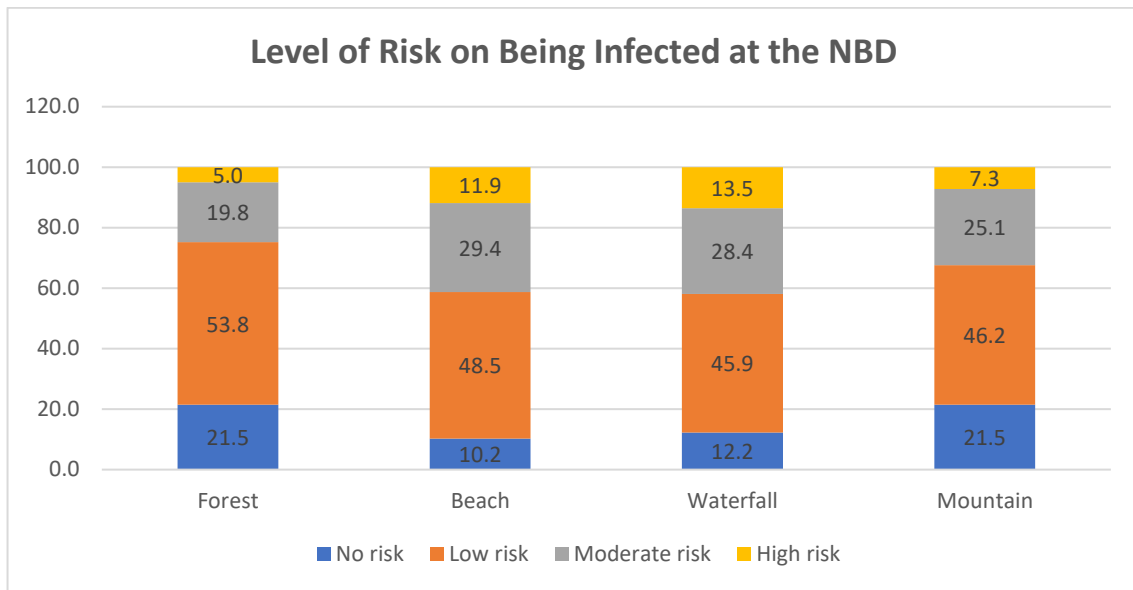


Figure 11: Chart on Level of Risk to Get Infected at NBD

Gender and preference for visiting and level of risk to being infected at crowded nature-based destinations

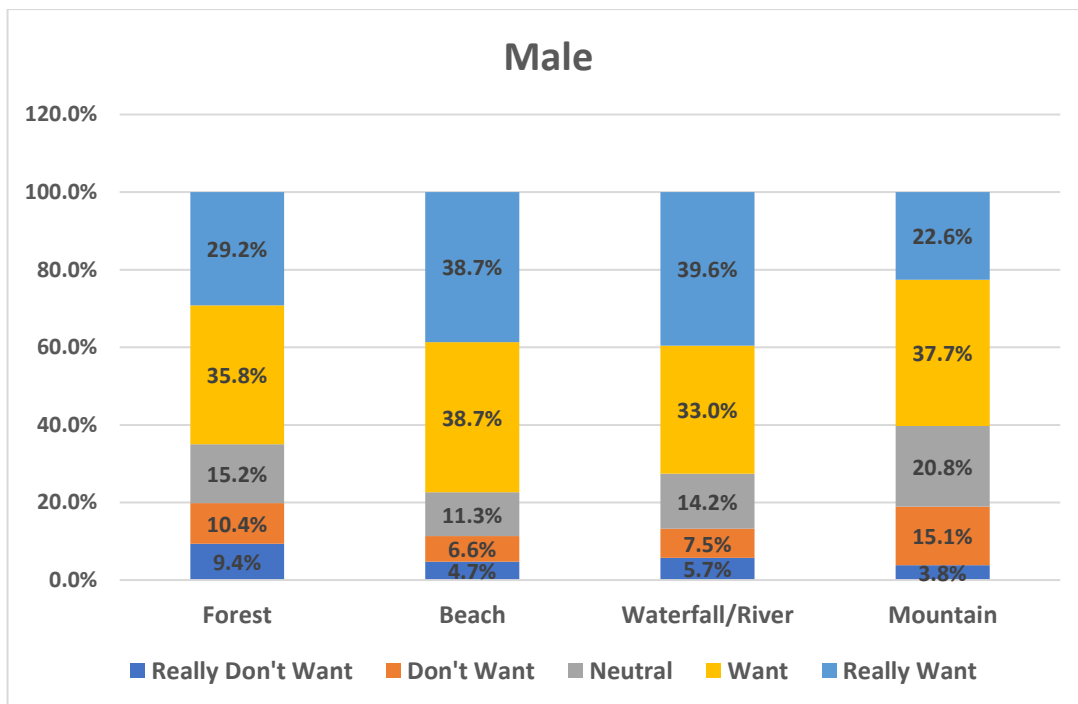


Figure 12: Male & Their Wish to Visit NBD During Pandemic

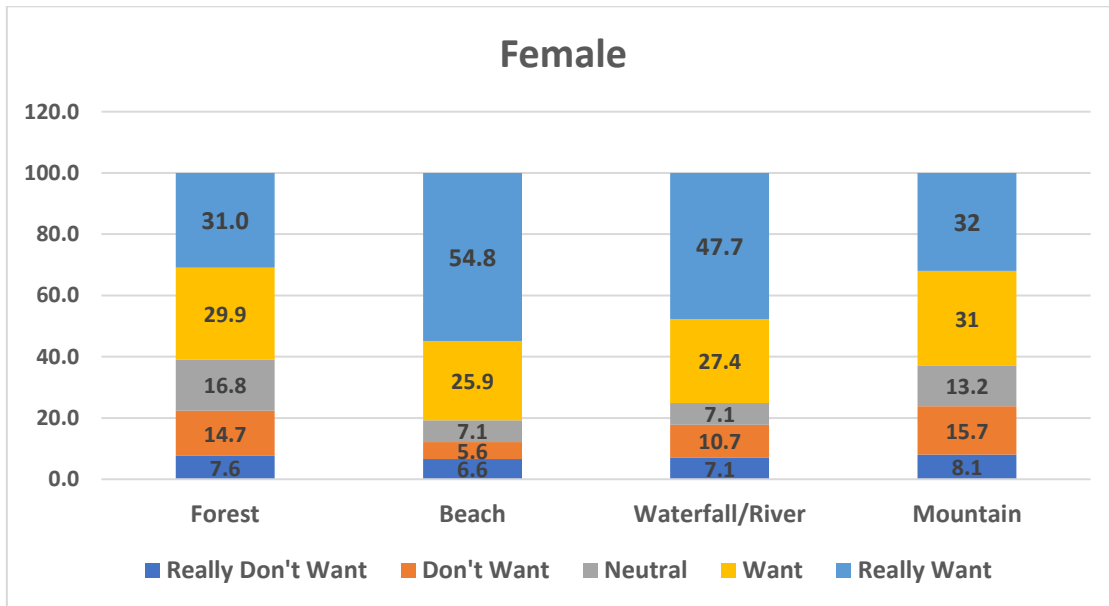


Figure 13: Female & Their Wish to Visit NBD During Pandemic

Figure 12 and Figure 13 above shows the preference of male and female respondents on visiting nature-based destinations during pandemic. Male respondents were interested the most in beach, followed by waterfall/river, forest, and mountain. Almost similar to male respondents, female respondents were interested the most with beach, followed by waterfall/river, mountain, and forest. The difference was only to forest and mountain where female respondents were more interested with mountain than forest during pandemic whereas male respondents preferred forest over mountain during pandemic.

Table 9: Gender & Their Level of Risk Being Infected at Beach

Gender	No Risk	Low Risk	Moderate Risk	High Risk
Male	17%	51%	24%	8%
Female	7%	47%	32%	14%

Table 10: Gender & Their Level of Risk Being Infected at Waterfall/River

Gender	No Risk	Low Risk	Moderate Risk	High Risk
Male	25%	41%	26%	8%
Female	6%	49%	29%	16%

Statistical test showed there were relationships between male and female with their level of risk to being infected at beach ($p < 0.05$) and waterfall/river ($p < 0.05$). According to Table 9 above, 32% and 14% of female chose moderate risk and high risk respectively, to being infected with the COVID-19 if they visited beach during pandemic while 24% and 8% of male chose moderate risk and high risk respectively. In Table 10, 29% of female chose moderate risk and 16% chose high risk whereas 26% of male chose moderate risk and 8% chose high risk towards being infected at waterfall/river if they visited during pandemic. These results demonstrate about female respondents that had higher level of worry to being infected than male if they visited beach and waterfall/river during the COVID-19 pandemic in Malaysia.

Discussion

Impacts of COVID-19 pandemic on Malaysians' mobility to parks and outdoor spaces

As expected, the movement of people in Malaysia during the COVID-19 pandemic were very much changed especially during the MCO. The MCO, which lasted for a long time, urged the people in Malaysia to stay home as the main purpose to curb the infection. The movement of people to many places especially retail and recreation such as shopping malls as well as the visit to parks and outdoor spaces such as national parks and beaches decreased significantly. During the time where people might want to spend their time at nature-based spaces to enjoy themselves, MCO were implemented, thus

hindering themselves to do so. Different with Malaysia, the measures taken by the government of Japan to tackle the infection were not as restricted as in Malaysia. People in Japan were still able to go out and enjoy themselves such as going to shopping malls or outdoor parks during the pandemic. Mobility Trends showed that the number of visitors to parks and outdoor spaces in Japan showed quite increment during pandemic. This means that people in Japan seemed to have more interest for places like national parks or beaches to spend time and enjoy themselves during the period of health scare. Figure 14 below showed the mobility trends for number of visitors to parks and outdoor spaces during pandemic in Japan.

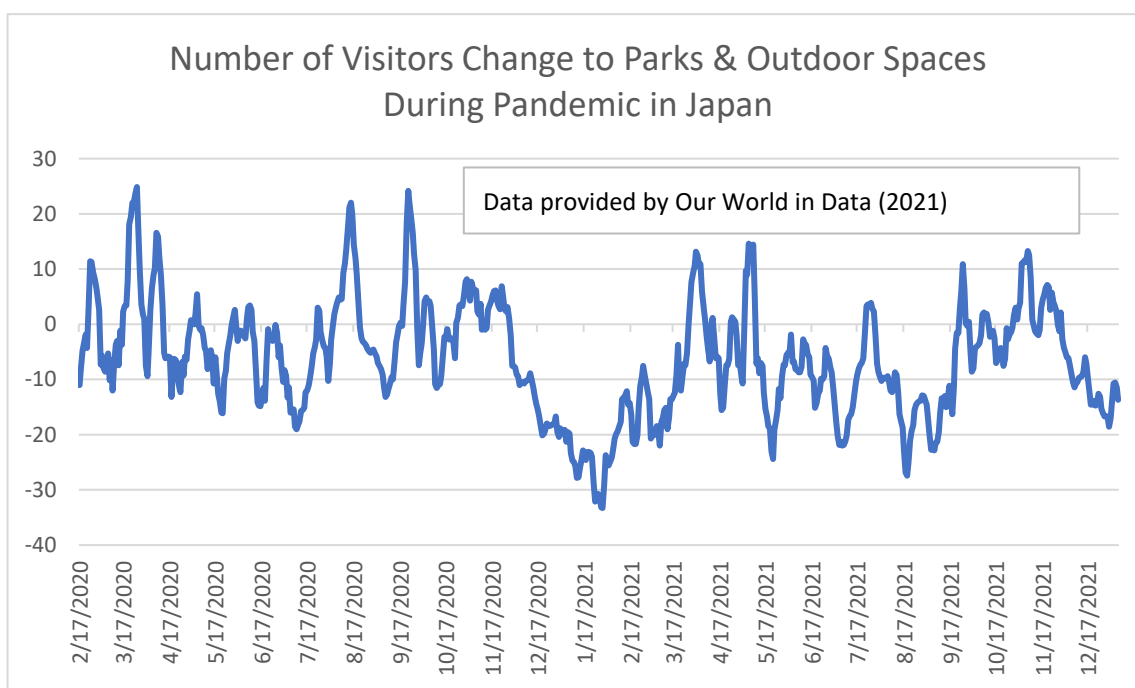


Figure 14: Number of Visitors Change to Parks & Outdoor Spaces During Pandemic in Japan

In Malaysia, the number of visitors to parks and outdoor spaces increased until above the baseline days once the MCO 1.0 lifted. This proved that people were eager to visit parks and outdoor spaces during the COVID-19 pandemic. This is corresponding with

the previous studies by Zander et al., (2021) that found rapid increase in outdoor recreational activity during the lockdown as the sports facilities and gym were closed and people had to find their own ways to enjoy physical activities. After the lockdown, the recreational activities of people were still increase 89% above the baseline especially at the forest and protected areas. The only different was during MCO, people in Malaysia could not enjoy the recreational activities due to the restrictions as much as people in Norway could, same as in Japan. Therefore, the number of visitors to parks and outdoor spaces during lockdown measures in Malaysia were very different than in Norway. However, the increment of people for recreational activity at parks and outdoor spaces after MCO was the same as in Norway. The hypothesis by Honey-Roses, Anguelovski, and Chireh et al. (2020) that the COVID-19 might be the cause for people to have better engagement with the public outdoor spaces seemed logical for this case. The feelings to involve in recreational activities were more than before the pandemic due to being in isolation for so long.

General pattern of Malaysian visit to NBD

Generally, people in Malaysia seemed to have interest in water-based nature-based destinations the most especially beach and waterfall/river. More than half of the respondents stated that they visited the beach and waterfall/river destinations 1 to 3 times per month in 2019, before the existence of the COVID-19 pandemic. People showed less interest in forest and mountain destinations as more than half of respondents had never visited any forest or mountain areas in 2019. The reasons why people loved beach the most could be related with the destinations that were easy to access, family-friendly, and the availability of variety of activities at those destinations (Wolch & Zhang, 2004; Ahmad & Jusoh, 2018). Besides that, people in Malaysia usually spent their time at nature-based destinations for 2 to 4 hours or more than 4 hours and usually travelled 10-30km or more than 50km to nature-based destinations. In addition,

in 2019, Malaysians usually visited nature-based destinations with their family and friends. This is supported by a study by Zhu and Fan (2018) that found companionship during travelling especially with family and friends was more meaningful and happier than travelling alone.

Preference of Nature-Based Destinations

Beach & waterfall/river as Malaysians' top choices before and during pandemic.

The results that showed Malaysians seemed to enjoy beach and waterfall/river areas the most can be related with the beach tourism in Malaysia that has been developed and promoted since the British era until the present day. The beaches from the old days were furnished with facilities and today, beaches are known as the major destination in Malaysia. Besides that, residents of city usually would choose to visit destinations that are easy to access and close to their residency (Ahmad & Jusoh, 2018), which in the case of Malaysia, beaches are more managed and easier to access than any other nature-based destinations such as forest and waterfall destinations. Not only accessibility, variety of activities that can be done such as picnic, banana boats, and jetski is also one of the reasons why people choose to visit beach (Wolch & Zhang, 2004). Attraction of the 3s (sand, sea, and sun) is the most common factor why people wlove beach, and in one of the studies by Ahmad and Jusoh (2018) in Malaysia, top three motivations on why respondents visited one of the famous beach destinations in Malaysia, Port Dickson were for recreational purposes, spending leisure with their families, and because the beach located near to their residency. Moreover, the spatial of the beach areas such as the beach that can accommodate crowded visitors, offer space for family picnic, and the safety of the beach such as safety guarantee during the activity and provision of directions and warnings signage were the other factors why people chose to visit beach. Besides, the top four activities that respondents did during their

visits there were for swimming, picnicking, building sand castle, and enjoying banana boat. Therefore, this study assumed that the main reasons for why people chose to visit the beach were to spend leisure time with their family along with the availability of many activities for them to enjoy at the beach, and the safe and good beach environment.

It is also expected about Malaysians that also prefer waterfall/river areas for nature-based destinations. This is because Malaysians also enjoy recreational activities such as picnic at waterfall areas (Mohamed, Baihaudin, & Omar, 2008). However, for waterfall/river areas, it is popular mainly among young people who usually visit the waterfalls with their group of friends, but less that come for family visits. It is still unclear why waterfalls become attraction for young people, but it is probably due to the safety and conditions that some of the waterfall areas in Malaysia which are not able to cater for the whole family needs and the spatial condition factors. As Malaysia is a country with hot and humid climate throughout the year, along with the availability of its own natural resources, it seems make sense that people in Malaysia prefer and enjoy water-based nature-based destinations such as beach and waterfall/river destinations.

Why they less interested in forest and mountain?

Meanwhile, for people to do activities in forest and mountain areas, it usually will take place in recreational forest and national park areas. Therefore, most of the time, people need permission and had to pay before entering the areas. According to Mossberg (2007), activities that being offered for tourists to experience, and the services that come along with the experiences would be the contributors for the destination to be selected to visit by tourists and to repeat the visitation regardless what kind of tourism products, be it nature park or theme park. Therefore, a study conducted by Chui et al. (2010) at the National Park (NP) in Malaysia, that examined the importance and satisfaction of services at the NP, found that even though people were satisfied with the friendliness of local people (as mountain guides, tour agents, boat operators,

restaurants, souvenir shops, hotels and the local community), natural scenery and landscape, convenience, and the accessibility to local transport, however, they had low satisfactory level on the cleanliness and facilities of NP such as the toilet conditions, signage and interpretive information centers which needed improvement. These kinds of condition might affect tourists' decision in choosing destination to visit (Chui et al., 2010) and could be the reasons why people chose to visit other nature-based destinations such as beach rather than forest. Not only that, less opportunities for direct experiences with the 'real' nature like forest and mountain could be the other factor why people in Malaysia prefer to visit beaches and waterfalls. It is generally well-known that people these days are pampered with various kinds of technologies, therefore the opportunities to have direct experiences to nature especially among younger generations are eventually decreasing. A lot of people aware that being exposed to nature environment is good for them, however some people dislike natural environments, such as wildlands (Bixler & Floyd, 1997). Hence, if people have negative perceptions towards natural environments, they would likely avoid doing outdoor activities, which can provide direct experiences with nature to them (Sugiyama, Hosaka, Takagi, & Numata, 2021). It same goes to people in Malaysia, where some of them especially people who live in the city dislike and less exposed to being in nature. Some are scared with the insects and wildlife while some dislike getting dirt on themselves when they are in nature.

Changes in preference to forest and mountain during pandemic & impacts of pandemic on the preference in terms of frequency, time spent, travel distance, and company

Some people wanted to visit forest and mountain during pandemic.

Interestingly, the results of the survey showed that more than half of respondents never visited forest and mountain areas in 2019, however the results of their wish to visit nature-based destinations during the pandemic in 2021 revealed that more than half of respondents wished they could visit forest and mountain areas, which contradicted with the results before the pandemic. Specifically, 47% from those who never visited mountain in 2019 suddenly wanted to visit mountain during pandemic whereas 44% from those who never visited forest wanted to visit forest during pandemic. The reason could be because of Malaysians that had been confined for too long due to being quarantine and limitation of movement for a quite long time, which eventually caused anxiety, stress and boredom. Hence, people were feeling much impatient to go out from their residency, even to forest and mountain which they never visited before. This can be seen in the study by Marafa and Tung (2004) in Hong Kong, in the case of SARS where 50% of the respondents said the reason for them to visit country parks at that time was to release stress brought by the SARS outbreak. A study by Ma et. al (2021) in Hong Kong about the COVID-19, respondents strongly agreed that the environment provided by the parks could help to relieve stress and anxiety brought by the COVID-19 pandemic. In addition, the fact that forest and mountain were safer options from getting infected due to less crowd than at the beach or waterfall/river could be the other reason why they interested to visit forest and mountain.

Malaysians wanted to spend more time at nature-based destinations during pandemic and the distance to nature-based destinations did not really matter.

About the time Malaysians wanted to spend at nature-based destinations, this is expected as people in Malaysia, as well as other countries, had been put and encouraged to stay in their house and limit themselves from going out since the COVID-19 outbreak to reduce the infection. Therefore, their wish and preference to spend time outside of their residency, in this case at nature-based destinations, should be more than before the lockdown measures. This might be because of the psychological effects from the isolation measures that caused the feelings of stress, anxiety, depression, loneliness, and anger due to long quarantine duration and boredom (Brooks et al., 2020, Cacioppo et al., 2006; Cacioppo, Hawkley, & Thisted, 2010; Hawkley & Cacioppo, 2010) which then made them even more longing and excited to spend time outside. According to Marafa and Tung (2004) in their study about participation of Hong Kong people in leisure and outdoor recreation activities during the SARS outbreak, concluded that when people participate in leisure or outdoor recreation activities after being confined for too long, the better they would feel.

The results on the distance to travel was not expected. Some of respondents did not show much mind to how far they wanted to travel during this time of pandemic. In Malaysia, during the lockdown measures, people were banned to travel more than 10km radius from their residency and traveling to another district and state were not allowed unless with permission from the authorities. With that, for leisure, most of the time people were only able to enjoy themselves just outside of their residency and nearby outdoor parks for activities. Therefore, it was expected that people in Malaysia wanted to travel more far to nature-based destinations during pandemic than in 2019. However, the results during pandemic did not show much difference than in 2019. This study concluded that some people might still scare to really go far to travel to avoid the infection risk. Nevertheless, the results in this study could be related with the previous study in the United States where the distance people travelled to participate in outdoor

recreation was generally decreased from February until April 2020, during the early outbreak of the COVID-19 (Rice, Meyer, Lawhon, Taff, Mateer, Reigner, & Newman, 2020). This could be related to their risk perception of getting infected with the COVID-19.

Family members as company to nature-based destinations.

Marafa and Tung (2004) stated that people who participated in outdoor recreation could improve their social and psychological well-being, and with companions, they could reduce the negative psychological feelings during the health scare of pandemic outbreak. This could be the reason why almost all of the respondents wanted to visit nature-based destinations with company, either family or friends, rather than alone. However, as for why more people preferred to visit nature-based destinations with family than friends, I assumed that they probably did not want to take the risk of spending time with friends who were not living together with them, as they probably could get exposed with the COVID-19 from them.

Factors affecting Malaysian visit to NBD

Malaysians' motivations for visiting nature-based destinations during pandemic.

The results for the reasons on visiting nature-based destinations were quite similar with the study in Hong Kong during the SARS outbreak, where the main reasons for why people wanted to visit countryside areas were for fresh air and got close to nature. This is because during the disease outbreak period, people become apprehensive and anxious about their normal daily lives, so they wanted to seek chances for outdoor recreation activities for their well-being, but at the same time have less risk to get infected with the virus (Marafa & Tung, 2004).

Malaysians had high perceived risk towards being infected with the COVID-19.

The results correspond with the previous study in Hong Kong during the COVID-19 pandemic where rather than themselves in the first place, respondents were much worried with the chance of the virus to spread in Hong Kong to their family and friends, along with the community (Ma et al., 2020). From an individual perspective, during the time of health scare, it is normal to have concern towards their loved ones than themselves. In this case for why they were also more concern with the community, it probably due to the high probability of the COVID-19 virus that easily could spread in community in short time while less worried for themselves because they were confident and aware how to take care of themselves. This results also similar with the previous study on ten countries across Europe, America, and Asia which found that people in United Kingdom and Spain especially, had high level of perceived risk towards the COVID-19 (Dryhurst, Scheneider, Kerr et al., 2020). Nevertheless, this study found that people in Malaysia, similar with most of other countries, generally had high level of risk perception towards their family and friends, community, and themselves of getting infected with the COVID-19.

Malaysians acknowledged the level of risk being infected at each nature-based destination.

This probably due to the fact that most of Malaysians agreed that beach and waterfall/river areas that have always become attractions for most people, but less for forest and mountain areas, which is why the probability to get infected was higher in beach and waterfall/river areas. Nevertheless, beach and waterfall/river areas still became their wish to visit during pandemic. According to one of the questions in the survey, the top three reasons on why people wanted to visit nature-based destinations during this time were to get fresh air, for doing activities, and to get close to nature. Therefore, this can be concluded that, beach and waterfall/river were probably the areas

that could offer them those expectations compared to other destinations. In addition, this could also be related to the other common factors why Malaysians prefer to go to beach, like discussed in the previous parts, which were because of the accessibility, family-friendly, and safe environment for visitors.

Male and female had same preference towards nature-based destinations but female had higher level of concern towards being infected.

Male and female in Malaysia seemed to have the same interest towards nature-based destinations which were beach and waterfall/river. However, there were a little change to their preference for forest and mountain. During the COVID-19 pandemic in Malaysia, female in Malaysia wished they could visit mountain over forest, which contradicted with the male that chose forest over mountain. In addition, even though female had higher risk perception towards being infected with the COVID-19 if they visited beach and waterfall/river during pandemic than male, both male and female still had the same interest towards beach and waterfall/river. This means that female level of perceived risk did not affect their choice to visit nature-based destinations. This is contradicted with the previous study during Ebola outbreak by Cahyanto, Wiblishauser, Pennington-Gray et al., (2016), where women respondents would likely to avoid travelling abroad more than men as their level of concern towards getting infected were higher than men.

Conclusion

In conclusion, this study found some impacts of the COVID-19 pandemic on Malaysians' visit to the nature-based destinations. The mobility reports showed the movement of people in Malaysia to parks and outdoor spaces that were much decreased during the MCO due to the strict rules and started to rise again once the MCO lifted as people were allowed to visit parks and outdoor areas again.

Besides that, the emergence of the COVID-19 in Malaysia generally did not affect people's preference to nature-based destinations as people were still very much interested to visit beach and waterfall/river the most, which was same as before pandemic. However, more than half of them showed their sudden interest to visit forest and mountain during pandemic, which we related this with their strong wish to spend time outside after being quarantine for too long and the less risk to being infected at forest and mountain areas than other nature-based destinations. Not only that, COVID-19 pandemic also made more people wanted to visit nature-based destinations with their family rather than friends or alone and spent their time for more than 4 hours at the nature-based destinations. In fact, even though Malaysians generally had high perceived risk towards the virus and acknowledged about their possibilities to being infected if they visited each nature-based destination during pandemic such as beach as the riskiest area to being contracted with the virus, it nevertheless did not very much affect their preference to visit.

Since the findings of this study revealed that people in Malaysia overall showed more interest in visiting nature-based destinations even after the emergence of COVID-19, proves the needs to make nature-based destinations accessible, safe, and hygienic for people. The nature-based destinations not only could be the spaces where people were able to refresh their mental well-being and relief stress brought by the COVID-19, but also giving chance for people to have better appreciation towards the natural environment. Therefore, it is crucial for each country to have good and proper nature-based spaces for the benefits of their people during disease outbreak and the environment.

Limitations and Recommendation

In order to see the preference of Malaysians on visit to nature-based destinations during COVID-19 pandemic, I compared their frequency of visits to nature-based destinations in 2019 and their willingness to visit nature-based destinations during the pandemic period. I was not able to get the real visitation frequency information for during pandemic from the respondents due to the restricted MCO conditions in Malaysia at the time this survey was conducted, which visitation to nature-based destinations was mostly impossible in most regions. Hence, I only assessed their wish to visit such as how much they wanted to visit each nature-based destination during pandemic, how long they wanted to spend, and with whom to visit the destination. Whether or not their wish to visit would be the same as their real visiting preference to nature-based destinations once the MCO lifted, future studies are recommended to gain information on people's real visiting preference during pandemic especially their frequency of visit to nature-based destinations once all the MCO in all regions lifted to improve the reliability of the study.

Even though this study collected demographic information of the respondents, however this study did not assess all the information and discuss about how it could affect people's visit to nature-based destinations and their risk perceptions. For example, older age group of respondents might have higher risk perception than younger respondents, in which could influence their preference to visit nature-based destinations during pandemic. Residency of respondents was also important to look at as conditions of COVID-19 and restrictions of MCO were quite different among regions at the time the study was conducted. Therefore, future studies should consider the socio-demographics of respondents such as gender, age groups, residency, and education background effects towards their preference on nature-based destinations visit and their risk perceptions during pandemic.

Lastly, the survey instruments on how long time to spend at nature-based destinations, how far the distance to travel, and with whom to visit were only assessed to the overall four nature-based destinations instead of specifically asked for each destination. For example, future studies should ask respondents about with whom they wanted to visit with at beach, waterfall/river, forest, and mountain areas. This could be due to some factors such as risk perception on being infected, which people might want to have different company or different time to spend at different type of nature-based destinations.

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Appendix

Questionnaire

A survey of Malaysians on visiting pattern to nature-based destinations during COVID-19 pandemic.

Please choose the frequency of visits to these nature-based destinations in 2019 as listed in the table below.

Places of visits	Frequency of visits in 2019
1. Forests (Example: National Park)	<ul style="list-style-type: none">• Never once• 1 to 3 times per month• 4 to 6 times per month• More than 6 times per month
2. Beaches	<ul style="list-style-type: none">• Never once• 1 to 3 times per month• 4 to 6 times per month• More than 6 times per month
3. Waterfalls / Rivers	<ul style="list-style-type: none">• Never once• 1 to 3 times per month• 4 to 6 times per month• More than 6 times per month
4. Mountains	<ul style="list-style-type: none">• Never once• 1 to 3 times per month• 4 to 6 times per month• More than 6 times per month

5. With whom did you usually visit nature-based destinations in 2019?

Family ___ Friends ___ Alone ___

6. How far did you usually travel to go to nature-based destinations in 2019?

< 10 KM ___ 10-30 KM ___ 30-50 KM ___ >50 KM ___

7. How long did you usually spend your time at nature-based destinations in 2019?

1-2 hours ___ 2-4 hours ___ More than 4 hours ___

Please tick ✓ on your chosen answer.

Your wish to go to urban parks & these nature-based destinations at this time	I really want to go	I want to go	I am not sure	I don't want to go	I really don't want to go
8. Forests					
9. Beaches					
10. Waterfalls / Rivers					
11. Mountains					

12. What is your main reason to visit nature-based destinations at this time?

- Fresh air
- Get close to nature
- Healthy and comfortable
- Less people
- Activities: /hiking/ fishing/BBQ
- Leisure
- Good environment
- Relax
- Fear of COVID-19
- No where to go
- Large open space
-

13. With whom do you want to visit nature-based destinations at this time?

Family ___ Friends ___ Alone ___

14. How far do you want to travel to visit nature-based destinations at this time?

< 10 KM ___ 10-30 KM ___ 30-50 KM ___ >50 KM ___

15. How long do you want to spend your time at nature-based destinations parks now?

- 1-2 hours
- 2-4 hours
- More than 4 hours

Please tick V on your chosen answer whether the statement is true or not.

Knowledge about COVID-19	Yes	No	I'm not sure
16. COVID-19 is a disease that can be infected to other people.			
17. Flu is more harmful than the COVID-19.			
18. COVID-19 is easier to get infected to other people than flu.			

19. Washing hands is one of the ways to protect people from getting COVID- 19 infection.			
20. Wearing face mask is one of the ways to protect people from getting COVID- 19 infection.			
21. Staying indoor will give me low chance of getting infected with COVID-19 than going outside.			
22. Older people tend to have higher risk of getting infected with COVID-19 than younger people.			
23. Shopping mall is a high-risk place to get infected with COVID-19 than the beach.			
24. The more crowded the place is, the higher the risk of getting infected with COVID-19.			
25. It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus.			
26. It is necessary to practice preventive measures such as social distancing and wearing face mask when visiting nature-based destinations such as the beach or waterfall.			
27. There is vaccine available to prevent COVID-19 infection.			

28. I have experience of being infected with COVID-19.

Yes ___ No ___

29. I suspected to have personally contacted with COVID-19.

Yes ___ No ___

30. I have friend, family, or someone I know diagnosed with COVID-19.

Yes ___ No ___

Please tick (v) on your chosen answer.

COVID-19 Infection Risks	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
31. COVID-19 is a risky disease.					
32. I am scared of getting infected with COVID-19.					
33. People may stigmatize me if I get sick due to the COVID-19.					
34. I am worried about my family or my friends of getting infected with COVID-19.					

35. I am worried about the community of getting infected with COVID-19.					
---	--	--	--	--	--

For each of the place listed below, please tick on the level of risk of you to be infected with COVID-19 if you visit the places now.

Places	No Risk	Low Risk	Moderate Risk	High Risk
36. Shopping Mall				
37. Gym				
38. Restaurants				
39. Forests				
40. Beaches				
41. Waterfalls / Rivers				
42. Mountains				

Picture A



Picture B



Picture C



Above are three pictures of the beach that have different number of visitors. How much risk do you feel of getting infected with COVID-19 if you were at the beach? Please tick (v) on your chosen answer.

Picture	No Risk	Slight Risk	Moderate Risk	High Risk
43. A				
44. B				
45. C				

46. Gender:

Male ___

Female ___

47. Age ___

48. Race

Malay ___

Chinese ___

Indian ___

Others ___

49. Residential area

- Johor

- Kedah
- Kelantan
- Melaka
- Negeri Sembilan
- Pahang
- Penang
- Perak
- Perlis
- Selangor
- Terengganu
- Kuala Lumpur
- Putrajaya

50. Do you have children?

Yes ____ No ____

51. Education Level

- Primary School
- High School
- College/University
- Graduate School
- Others

52. Your occupation

- Employee
- Manager
- Part-timer
- Self-employed
- Public Service
- Student
- Without occupation
- Other

53. Your income

- <RM999 ____
- RM1000-RM1999
- RM2000-RM2999
- RM3000-RM3999
- RM4000-RM4999
- RM5000 and above