THE EFFECTS OF CHANGES IN SOCIALIZING TRIPS, DISCRETIONARY TRIPS AND ACTIVITIES DURING COVID-19 PANDEMICS ON AFFECTIVE WELL-BEING

ZAKIAH HANUM BINTI AZMERA

CIVIL ENGINEERING
UNIVERSITI TEKNOLOGI PETRONAS
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The Effects of Changes in Socializing Trips, Discretionary Trips and Activities During COVID-19 Pandemics on Affective Well-Being

by

Zakiah Hanum binti Azmera
17001817

Dissertation submitted in partial fulfilment of

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Universiti Teknologi PETRONAS
Bandar Seri Iskandar,
32610 Seri Iskandar,
Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

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ZAKIAH HANUM BINTI AZMERA
17001817

A project dissertation submitted to the

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in partial fulfillment of the requirement for the

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(CIVIL)

Approved by,

_____
(Dr Dimas Bayu Endrayana)

Date: _____

UNIVERSITI TEKNOLOGI PETRONAS

SERI ISKANDAR, PERAK

JANUARY 2022

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgments, and that the original work contained herein has not been undertaken or done by unspecified sources or persons.

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ZAKIAH HANUM BINTI AZMERA

Date: 19 February 2022

ABSTRACT

The outbreak of COVID-19 in 2019 affected various countries worldwide, forcing national, provincial, and local governments to impose widespread travel restrictions in the interest of public health. Men, women, and children have been mostly confined to their homes for several months due to the imposed travel restrictions. As a result, people had to adapt to alternative living/working in restricted situations. A prolonged period of confinement to one's home seemed to impact people's behaviour and affective well-being. Hence, this study is particularly interested in analysing changes in socialising trips and discretionary trips during the COVID-19 pandemic on affective well-being. An online survey was conducted in Malaysia (N=438) to seek the effects of the COVID-19 pandemic on travel behaviour activity and as well as to affective well-being. By using the Malaysia 2021 dataset, this study analyses the effects of changes in socialising, discretionary trips, and activities on affective well-being. The bivariate and multivariate analysis has been used to determine the relationship between variables. From the findings, the trip that has the most significant impact on affective well-being is the trip to dining on the weekdays during the PKPP phase while for other trips the result is varied. It is crucial to understand the relationship between these variables as it could help with predicting future human travel behaviour.

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CHAPTER 1

INTRODUCTION

This chapter covered the principles of the research study. It includes a thorough background analysis and a concise explanation of the problem statement and its objectives. The scope of the study for the project is also included in this chapter.

1.1 Background Study

The World Health Organization (WHO) has declared the Coronavirus Disease 2019 (COVID-19) a global pandemic, with the first case being recorded in late December 2019 in Wuhan, Hubei Province, China. As of November 7, 2021, more than 250 million cases had been documented worldwide, resulting in more than 5.05 million fatalities. Beginning March 18, 2021, the Malaysian Federal Government's Movement Control Order (Malay: Perintah Kawalan Pergerakan Kerajaan Malaysia), often known as the MCO or **PKP**, is a set of nationwide quarantine and cordon sanitaire measures implemented in response to the COVID-19 pandemic. Local and foreign media outlets have referred to the directives as "lockdowns". To combat the spread of the COVID-19 virus, MCO measures included restrictions on mobility, assembly, international travel, as well as the shutdown of businesses, industries, government agencies, and educational institutions. On 7 June 2020, Prime Minister Muhyiddin Yassin announced that the Conditional Movement Control Order (CMCO) (Malay: Perintah Kawalan Pergerakan Bersyarat (**PKPB**)) ended on 9 June, with the country entering the Recovery Movement Control Order (RMCO) (Malay: Perintah Kawalan Pergerakan Pemulihan (**PKPP**)) phase between 10 June and 31 August.

TABLE 1.1: Timeline of the MCO, CMCO and RMCO

Phase	Date
Movement Control Order (MCO, 18 March 2020 - 3 May 2020)	
Phase 1	18 March 2020 - 31 March 2020
Phase 2	1 April 2020 - 14 April 2020
Phase 3	15 April 2020 - 28 April 2020
Phase 4	29 April 2020 - 3 May 2020
Conditional Movement Control Order (CMCO, 4 May 2020 - 9 June 2020)	
Phase 1	4 May 2020 - 12 May 2020
Phase 2	13 May 2020 - 9 June 2020
Recovery Movement Control Order (RMCO, 10 June 2020 - 31 March 2021)	
Phase 1	10 June 2020 - 31 August 2020
Phase 2	1 September 2020 - 31 December 2020
Phase 3	1 January 2021 - 31 March 2021

Before the pandemic, most people travelled every day for various reasons such as going to work, school, shopping, sports, hobbies, socialising, etc. Some of the activities are out-of-home activities, hence travelling is one of the necessities in life for people to fulfil their needs and desires. During the pandemic, studies revealed that office work is being replaced by teleworking, while in-store shopping is being replaced by teleshopping (Irawan et al., 2021). Thus, these mobility restrictions during the pandemic had a significant impact on people's participation in out-of-home activities.

During the pandemic, people are less likely to socialise and take discretionary trips because of the mobility restrictions enforced by the government. Discretionary travel is defined as all trips other than home-based work and home-based school (Dalton, 1999). While socialising trips are the trips that are taken in order to participate in social activities. Social activities include spending time with family members or friends, going out to eat, playing board games, etc. Some examples of discretionary trips are family visits, vacations, the birth of a family member such as a grandchild, nieces, nephews, and attending family members' funerals. Travel for discretionary purposes is associated with higher levels of positive emotions and lower levels of negative emotion than travel for work or household maintenance (Jing & Fan, 2018).

These sudden changes with having out-of-home activity restrictions in their daily lives have been seen to influence individuals' affective well-being and mental health as some of the activities are essential to maintain or enhance people's affective well-being. Individuals with high levels of emotional well-being (i.e., those who experience more positive mood and less negative feelings) are often successful in a variety of life domains, including marital relationship, friendship, earnings, work, and health (Achat, 2000; Lyubomirsky et al., 2005).

According to studies, mental health issues increase in direct proportion to the amount of lockdown days (McKimm, 2020, as cited in Irawan et al., 2021). It is well known that a new routine involving continuous repetitive use of places for an extended length of time has an effect on one's mental health; (Campbell, 2020, as cited in Irawan et al., 2021). Certain negative emotions (e.g., unpleasant experiences, demotivation) tend to increase, which may link with people's emotional or affective well-being in particular and with overall subjective well-being (Rizki et al., 2020).

Brooks et al. (2020), as cited in Rizki et al. (2020), conducted an analysis of 24 papers from the SARS pandemic and the various citywide quarantines and discovered that, during the quarantine/lockdown, people were extremely likely to experience a variety of psychological stress and disorder symptoms, as well as negative emotions. Additionally, the study revealed that post-traumatic stress symptoms occurred in correlation with post-pandemic behaviour, including activity participation. Thus, once current restrictions are relaxed, it is expected that out-of-home leisure activities (e.g., socialising, and discretionary) will be conducted more frequently in order to improve overall well-being and mental health.

Thus, this study aims to investigate the effects of changes in socialising trips, discretionary trips, and activities during COVID-19 pandemics on affective well-being because understanding the individual's affective well-being state during the pandemic is crucial for predicting future travel-activity patterns after the lockdown is lifted. At the end of this study, new information on how individuals having less discretionary and socialising trips during the pandemic would impact individuals' affective well-

being and future travel activity patterns. This information will be very beneficial in future traffic planning analysis.

1.2 Problem Statement

Every person has their constraints, desires, and needs in their everyday lives. Thus, each person will have their daily activity-travel pattern because of the decision-making process that shapes their activity-travel pattern. For instance, a student and a worker will have distinct tasks. They will be assigned different daily activities and travel schedules based on their physical characteristics, such as gender or age.

According to Dharmowijoyo & Joewono (2020), individuals' activity-travel behaviour is complex. Treating individuals' activity-travel behaviour as a self-contained entity that varies simply in socio-demographic and built environment terms undervalues the complex mechanism behind individuals' decision-making processes. The conventional method, or what is commonly referred to as trip-based analysis, may fail to account for the interdependence of trips and activities, the temporal limitations on activity scheduling, and the activities of persons within a home or social network (Flyvberg et al., 2005, as cited in Dharmowijoyo & Joewono, 2020). The conventional approach assumes that the individual engages in similar travel and activities every day and, therefore, such approach encompasses only inter-personal variability (Senbil & Kitamura, 2009, as cited in Dharmowijoyo & Joewono, 2020).

Knowing how individuals shape their activity-travel behaviour as a result of their individual and interpersonal characteristics within a multidimensional and multi-hierarchical time and space perception, as well as its correlation with health factors, may be able to suggest a policy that can ensure improvement of individuals' health, particularly social and mental health (Dharmowijoyo & Joewono, 2020).

Life is composed of various domains, including work and family (T., 1998), and contentment in each domain can affect overall quality of life (Diener,2009). Several researchers have studied the leisure domain—the domain of life linked to the discretionary use of time—and its major impact on life satisfaction or subjective

wellbeing (Neal, Uysal & Sirgy, 1995). With an increased level of stress in other realms of life, such as work stress (Barling, Kelloway, & Frone, 2004), financial stress (Kim, & Gordon, 2014), or family stress (Boss, Bryant, & Mancini, 2016), individuals strive to improve their experiences in regions where they can recharge their energy (as cited in Yu & Kim, 2021).

Subjectively perceived well-being has recently gained prominence in transportation and mobility research. However, this research is still in their early stages, and many of the complex relationships between travel behaviour and well-being remain unexplored; most studies only investigate at one component of this link (i.e., travel satisfaction) (Vos, Schwanen, Acker, & Witlox, 2013). Some academics claim that leisure activities frequently involve contact with others and thus meet basic social needs (Hills, Argyle & Reeves, 2000). Others have argued for the benefits of the activities themselves, claiming that participating in them can make people feel alive and active (Rodriguez, Latkova, & Sun, 2008). (As cited in Yu & Kim, 2021).

Since taking socialising and discretionary trips and activities tend to correlate on better well-being and social and mental health (Dharmowijoyo, 2020), this study will provide an insight into the effects of changes in socialising trips, discretionary trips, and activities on affective well-being during the COVID-19 pandemic while considering the complexities of travel behaviour that are overlooked in trip-based analyses, which includes household and individual socio-demographic characteristics, daily different individuals' activity-travel pattern (including multi-tasking) and well-being related questions.

1.3 Objectives

The objectives of this study are:

1. To correlate the effects of changes in socialising trips and discretionary trips during COVID-19 pandemics on affective well-being using the bivariate analysis method.
2. To correlate the effects of changes in socialising trips and discretionary trips during COVID-19 pandemics on affective well-being using the multivariate analysis method.

Once the objectives are achieved, this research could be a valuable resource for future urban transportation planning, promoting desirable human travelling pattern activities.

1.4 Scope Of Study

This study focuses on analysing the effects of changes in socialising and discretionary tips and activities during the COVID-19 pandemic on affective well-being. For this study, the dataset used is the "Kajian tinjauan kesan pandemik COVID-19 terhadap tingkahlaku aktiviti-perjalanan di Malaysia" from an online survey conducted in Malaysia (in May 2021) during the pandemic.

CHAPTER 2

LITERATURE REVIEW

2.1 Time Geography

Miller in 2017, characterises temporal geography as a constraint-based framework for studying human behaviour in place and time. Time geography acknowledges that humans have fundamental geographical and temporal limitations: people may only be physically present in one area at a time, and activities take place in a limited number of locations for limited durations. Participating in an activity entail devoting limited available time to access and complete the activity. Time geography is concerned with determining one's freedom of action in the face of multiple spatial and temporal restrictions, rather than with directly forecasting travel behaviour (Neutens et al., 2011 as cited in Rizki et al., 2020).

Furthermore, temporal geography categorises activities depending on their suitability to a certain individual. Work and meetings are examples of fixed activities that cannot be readily rescheduled or relocated, whereas shopping and amusement are examples of flexible activities that may be postponed or conducted in numerous places (Miller, 2017).

2.1.1 Types of Constraints

Time geography recognises three fundamental limits on human activities: capability, coupling, and authority constraints. Individuals' activities are constrained by their physical capabilities and/or available resources (Miller, 2017). For instance, people need to do their daily maintenance routines such as eating and sleeping, which necessitate time and location. Another example is that individuals with extra resources such as private cars can generally travel faster than those who use public transportation.

Coupling constraints define where, when, and how long an individual must collaborate with others on shared activities such as work, meetings, and classes. Fiat imposes authority constraints on specific space-time domains. For example, a retail mall or gated community may make entry difficult and illegal during certain hours (Miller, 2017). These interactions between needs and constraints must be considered to better understand an individual's daily activity-travel pattern. Each person has different time-prisms based on their lifestyle, influenced by the interaction of needs and constraints.

2.1.2 Space-Time Path

Personal and household upkeep, employment, shopping, health care, education, and recreation are all spread out in time and space; they are only available in a few places for a limited period. Taking part in activities requires exchanging time for space in order to have access to these places during operational hours (Miller, 2017).

Figure 2.1 depicts a space-time path between activity stations. Stations are locations for activities; in classical time geography, these are referred to as tubes due to their spatial proximity and temporal availability (e.g., work hours, store working hours, appointments, and scheduled lectures). Anchor points-Cullen and Godson (1975), as cited in Neutens, Schwanen, & Witlox (2011), are referred to as "pegs" because they signal the beginning and finish of defined activities; the time budget restricts the amount of time available for discretionary travel and activity participation.

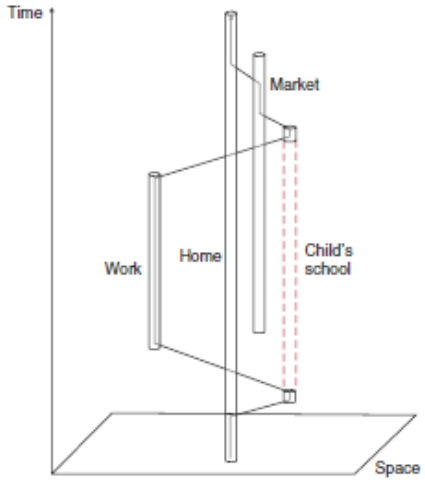


FIGURE 2.1: Space-Time Path Among Activity Stations

2.1.3 Space-Time Prism

Figure 2.2 illustrates a space-time prism representing a person's travel and activity choices within the limits of a time budget given by two vertices. A space-time prism aggregates all conceivable space-time pathways that a person can travel within a certain time budget. Its outer boundaries are determined by the greatest attainable travel speed, the duration of the time budget, the minimum time necessary for activity participation, and the physical distance between the anchor points.

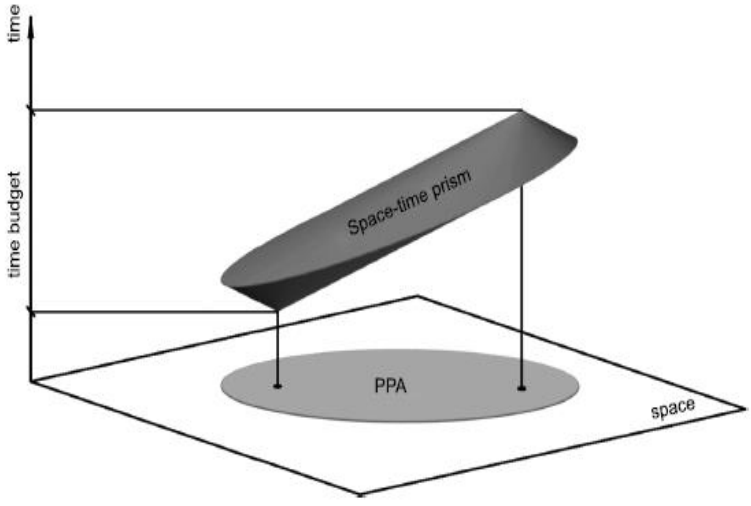


FIGURE 2.2: Time Geographical Concepts

2.2 Affective Well-Being

Two measures of affective or emotional well-being are valence and activations (Dharmowijoyo et al. 2020; Russell 2003; Västfjäll et al. 2002, as cited in Rizki et al. 2020). Valence is a pure hedonic measure of well-being that quantifies how someone feels about an event, a service, or a choice, whereas activation refers to energy activation or mobilisation. Two more dimensions, termed as unpleasant activation and unpleasant deactivation, are added from combinations of valence and activation (Russell, 2003, as cited in Schwanen & Wang, 2014).

The well-being protagonist is thought to be multifaceted, encompassing both cognitive and affective well-being (Schwanen & Wang, 2014). The phrase "cognitive well-being" refers to the appraisal of one's life satisfaction over a longer period of time. (e.g., work satisfaction, marriage satisfaction), but life satisfaction is an appraisal of how nice one's life is over a (much) shorter period of time for emotional well-being (e.g., the past two weeks or right now).

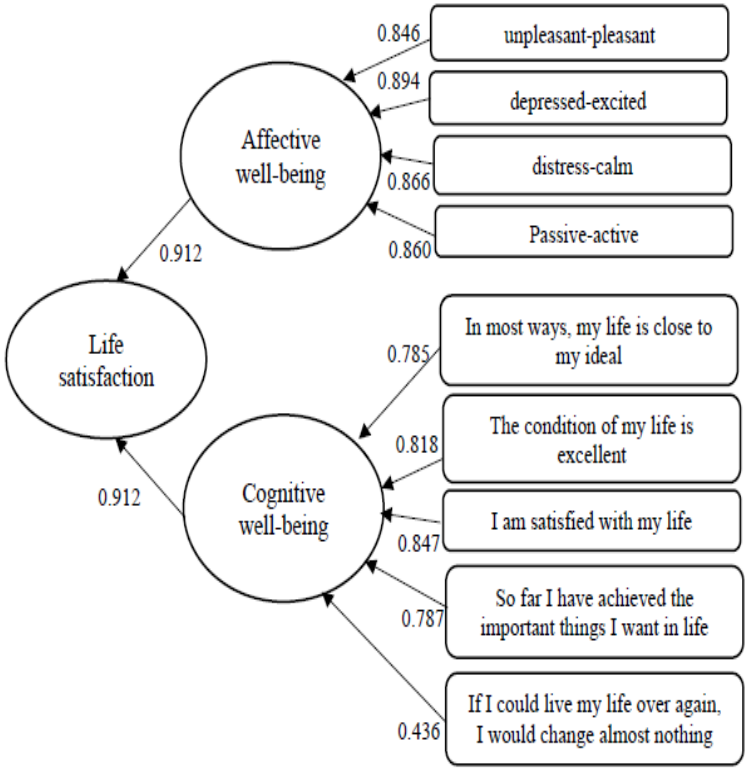


FIGURE 2.3: Measurement Model of Life Satisfaction

2.2.1 Measuring Well-being (Core Affects)

Core affects are attributes of a current mood, an emotional reaction, or an anticipated emotional reaction that are cognitively accessible. They are present all the time, even at a neutral level. (Västfjäll, Friman, Gärling, & Kleiner, 1998). The core affect is simply how we feel at any given moment. Thus, at any particular point in time, we may feel calm (low activation and pleasant), tense (high activation and unpleasant), or happy (pleasant, high activation).

It was proposed early on that core affects can be described by a set of underlying dimensions, according to Västfjäll et al., (2000). The two main affect dimensions or axes, according to Russell (1980), as cited in Västfjälll et al. (2000), represent degrees of pleasantness-unpleasantness and arousal. Participants in the study tended to arrange the eight affect categories of excitement, pleasure, contentment, sleepiness, depression, misery, distress, and arousal in a circular pattern, with axes corresponding to pleasure-misery and aroused-sleepy at right angles and secondary axes corresponding to excitement-depression and contentment-distress at 45 degrees.

To summarise, valence and activation appear to be equally important in defining core affect structure. Västfjäll et al. (2000) proposed that the intermediate dimensions of positive affect, energetic arousal, or activated pleasant affect-deactivated unpleasant affect be referred to as pleasant activation-unpleasant deactivation, whereas the intermediate dimensions of negative affect, tense arousal, or activated unpleasant affect-deactivated pleasant affect be referred to unpleasant activation-pleasant deactivation. The valence dimension, which expresses the strength of emotion and gives information about one's current state of well-being, is an obviously crucial part of the human experience.

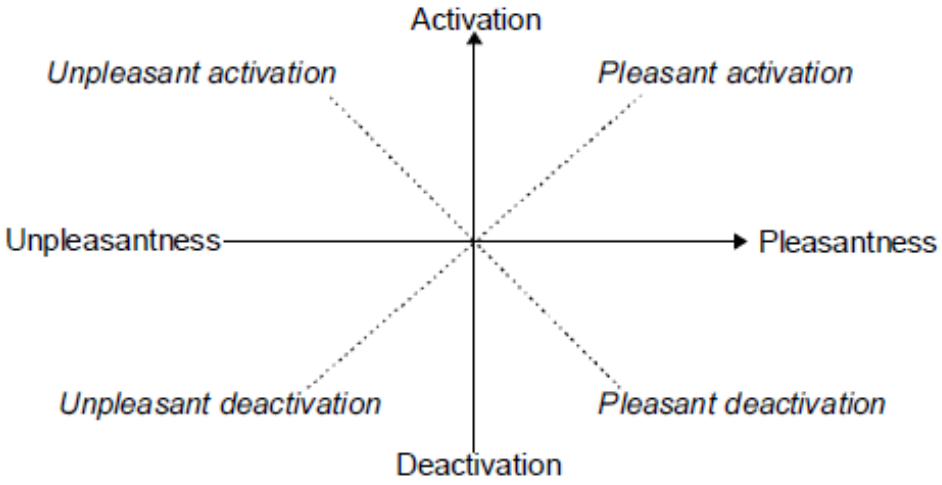


FIGURE 2.4: The Circumplex Model of Affect

2.2.2 Time Geography of Well-Being

Time–geography notions are widely accepted among transportation experts, who contend that effective policy levers to impact travel behaviour can only be employed if daily activity patterns and time usage are recognised (Timmermans, Arentze, and Joh, 2002, as cited in Schwanen & Wang 2014). As a result, these researchers looked at daily activity and travel events, as well as individual activity episodes. An activity episode is a sequence of actions that occur in a single location in space and are continuous in time. It is characterised by a variety of interconnected factors, the most widely discussed of which are the type of activity, the beginning time, the period, the geographical location, and the individual engaging (Schwanen & Wang, 2014).

Time–geographical analysis enables precise judgements about whether and how time spent with certain people or groups of social interactions (for example, family and friends) influences well-being (Schwanen & Wang, 2014). Furthermore, temporal geography aids in understanding how longer-term processes, such as life satisfaction ratings, influence and are influenced by daily activities (Pred, 1983, as cited in Schwanen & Wang, 2014).

2.3 COVID-19 As A Contextual Moderator

Satisfaction with an individual's leisure life domain, one of several sub-domains of their existence, has a beneficial influence on their subjective well-being through a bottom-up spill over process (Kuykendall, Tay & Ng, 2015). After completing one's required tasks and chores, one spends the remainder of one's time to leisure pursuits. Individuals choose non-obligatory, voluntary activities that result in intrinsic good sentiments of satisfaction, autonomy, and motivation (Neulinger, 1982). Aside from the inherent benefits of leisure, scientists have postulated a need-satisfaction process via which leisure life enjoyment might favourably contribute to one's subjective health. Individuals' social needs (Hills, Argyle, & Reeves, 2000), efficacy needs (Argyle, 1987), and sensation seeking needs are met during leisure, and this state of fulfilment may contribute to happiness.

According to the American Psychological Association, during the COVID-19 pandemic in 2021, people would feel heightened stress and unanticipated limitations in their everyday responsibilities (Heid et al.,2021). Individuals are barred from engaging in their usual interpersonal interactions and gatherings; access to public spaces is restricted, limiting the range of opportunities and settings that people can use in their daily lives; and a higher level of perceived uncertainty in life reduces people's sense of control or autonomy. COVID-19 creates a social environment that decreases people's life satisfaction when compared to pre-pandemic levels (Wanberg et. al, 2020).

According to the hierarchical leisure constraints model (Jackson et al., 1993), constraints in leisure engagement and activities can reduce subjective wellbeing because people are less confident in their ability to pursue interests, have fewer people with whom to engage in leisure activities, and lack local opportunities or financial resources to pursue leisure. Individuals in the COVID-19 condition have a limited pool of leisure activities and leisure companions, resulting in numerous leisure limitations (Du et al., 2020). (As cited in Yu & Kim, 2021).

It is also stated that in recent decades, the capacity and flexibility to properly control emotional reactions has been connected to well-being (Hu et al., 2014). However, this has mostly been studied in a stable environment with a long-term perspective, rather than in severe or rapidly changing circumstances like pandemics (Diener et al., 2003). People use emotions to interpret and handle situations in their everyday lives, and it has been claimed that the individual's judgement of the situation is more important than the event itself for the emotional reaction (Troy & Mauss, 2011). People are more prone to have stronger and more negative emotions during a crisis like the COVID-19 epidemic because it places them in new demanding and stressful situations like managing new family routines or swiftly shifting to work or study from home (Restubog, Ocampo & Wang, 2020). Aside from their physical impacts, emotional reactions to the COVID-19 epidemic appear to have a role in people's motivation to take preventative measures (Capraro & Barcelo, 2021).

The emotional well-being characteristics of respondents during the outbreak are described in Table 2.1. It shows that the average response of emotional well-being of respondents tended to be higher than the neutral (3 represents neutral) or approving that they are in the negative state of emotional well-being. Most respondents felt irritated (4.19), dull (3.94), worried (3.81), tired (3.25) and annoyed (3.23) during the outbreak. The frustration and depression feelings were found to be the lowest of emotional well-being states during outbreak indicating that the respondents are able to cope up with the situation. However, whether someone is displeased with the experiences during the pandemic showed neutral value (3.06) indicating their indifference (Rizki, et al., 2020).

TABLE 2.1: Respondents Attitude Towards Covid-19 And Their Subjective Well-Being

Variables		N	Proportion (%)	Mean	SD
Pandemic characteristics					
Attitude towards COVID-19 risk	Not dangerous at all	1	.1		
	Less dangerous	15	1.8		
	Don't know	14	1.7		
	Dangerous	375	45.0		
	Extremely dangerous	429	51.4		
Number of days at home from 3rd March 2020	<10 days	43	5.2		
	10-20 days	61	7.3		
	21-30 days	57	6.8		
	31-40 days	85	10.2		
	41-50 days	105	12.6		
	51-60 days	197	23.6		
	61-70 days	167	20.0		
	>70 days	119	14.3		
Emotional/affective subjective well-being					
Negative valence					
Displeased experiences				3.06	1.136
Deactivation					
Passive				2.98	1.239
Dull				3.94	1.059
Unpleasant activation					
Frustrated				2.79	1.060
Annoyed				3.23	1.081
Irritated				4.19	.966
Worried				3.81	.915
Unpleasant deactivation					
Depressed				2.64	1.026
Tired				3.25	1.072

Table 2.2 indicates how the outbreak impacted people's travel frequency for various reasons. Mandatory out-of-home journeys (e.g., to work/school) are the most common out-of-home trips and appear to be the most sensitive to disruption. Surprisingly, the number of flexible or reschedulable visits, such as electronics/fashion trips, has only marginally decreased. There is a possibility that respondents frequented electronics/fashion stores even when travel limits were in place to alleviate boredom and to meet their travel and out-of-home needs within their travel/out-of-home time budget. During the outbreak, as expected, offline activities were substituted by online activities.

TABLE 2.2: Travel Activity Changes During the Pandemic

Type of Trips	Frequency of travel before COVID-19 (trips/week)		Frequency of travel during COVID-19 (trips/week)		Difference in frequency of travel during and before COVID-19		
	Mean	SD	Mean	SD	Mean	SD	t-stat
Work/school trips	6.7	3.309	2.77	2.84	-3.93	3.688	-26.024**
Grocery shopping trips	3.78	2.405	2.58	1.686	-1.2	2.121	-11.791**
Electronics/ fashion shopping trips	2.12	1.726	1.41	1.085	-0.71	1.59	-10.074**
Out-of-home dining trips	3.4	2.385	1.45	1.33	-1.95	2.372	-20.631**
Recreation trips	2.76	1.99	1.36	1.17	-1.4	1.976	-17.462**
Social trips	3.59	2.458	1.89	1.63	-1.7	2.245	-16.624**
Type of Online In-home Activity	**Frequency of online in-home activities before COVID-19 (trips/week)**		**Frequency of online in-home activities during COVID-19 (trips/week)**		**Difference in frequency of online in-home activities during and before COVID-19**		
	Mean	SD	Mean	SD	Mean	SD	t-stat
E-meeting/e-learning	2.28	2.351	5.49	3.782	3.21	3.743	20.786**
Grocery e-shopping	2.16	1.729	2.89	2.166	0.73	1.842	7.583**
Electronic/fashion e-shopping	1.8	1.433	2.07	1.769	0.27	1.418	3.377**
Online delivery food/drinks	3.67	2.577	3.8	2.8	0.13	2.652	1.019
Entertainment activities	4.51	3.554	6.4	3.597	1.89	2.931	10.799**

**significant at 5%, *significant at 10%

In comparison to the period prior to the pandemic, the frequency of various sorts of online in-home activities, such as work from home (WFH) or schooling from home (SFH), entertainment activities, and so on, increased. Surprisingly, online entertainment activities were the most often conducted activities throughout the outbreak, with the second highest difference after work/school activities (Rizki, et al., 2020).

CHAPTER 3

METHODOLOGY

3.1 Project Flowchart

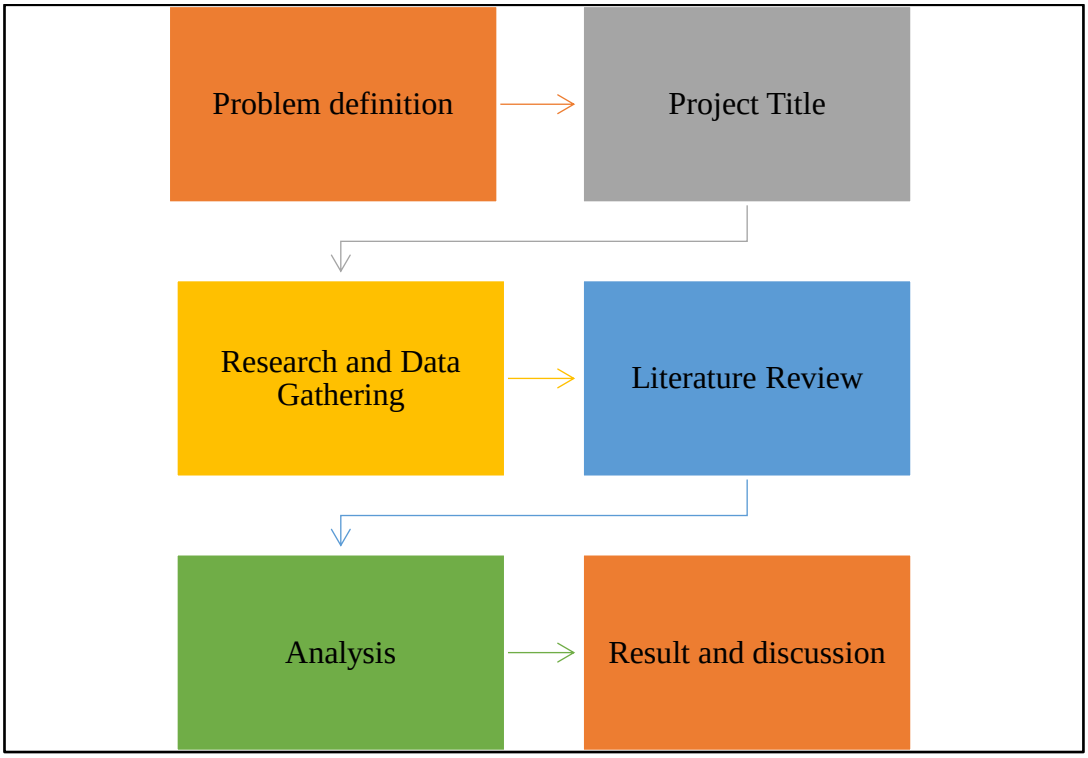


FIGURE 3.1: Flowchart of The Project

3.2 Methods of Information Collection

A range of resources was used for this study, including literature reviews from journals and publications and online research. To ensure that all information is valid to be evaluated, all data is gathered from reliable and up-to-date sources. In order to get a better understanding of the topic, all the journals and articles have been reviewed thoroughly by the author.

3.3 Survey Design and Participants

During May 2021, a cross-sectional, online-based survey titled "Kajian tinjauan kesan pandemik COVID-19 terhadap tingkahlaku aktiviti-perjalanan di Malaysia" was conducted in Malaysia. To ensure a large-scale distribution and recruitment of participants, consenting adults aged 20 and above were recruited electronically using the convenience and snowball sampling methods. In this study, the samples were drawn from states in Malaysia: Johor, Kedah, Kelantan, Kuala Lumpur, Labuan, Melaka, Negeri Sembilan, Pahang, Perak, Perlis, Pulau Pinang, Putrajaya, Sabah, Sarawak, Selangor, and Terengganu. A total of 438 participants have completed the questionnaire, and their responses were recorded in the analysis.

The online questionnaire was developed using the Google Forms platform, and the survey form created was converted into a web link. It was distributed through various social media platforms (Facebook, Instagram, Twitter, Line, and WhatsApp), thus can avoid face-to-face interaction during the survey, which is not safe during the pandemic.

3.4 Survey questionnaire

The goal of the data collection was to identify changes in activity and travel participation in response to the outbreak. The questionnaire consisted of five sections—section A, B, C, D, and E. In the first section, information on the socio-demographic characteristics of the respondents was collected, including age, gender, country of residence, education level, employment status, marital status, work, or study setting, number of cars or motorcycles owned, household income, etc. The second section collected data on the travel activity behaviour, such as comparing the frequency of travel on working days during the lockdown vs before the lockdown started for various purposes. The third section asked about the vehicles' mode of choices during the lockdowns and before the lockdown, such as cars, motorcycles, busses, LRT, etc to travel.

Social activities and subjective well-being questions were asked in the fourth section of the survey. The subjective well-being questions consist of nine emotional well-being states ranging from negative valence (unpleasant experiences), deactivation (passive and dull), combination between negative valence and activation (frustrated, annoyed, irritated, and worried), and combination between negative valence and deactivation (depressed and tired). In the last section of the survey, health-related questions were asked. Questions such as how much body pain the participants experience, how do they feel about their health, mental health, and other health issues during the pandemic. In most sections, Likert scales of seven points were used to record the participants' responses.

3.5 Data Input, Interpretation, and Analysis

Once the data has been collected from the questionnaire, The Statistical Package for the Social Scientist (SPSS) software and Microsoft Excel are used to evaluate all of the information required by this study. SPSS software is a data management and statistical analysis application that enables the user to perform various data processing operations. The software can be used to investigate the relationship between an individual's travel behaviour and their level of affective well-being. Additionally, it is capable of producing visual representations of questionnaire data for use in reports, presentations, and publications. All data is kept electronically in a spreadsheet-style table as shown in Figure 3.2 and Figure 3.3.

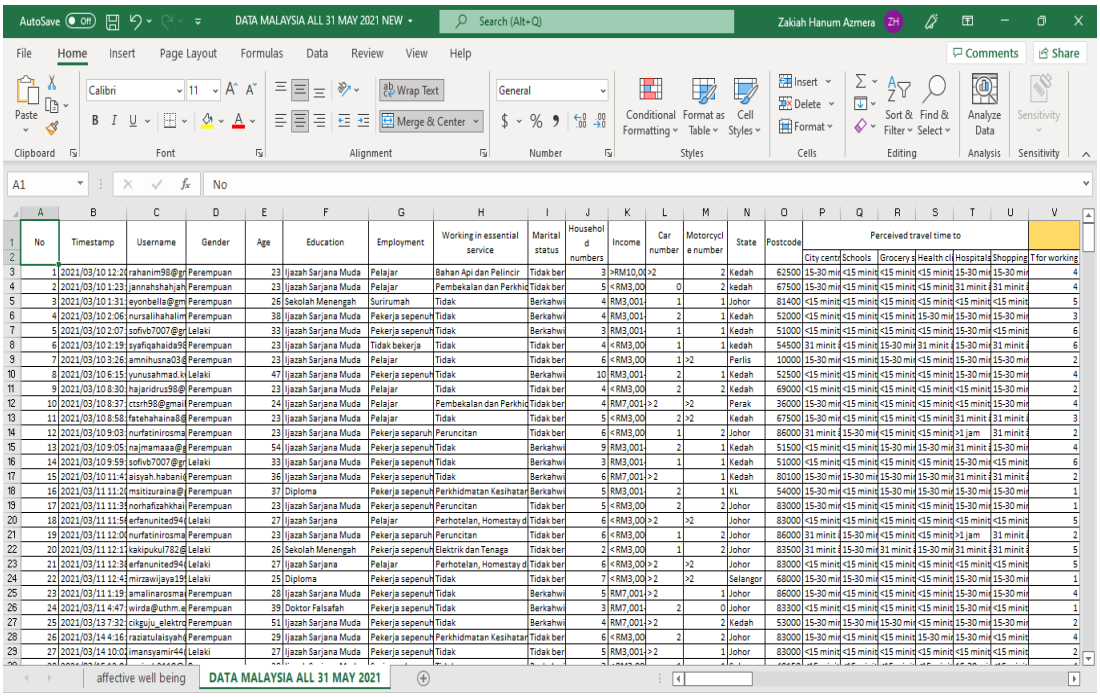


FIGURE 3.2: Data Input in Microsoft Excel

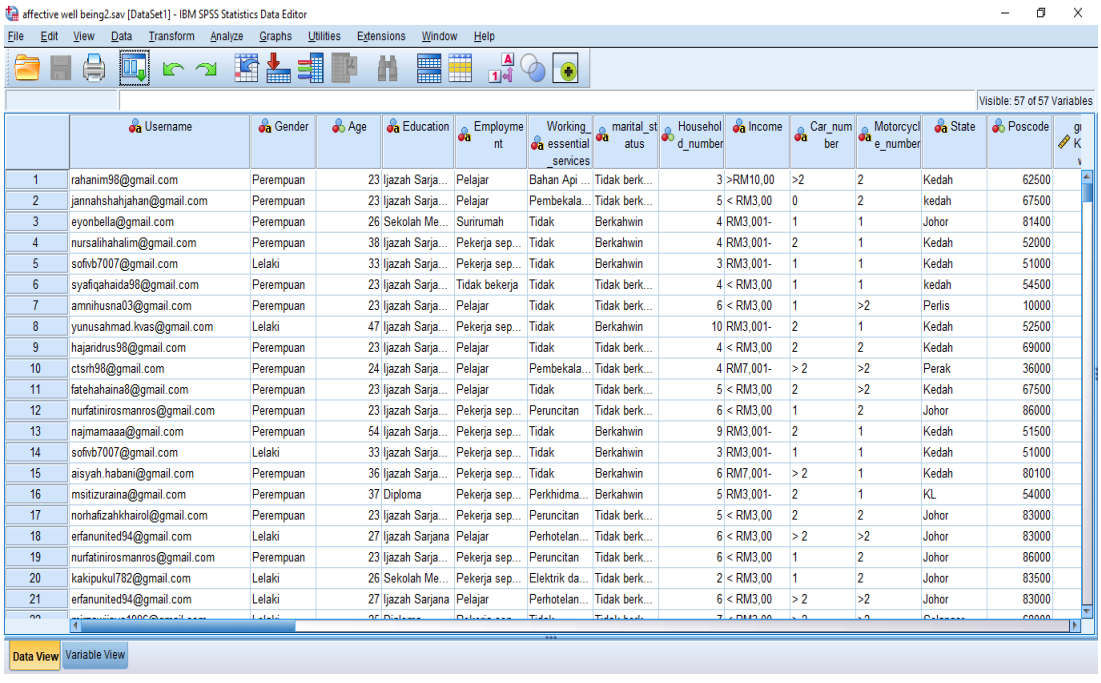


FIGURE 3.3: Data Input in SPSS

After the data has been entered into the two previously mentioned software, the interpretation process has begun. This study has performed bivariate and multivariate analysis to further investigate the effects of changes in socialising

discretionary trips and activities during the COVID-19 pandemic on affective well-being.

Bivariate analysis is a study of two variables in order to ascertain their correlations. In this study, the dependent variables will be affective well-being while the independent variable will be the individual's travel behaviour during the COVID-19 pandemic. The equation involves: $= a + b$, where Y is the dependent variable and X is the independent variable. Multivariate analysis is used to describe data analyses in which each unit or individual has multiple variables or observations.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 "Kajian Tinjauan Kesan Pandemik COVID-19 Terhadap Tingkahlaku Aktiviti-Perjalanan Di Malaysia" Dataset

Table 4.1: Survey Questionnaire

Type of Data	Category
Individual sociodemographic information	• Gender • Age • Highest level of education • Occupation • Occupation sector • Marital status
Household sociodemographic information	• Household size • Household income • Number of cars owned by household • Number of motorcycles owned by household • State of residence • Postcode of residence
Journey to nearest amenity	• Perceived time taken for journey to nearest city • Perceived time taken for journey to nearest school • Perceived time taken for journey to nearest grocery shop • Perceived time taken for journey to nearest health clinic • Perceived time taken for journey to nearest hospital • Perceived time taken for journey to nearest mall

Table 4.2: Survey Questionnaire Continued

Activity Travel Behaviour Comparison Before and After COVID-19 Pandemic			
• **Comparison of travel frequency** • **Comparison of total number of daily trips**	Weekdays/ Weekends	Time period	Type of trips
	Weekdays	Before and after the COVID-19 pandemic (PKP and PKPB)	• Work/school trips • Grocery shopping trips • Dining trips • Socialising trips • Sport/recreational trips • Healthcare trips
		Before and after the COVID-19 pandemic (PKPP)	
	Weekends	Before and after the COVID-19 pandemic (PKP and PKPB)	
		Before and after the COVID-19 pandemic (PKPP)	
• **Main purpose of travel** • **Comparison of trip duration for the main purpose of travel**	Weekdays/ Weekends	Time period	Purpose of Travelling
	Weekdays	Before MCO	• Work/school trips • Grocery shopping trips • Dining trips • Socialising trips • Sport/recreational trips • Healthcare trips • Others

Table 4.3: Survey Questionnaire Continued

Online Activities Comparison Before and After COVID-19 Pandemic			
	Activity	Time period	Purpose of Travelling
Comparison of weekly activity frequency	• Work/study from home • Grocery e-shopping • E-shopping • E-meeting • Online delivery food/drinks	Before and after the COVID-19 pandemic (PKP and PKPB) Before and after the COVID-19 pandemic (PKPP)	• Work/school trips • Grocery shopping trips • Dining trips • Socialising trips • Sport/recreational trips • Healthcare trips • Others

Table 4.4: Survey Questionnaire Continued

Health Before and After COVID-19 Pandemic		
	Weekdays/ Weekends	Time period
Health-related Quality of Life (QOL) Questions	Weekdays	Before MCO
		During PKP and PKPB
		During PKPP
	Weekends	Before MCO
		During PKP and PKPB
		During PKPP

4.2 Summary of the Malaysia 2021 Dataset

Table 4.5 and table 4.6 displays the respondents' socio-demographic and spatial characteristics. Females account for the vast majority of respondents (66.4%). The majority of respondents (84.5%) are between the ages of 23 and 45, and the majority have a bachelor's degree as their highest level of education (48.6%). In terms of employment, most respondents (59.3 %) work full-time, with 69.1% not working in essential services. Respondents with monthly incomes ranging from 3001 to 7000 Ringgit Malaysia dominate the monthly income distribution (32.6%). In terms of marital status, most respondents (61.4%) were either single or married (38.1%). The respondents are mostly from families with four to six persons (57.3%), and they own one to two automobiles and motorcycles (83 % and 56.4 %, respectively).

TABLE 4.5: Respondents' socio-demographic and spatial characteristics, N=438

Variables	Percentage	Variables	Percentage
Gender		**Working in essential services**	
Male	33.50	Not working in essential services	69.10
Female	66.40	Health services	5.70
Age		Banking and finance	4.10
<22 years old	10.90	Food Supply and Services	3.70
23-45 years old	84.50	Internet and Communications	3.00
46-55 years old	3.90	Electricity	2.70
>56 years old	0.70	Hospitality	1.80
Education		Retail	1.60
High School	6.60	Safety	1.40
Diploma	15.30	Fuels	1.10
Degree	48.60	Logistics	1.10
Master	21.20	Waste Management	1.10
Doctorate	8.20	Online Shop	0.90
Employment		Broadcaster	0.90
Full time	59.30	Transportation	0.70
Part time	3.40	Courier	0.70
Student	30.60	Water services	0.20
Housewife	2.50		
Not working	4.10		

Table 4.6: Respondents' socio-demographic and spatial characteristics, N=438

Continued

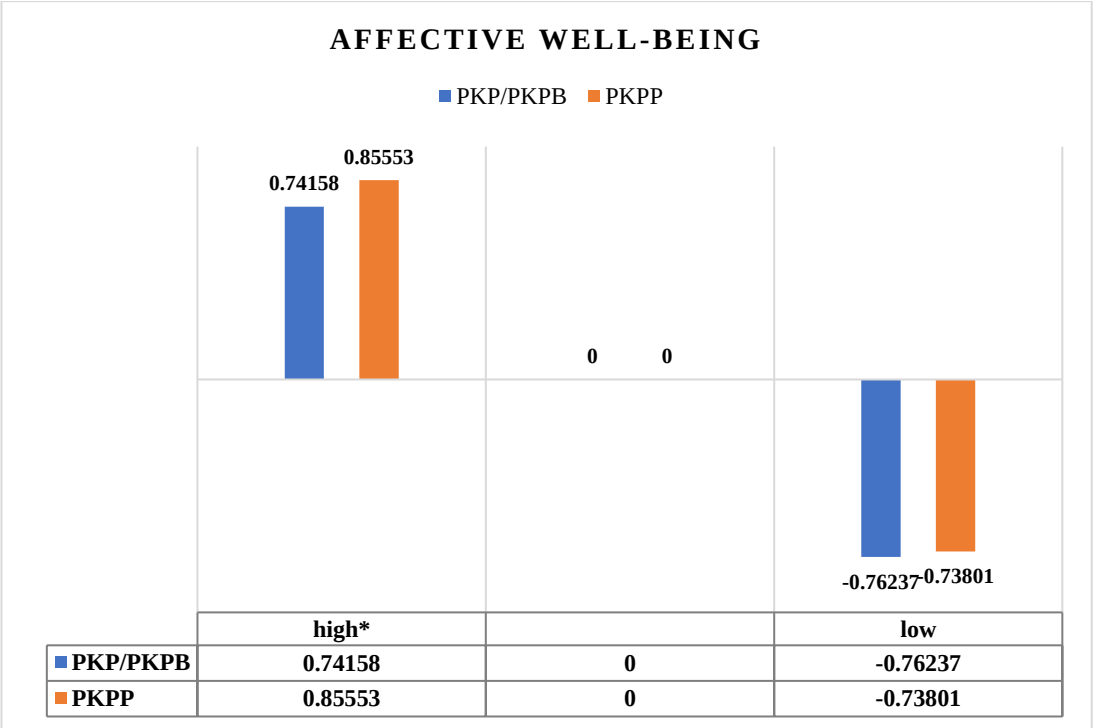
Variables	Percentage	Variables	Percentage
Marital status		**Household number**	
Married	38.10	<3	24.90
Single	61.40	4-6	57.30
Single Parents	0.50	8-9	11.90
Car numbers		>10	5.70
0.00	6.90	**Income (RM)**	
1-2	83.00	<3000	28.30
>2	35.60	3001-7000	32.60
Motorcycle numbers		7001-10,000	17.30
0.00	32.00	>10,000	21.70
1-2	56.40		
>2	11.60		

4.3 Descriptive Analysis

4.3.1 Overall Affective Well-Being during COVID-19 Pandemic

The affective well-being index was obtained from factor scores analysis with a varimax rotation of all questions in the survey related to the research using a fundamental principle component analysis with a single-factor solution. Factor scores analysis is commonly used to reduce a large number of variables into fewer factors. The SPSS software creates the factor scores with the least square method. The factor scores also produce factor loadings of the multidimensional information, which shows the interrelationships among variances of multidimensional information to the discretionary and socialising trips taken during the pandemic and to the overall affective well-being. These scores are then classified as high affective well-being or low affective well-being. Positive scores indicate a high level of affective well-being, whilst negative scores indicate a low level of affective well-being.

The factor score analysis results are then analysed by plotting a graph of the average of individuals who had high and low affective well-being during PKP/PKPB and PKPP. The overall affective well-being during PKP/PKPB and PKPP is depicted in Figure 4.1. Figure 4.1 shows that the average of individuals with high affective well-being during PKP/PKPB and PKPP is 0.74 and 0.86, respectively. For low affective well-being, the average of individuals' affective well-being during PKP/PKPB and PKPP are -0.76 and -0.73, respectively. When PKPP is compared to PKP/PKPB, there is a rise in the overall affective well-being of the respondents. More people have high affective well-being during the PKPP, while fewer have low affective well-being.



	high*		low
PKP/PKPB	0.74158	0	-0.76237
PKPP	0.85553	0	-0.73801

*p-value < .1; significantly different

FIGURE 4.1: Overall Affective Well-being during PKP/PKPB and PKPP

This is due to the fact that during PKPP, some movement restrictions are eased in comparison to PKP/PKPB, where mobility limits are stricter. Most industries are allowed to reopen as long as they follow the government's SOPs. During PKPP, people are allowed to fulfil their needs and desires by undertaking more discretionary and socialising trips, such as travelling to work (working in the office), dining out, shopping at malls, sporting activities, visiting family members, vacations, and so on. As a result, the individuals' affective well-being is influenced.

4.4 Bivariate Analysis of Individuals' Travel Behaviour and The Effect to The Affective Well-Being.

4.4.1 During PKP/PKPB

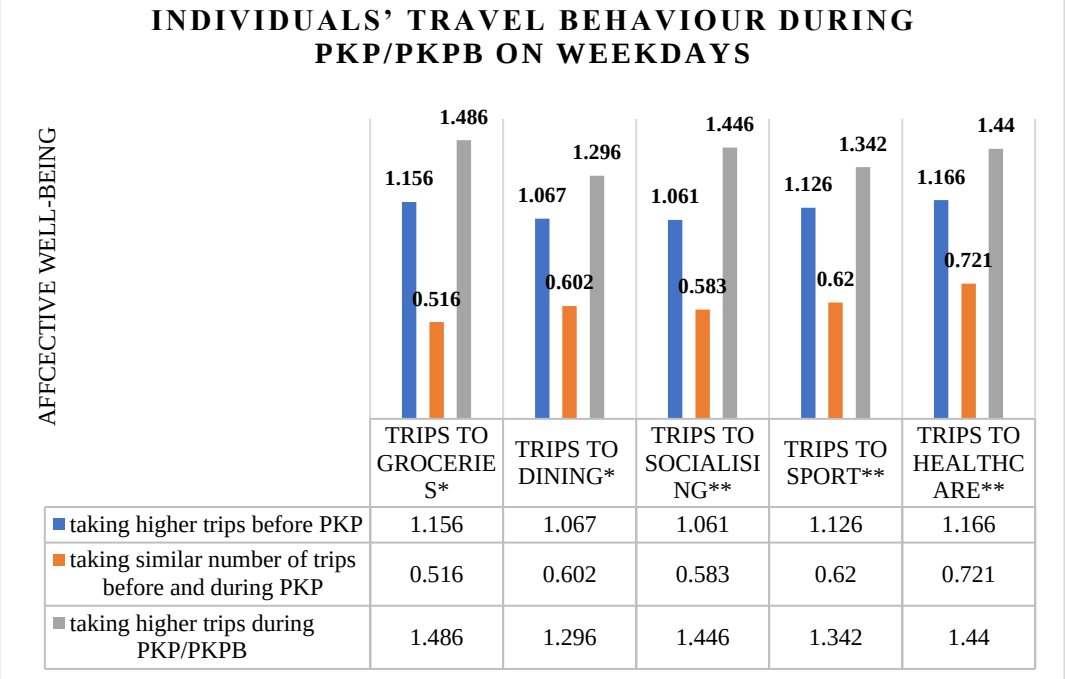
The survey results have demonstrated that the COVID-19 pandemic has changed individuals' activity-travel behaviour. The data has captured five types of discretionary and socialising trips (trips to groceries, dining, socialising trips, trips to sport, and healthcare) taken during the pandemic.

Figures 4.2 and 4.3 show the relationship between the frequency of taking discretionary and socialising trips during PKP/PKPB on weekdays and weekends and the affective well-being of the respondents during the phase. The Likert scale was employed in the survey questions to record the responses of the respondents. Those who select 1 to 3 are classified as taking more trips before PKP, those who select 4 to 5 are classified as taking similar trips before and during PKP, and those who select 6 to 7 are classified as taking more trips during PKP/PKPB. The study employs one-way ANOVA analysis methods to assess whether there are any statistically significant differences between the means of the groups.

Referring to figure 4.2 and 4.3 for both weekdays and weekends, it can be seen that the mean of the people who took higher trips to the groceries during the PKP/PKPB have higher affective well-being compared to those who took higher trips before PKP. Those who took similar trips before and during PKP have the lowest affective well-being. For trips to dining, the highest mean of affective well-being was contributed by the people who took higher trips during the PKP/PKPB—comparing between the other two categories, people who are taking higher trips before PKP has better affective well-being compared to people who took similar trips before and during PKP.

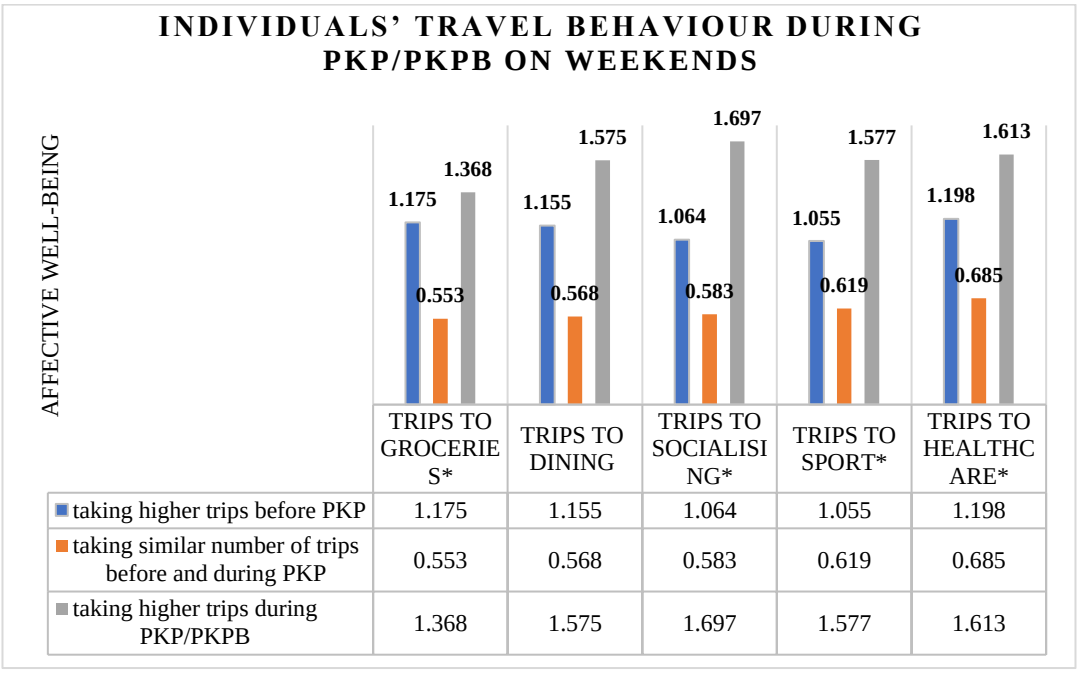
People who took more trips to socialising during the PKP/PKPB has the highest affective well-being of all other kinds of trips. It seems that taking trips to socialising has the greatest impact on affective well-being. Spending quality time with friends or loved ones is good for the soul as it helps to lighten up the mood and make them feel

happier. The cases are just as similar to the previously mentioned trips for trips to sports and healthcare. People who took higher trips during the PKP/PKPB generally have higher affective well-being than those who took a similar number of trips and higher trips during the PKP for both trips.



	TRIPS TO GROCERIES*	TRIPS TO DINING*	TRIPS TO SOCIALISING**	TRIPS TO SPORT**	TRIPS TO HEALTHCARE**
taking higher trips before PKP	1.156	1.067	1.061	1.126	1.166
taking similar number of trips before and during PKP	0.516	0.602	0.583	0.62	0.721
taking higher trips during PKP/PKPB	1.486	1.296	1.446	1.342	1.44

FIGURE 4.2: Individuals' Travel Behaviour and The Affective Well-Being During PKP/PKPB On Weekdays

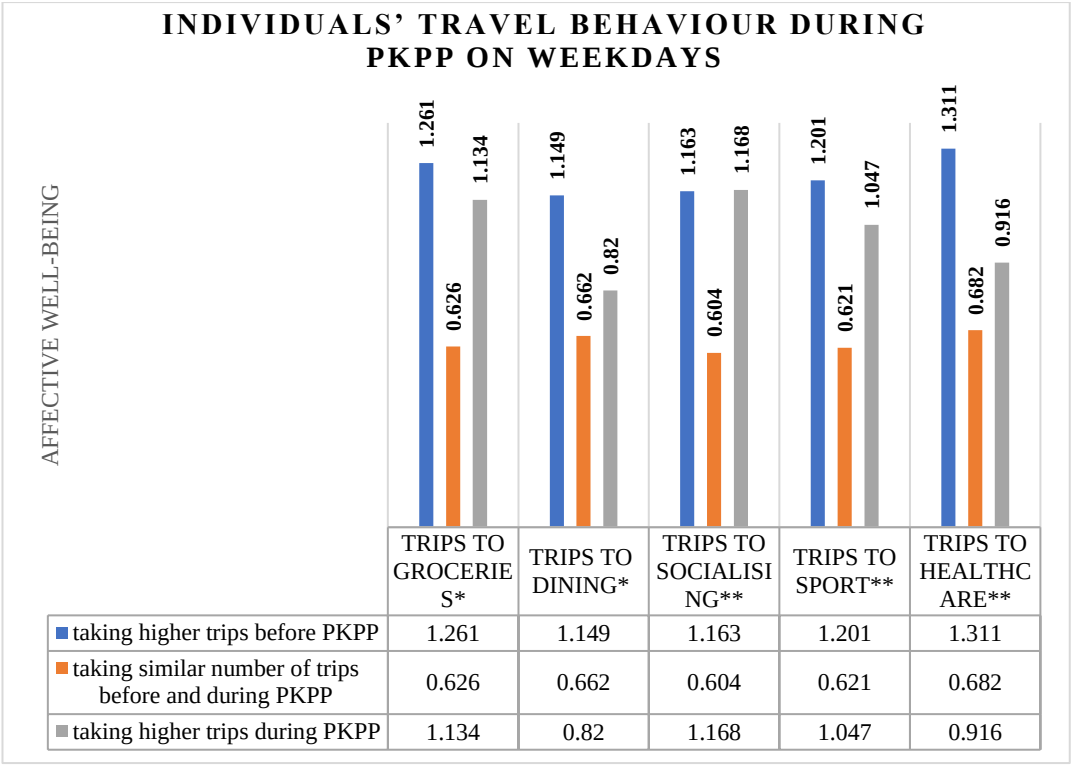


	TRIPS TO GROCERIES*	TRIPS TO DINING	TRIPS TO SOCIALISING*	TRIPS TO SPORT*	TRIPS TO HEALTHCARE*
taking higher trips before PKP	1.175	1.155	1.064	1.055	1.198
taking similar number of trips before and during PKP	0.553	0.568	0.583	0.619	0.685
taking higher trips during PKP/PKPB	1.368	1.575	1.697	1.577	1.613

FIGURE 4.3: Individuals' Travel Behaviour and The Affective Well-Being During PKP/PKPB On Weekends

4.4.2 During PKPP

During the PKPP, as observed in figure 4.4, for trips to groceries, trips to dining, trips to sport and trips to healthcare, people who took higher trips before PKPP has higher affective well-being compared to those who took higher trips during PKPP and to those who took a similar number of trips during PKPP. For trips to socialising, those who took higher trips during PKPP had higher affective well-being (0.168) than those who took higher trips before PKPP (1.163) and those who took a similar number of trips before and during PKPP (0.604).



	TRIPS TO GROCERIES*	TRIPS TO DINING*	TRIPS TO SOCIALISING**	TRIPS TO SPORT**	TRIPS TO HEALTHCARE**
taking higher trips before PKPP	1.261	1.149	1.163	1.201	1.311
taking similar number of trips before and during PKPP	0.626	0.662	0.604	0.621	0.682
taking higher trips during PKPP	1.134	0.82	1.168	1.047	0.916

FIGURE 4.4: individuals' travel behaviour during and the affective well-being PKPP on weekdays

As seen in figure 4.5, the result is the opposite of weekdays for the weekends. In most categories (trips to groceries, trips socialising, trips to sport), the highest affective well-being was found in the people who took higher trips during the PKPP. Second higher affective well-being came from the people who took higher trips before PKPP, and the lowest affective well-being was from the people who took a similar number of trips before and during the PKPP. However, for trips to dining and trips to healthcare,

the highest affective well-being is from the people who took higher trips before PKPP compared to those who took higher trips during the PKPP. The lowest affective well-being still comes from the people who took similar trips before and during the PKPP.

According to the findings, it seems people have more free time during the weekends to perform discretionary and socialising trips. Since some of the mobility restrictions has been relaxed during PKPP, some people have to travel to perform fixed activities such as going to work in the office, causing them to have less activity participation due to their time budget, which delimits the time available for other discretionary activities during the weekdays. As defined by Miller in 2017, humans have fundamental geographical and temporal limitations: people can physically be in only one place at a time, and activities take place in a limited number of locations for restricted durations. As a result, their limited time budget has influenced the frequency with which they take trips during the PKPP, effecting their affective well-being.

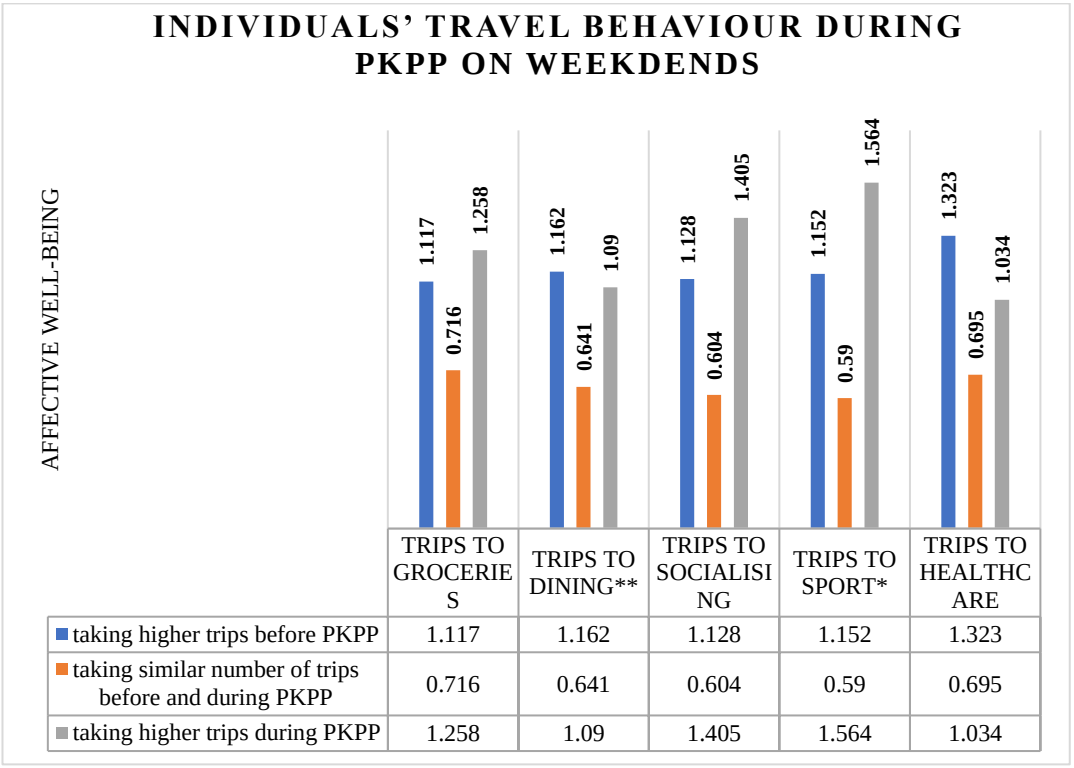


FIGURE 4.5: Individuals' Travel Behaviour and The Affective Well-Being During PKPP On Weekends

4.5 Model Estimation Result

Regression is a statistical approach for building models and analysing the relationship between dependent and independent variables. Its goal is to determine the degree of relationship between two or more variables. The dependent variables in this study, as shown in tables 4.3, 4.4, 4.5, and 4.6 are trips to grocery, dining, socialising, sports, and healthcare, work & school from home, e-groceries, e-shopping, e-meeting, food delivery and streaming movies. The independent variables are affective well-being during PKP/PKPB and PKPP. The coefficients table below illustrates the strength of the relationship between the dependent and independent variables, i.e., the variables' significance.

The beta of the standardised coefficients indicates the amount of variation in the dependent variable caused by the independent variable, whereas the significance shows the degree of error in the regression model. The value should be less than the study's tolerated level of significance, i.e., less than 0.1 for a 95 percent confidence interval in this study. The *p-v*alue denotes the statistical significance of the data. Trips with a probability of less than 0.1 suggest statistically significant data that may affect the dependent variable, which in this case is affective well-being.

Table 4.6 shows that trips to socialising (0.01), sports (0.08), and healthcare (0.10) have *p*-values < .1 during the weekdays, indicating that the data is statistically significant, and the null hypothesis is rejected. Taking trips to socialising, sports and healthcare have the most significant impact on the affective well-being during the COVID-19 pandemic. During PKP/PKPB most people have less engagement with other people due to confinement to their homes, thus taking more trips from those categories has been seen to influence their affective well-being. In a study it was found higher level of social engagement was consistently associated with less perceived depression, better self-rated health, and higher quality of life (Luo et. Al, 2020). Other trips, such as grocery and dining, have insignificant values, indicating that the null hypothesis is not rejected and has no effect on emotional well-being.

TABLE 4.5: Coefficients Table for Trips During the PKP/PKPB

PKP/PKPB				
Types of Trips	Standardised Coefficients beta		Significance	
	Weekdays	Weekends	Weekdays	Weekends
Groceries	0.10	-0.07	0.13	0.34
Dining	0.11	0.03	0.14	0.68
Socialising	-0.23	0.08	**0.01***	0.44
Sport	0.15	-0.04	**0.08***	0.62
Healthcare	0.10	0.05	**0.10***	0.51

**p-value* < .1

During the PKPP, table 4.7 revealed trips to groceries on weekends (0.07) and trips to dining on weekdays (0.00) have a *p*-value <.1, signifying that the data is significant which has an impact on the dependent variable whereas trips to socialising, sports, and healthcare both on weekdays and weekends are not statistically different. During the PKPP, some people have to limit their discretionary trips because of they have to make more time available for fixed activities and lesser time available for flexible activities. Thus, it explains why affective well-being seems to be impacted. People also have fewer restrictions during PKPP making them have enough social engagement thus leaving having no impact on affective well-being.

TABLE 4.6: Coefficients Table for Trips During the PKPP

PKPP				
Types of Trips	Standardised Coefficients		Significance	
	Weekdays	Weekends	Weekdays	Weekends
Groceries	-0.08	0.15	0.24	**0.07***
Dining	0.25	-0.08	**0.00***	0.35
Socialising	0.03	-0.09	0.74	0.37
Sport	-0.08	0.11	0.39	0.28
Healthcare	0.03	0.04	0.76	0.61

**p-value* < .1

For activities performed during PKP/PKPB in table 4.8, the type of activity that is statistically significant is e-grocery due to the *p*-value being less than 0.1. This evidence suggests that e-groceries activity does impact the affective well-being during the COVID-19 pandemic. For WFSH, e-shopping, e-meeting, food delivery, and streaming movies are not statistically significant, and the null hypotheses are not rejected due to the *p*-values being more than 0.1. In PKPP (according to table 4.9), the WFSH and e-meeting activities are statistically significant, with the *p*-value being .09 and 0.07, respectively. However, for the other activities, the *p*-value is not statistically significant indicating that the independent variables have no effect on affective well-being.

TABLE 4.7: Coefficients Table for Activity Performed During PKP/PKPB

PKP/PKPB		
Activity Performed	Standardised Coefficients Beta	Significance
WFSH	-0.10	0.16
E-grocery	0.16	**0.04***
E-shopping	-0.11	0.17
E-meeting	0.01	0.90
Food Delivery	0.03	0.68
Streaming Movies	-0.04	0.56

**p-value* < .1

TABLE 4.8: Coefficients Table for Activity Performed During PKPP

PKPP		
Activity Performed	Standardised Coefficients Beta	Significance
WFSH	-0.12	**0.09***
E-grocery	0.02	0.80
E-shopping	-0.03	0.75
E-meeting	0.15	**0.07***
Food Delivery	0.02	0.75
Streaming Movies	0.04	0.60

**p-value* < .1

CHAPTER 5

CONCLUSION AND FUTURE WORKS

5.1 Conclusion

To conclude, discretionary and socialising trips and activities are necessary to maintain or improve an individual's affective well-being. Because of mobility restrictions enforced by the government during the pandemic, people took less discretionary, socialising trips and activities such as vacations and spending time with family members. Aside from that, this study successfully correlated a bivariate and multivariate analysis between changes in socialising and discretionary trips and affective well-being. The findings show that changes in socialising and discretionary trips and activities may have a significant effect on affective well-being, however it only applies to certain types of trips. It can be concluded that the survey does not fully capture all of the possible factors affecting the affective well-being such as the environmental factors, the time-space prism of each individual, and others type of factors. Hence, explaining the insignificance results of some of the trips.

5.2 Future Works

In terms of future work, several steps can be taken to improve the research and increase its prominence, including emphasising the study's main point, collecting additional articles on the research topic, and reviewing case studies on the effects of changes in discretionary and socialising trips on affective well-being

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