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STUDENTS' LEISURE WEEKEND ACTIVITIES DURING MOVEMENT CONTROL ORDER: UiTM PAHANG SHARING EXPERIENCE

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A movement control order implemented by Malaysia's government due to the COVID-19 pandemic has strictly controlled the education system, where virtual classes have taken over the physical classes. This study aims to describe the students' leisure weekend activities during movement control order in Universiti Teknologi MARA Pahang. A simple random sampling technique was conducted by distributing online survey questionnaires to a sample of 213 students. A descriptive statistics, and Chi-Square and Fisher Exact test were used in data exploration and association determination between students' activities and demographic characteristics. Results found that majority of the students did not make a weekend to-do list and slept more than four hours. Most of the females, 53% enjoyed their weekend, but 51% of males did not. Many students spent more than four hours on revision, 25% and social media, 27%. Most of them spent less than one hour on family, 31% and reading, 53% activities. The study concludes that there are seven activities are influenced by gender, four activities are influenced by programs, while two activities are influenced by their current semester.

***Keywords*:** online classes, home learning, student's activity, movement control order, chi-square

1. Introduction

The pandemic of the coronavirus named COVID 19 sparked major changes, especially in economic, education, and people's lifestyles. It is a challenging time for many people to live a normal life in a time of uncertainty due to the spread of the COVID 19 outbreak. The Malaysian Control Order (MCO) regulations implemented to curb the spread of viruses mean almost all students will have to spend their precious time at home. Since students were required to stay home during the pandemic, work and study patterns were changed, and they need to undergo online learning at home. Spending days, weeks, and months at home with limited resources and social contact can affect students' psychological health. Despite the changes caused by the COVID 19 pandemic, a great number of outdoor activities and events have been cancelled or postponed. However, there is still a lot of enjoyment to be had. So that, it is important to keep celebrating and getting together in creative ways to maintain their physical and mental health among themselves.

According to Hirschmann (2020), a survey conducted among 1100 respondents of Malaysian leisure activities during the MCO period shows that 40% of respondents spent their time exercising while 38% of respondents spent time playing video or online games. It is important to discover on how do students stay optimist and avoid learning anxiety, also their

ways to adapt the recent learning method introduced in this hardship due to pandemic. Therefore, the present research aims to describe the students' leisure weekend activities during the movement control order (MCO) in Universiti Teknologi MARA (UiTM) Pahang Campus and to determine the association between the student's leisure weekend activities during MCO and the demographic characteristics. In the first part, this study involves constructing a comprehensive literature review on weekend leisure activities. Next, the study focuses on the demographic characteristics and student's weekend activities during MCO.

2. Literature Review

Since the pandemic outbreak and the Malaysian government imposed the MCO, the higher institution had to shift to online teaching to ensure that the learning process can be carried out despite the current situation. Online learning is essential for the teaching and learning process, besides face-to-face and other traditional methods whereby the learning activities are conducted via the use of web-based technologies (Mokhtar, 2020; Carliner, 2004). According to Dhawan (2020) and Rahman (2020), online learning during the MCO provides advantages in independent learning and developing new skillsets in the process leading to life-long learning. Self-regulated learning is a critical factor to online learning success (Wong, 2019). During the MCO, both lecturers and students face several challenges in ensuring continuity in the online learning process (Kamarudin, 2020).

It is very interesting to figure out how students survive to remain to have a positive attitude and away from learning anxiety as well as what strategies they use to manage a new learning method when learning in this emergency situation (Baloran, 2020). The psychological side of the students when experiencing online learning also needs to be considered because to have great "mental health" for students is a must, especially in the recent learning situation (Wajdi *et al.*, 2020). Besides all the benefits from online learning, students found it less interesting than other forms of learning, not student-friendly, and not sufficiently interactive to make students feel more connected through such platforms as Facebook, WhatsApp, WeChat, and email (Taat & Francis, 2020). As an alternative, students will spend time to release their stress from online learning, especially over the weekends.

There are lots of activities students can do at home during the isolating and quarantine due to the pandemic, such as studying, playing indoor games, writing, watching television series and movies, sign in online classes, learn a new language, listening to music, and others. During weekdays, the student spends many hours for online classes, engaging in the task of assignment or any activity related to their academic. But on weekends, students can choose their own leisure activities. Many previous research has given the definition of leisure time; for example, research from Brightbill (1960) and Smigel (1963), leisure activities include all activities that a person engages in when they are not working. A Study from Massimini and Carli (1998) states that the activities that are entertaining and relaxing might be classified as leisure time. Larson and Verma (1999) mentioned that voluntary, self-motivation, self-initiative, regulation, and organization could be considered as leisure activities. However, studies by Kleiber, Walker and Mannell (2011), Ellis and Witt (1991), and Neulinger (1974) on two-dimensional typology and the definitional point (external or internal) leisure most taken by the researcher for further studies.

According to Meeras (2010), people have an opportunity to choose how much time they want to spend after working hours. The types of leisure activities that can be done such an active relaxation activity as repairing something that exists at home, repairing motorcycles, precarious leaking, and others. Secondly is productive relaxation is doing the activity that can add knowledge or skill to the course, like making dishes or cake, and the third is passive relaxation, like reading, listening to music, writing, and others. Leisure time is important because it can help increase physical fitness, emotional well-being, mental, spiritual, self-awareness, and self-esteem (Binder & Freytag, 2013), especially during MCO. Based on Pavlova and Silbereisenn (2015), the widespread availability of television and other mass media, electronic media use (both passive activities such as watching television and listening to music and more mentally challenging activities such as internet surfing, video games, and communicating with others) is the most popular leisure activity among adolescents. Not only that but the leisure choices are also influenced by multiple factors such as

facilities, financial constraints, and the support by people surrounding such as parents, teachers, peers, and community.

As mentioned previously, this research aims to study students' leisure weekend activities during MCO. For the seven activities which have an association with gender, it can be deduced that there is a statistically significant relationship between gender and the four activities. For the four activities which have an association with their program enrolled, it is assumed that there is a statistically significant difference between students from different programs in spending their time for reading, doing homework, eating and drinking, as well as planting.

Seven activities that are retiled to gender are spending hours for indoor and outdoor games, doing homework, surfing social networking sites, shopping, cooking activities, and planting. Spending their time for reading, doing homework, eating and drinking, as well as planting are the activities related to program. Meanwhile spending time for eating and drinking, and planting are related to current semester students.

3. Methodology

This study was conducted as a cross-sectional research, which involves analysing data obtained from a subset of a sample at a single point in time. A group of 213 students from five different programs was selected randomly among 16 programs offered in UiTM Jengka, Pahang as the respondents of this study. To produce the most accurate output that fits the objectives, a descriptive statistics and chi-square test were performed to analyze the data. The early stage of this study involves constructing of a comprehensive literature review on the concerned topic. Next, a set of survey questions was finalized appropriate to the target group by including questions regarding the demographic characteristics and student's leisure weekend activities during MCO. There are four categorical variables included under the demographic section, which are age, gender, program enrolled, and their current semester. Meanwhile, the weekend activities section was formed as ordinal questions (less than 1 hour, less than 2 hours, less than 3 hours, less than 4 hours, more than 4 hours, and none) and nominal questions (yes and no) which composed of 15 and two questions, respectively. The ordinal questions are related to the activities, such as 1) watching television, 2) reading, 3) playing computer or electronic games, 4) doing homework or assignment, 5) surfing social networking sites, 6) spending time with family, 7) playing outdoor games, 8) shopping, 9) eating or drinking, 10) cooking, 11) working part-time, 12) volunteering, 13) sleeping, 14) planting and 15) painting. The nominal questions ask whether 1) students enjoy the weekend during MCO, and 2) students do a weekend to-do list during MCO. The data was collected from the responses received once the survey questions were distributed among the students.

The data obtained then was recorded and appropriately analyzed by performing screening, exploring, and cleaning using software R version 4.0.2. The frequencies and distributions of the data were determined, and data analysis was carried out by conducting descriptive statistics and Chi-square test. Besides, the data was explored by performing descriptive statistics and illustrating graphs of each variable to explain the demographic characteristics of student's location elicited on the weekend activities during MCO. Then, the percentages and frequencies of categorical variables were identified. The associations between the students' leisure weekend activities during MCO and demographic characteristics were determined using a Chi-square and Fisher Exact test. Both test of independence evaluates if some categorical variables are correlated with some populations (Turhan, 2020). The formula for computing the test statistic is as follows:

$$\chi^2 = \sum_{i=1}^{n} \frac{(O_{r,c} - E_{r,c})^2}{E_{r,c}}, \quad (1)$$

Where n is the number of cells in the table, $O_{r,c}$ is the observed frequency number at the level r of the variable A and the level c at the variable B. The $E_{r,c}$ is the expected frequency number at the level r of the variable A and the level c of the variable B.

Fisher Exact test is used for categorical variable with at least one of the category gives value less than 5. This test showed that conditional on the margins of the table, a is distributed as an hypergeometric distribution with $a+c$ draws from a population with $a+b$ successes and $c+d$ failures. The probability of obtaining such set of values is given by:

$$p = \frac{\binom{a+b}{a}\binom{c+d}{c}}{\binom{n}{a+c}} = \frac{\binom{a+b}{b}\binom{c+d}{d}}{\binom{n}{b+d}} = \frac{(a+b)!(c+d)!(b+d)!}{a!b!c!d!n!} \quad (2)$$

where $\binom{n}{k}$ is the binomial coefficient and the symbol ! indicates the factor operator. Like other tests of independence, these two test assume that the individual observations are independent.

4. Results and Discussion

The result section will be discussing on two parts, which are data exploration and association determination. The data exploration section represents the results obtained for demographic characteristics and student's leisure weekend activities during MCO in frequency table and bar plot. The association determination section represents the association between the student's leisure weekend activities during MCO and demographic characteristics by using Chi-square and Fisher Exact test.

4.1 Data Exploration

The descriptive statistics were performed using a frequency table and bar plot for the demographic characteristics and students' leisure weekend activities during MCO. Based on table 1, most students are females, with a number of 132 (62%), while males are 81 (38%). Most of the respondents, involving 111 (52%) students aged between 20 to 21 years old and 102 (48%) are between 18 to 19 years old. The majority are currently in semester 1 to semester 3 with 200 (94%) students, while 13 (6%) are in semester 4 to semester 6. The highest percentage, 75% with 159 students was recorded from the field of science and technology, while 25% with 54 students are from the field of science social.

Table 1: Frequency table for demographic characteristics.

Variables	N (%)
Gender	
Male	81 (38%)
Female	132 (62%)
Age	
18-19	102 (48%)
20-21	111 (52%)
Number of semesters	
1-3	200 (94%)
4-6	13 (6%)
Type of programme	
Science & Technology	159 (75%)
Science Social	54 (25%)

Figures 1 and 2 depict the level of to-do list and enjoyment by gender. It shows that the majority of females, 80 (65%) and males, 63 (78%) did not make a weekend to-do list. Most of females, 53% enjoyed their weekend, but 51% of males did not. The finding for weekend sleeping hours by students in Figure 3 shows that majority, 102 (48%) students sleep more than four hours during MCO. However, there are 36 (17%) students who only sleep for less than one hour, which is 21 of them are females and 15 are males. Among these students, the majority, 20 (56%) are from the second semester.

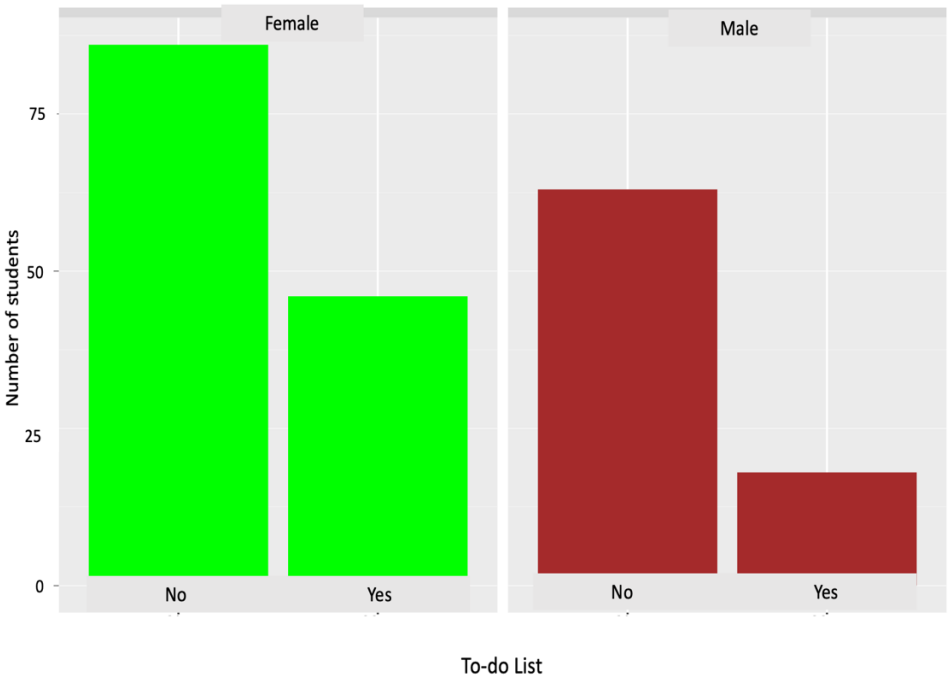

Figure 1: The to-do list level by gender.

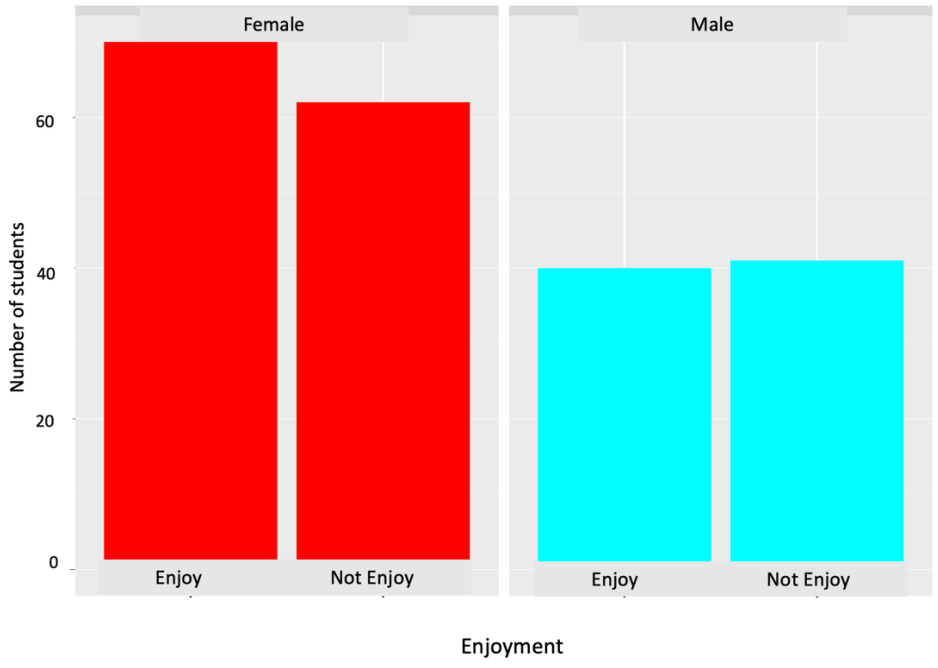

Figure 2: The enjoyment level by gender.

Figure 3: The total of the weekend sleeping hours during MCO.

Figures 4 and 5 illustrate the students' leisure weekend activities during MCO. Figure 4 shows that most students do not spend much time on several activities, which are 95 (45%) watching television, 113 (53%) reading, 62 (29%) indoor games, 111 (52%) outdoor games, 67 (31%) family, and 107 (50%) shopping. Besides, a greater number of the students spend most of their weekends doing homework and surfing social networking sites with 54 (25%) and 57 (27%) students, respectively. Overall, the finding shows that every student spends their time with family, doing homework, and surfing social networking sites activities during MCO.

Figure 5 depicts that most of the students only spend their time for eating and drinking, and cooking activities less than one hour with 145 (68%) and 110 (52%) students, respectively. There are majority of the students who do not involve in working part-time, volunteering, planting, and painting activities, with 175 (82%), 170 (80%), 144 (68%), and 172 (81%) students, respectively. Based on Pavlova and Silbereisenn (2015), the widespread availability of television and other mass media, electronic media use (both passive activities such as watching television and listening to music and more mentally challenging activities such as internet surfing, video games, and communicating with others) is the most popular leisure activity among adolescents.

4.2 Association Determination

The association determination between students' activities and demographic characteristics was performed using a Chi-square and Fisher Exact test. The null and alternative hypotheses are as follows:

H_0: The variables of interest are independent.

H_1: The variables of interest are associated.

Table 2 shows the Chi-square test of independence value between 15 variables of students' activity and demographic characteristics together with *p-value*. The variables with a significant *p-value* of less than 0.05 are considered to have an association with the demographic characteristics. Based on

Figure 4: The students' leisure weekend activities during MCO for watching television, reading, homework, social media, indoor games, outdoor games, family, and shopping.

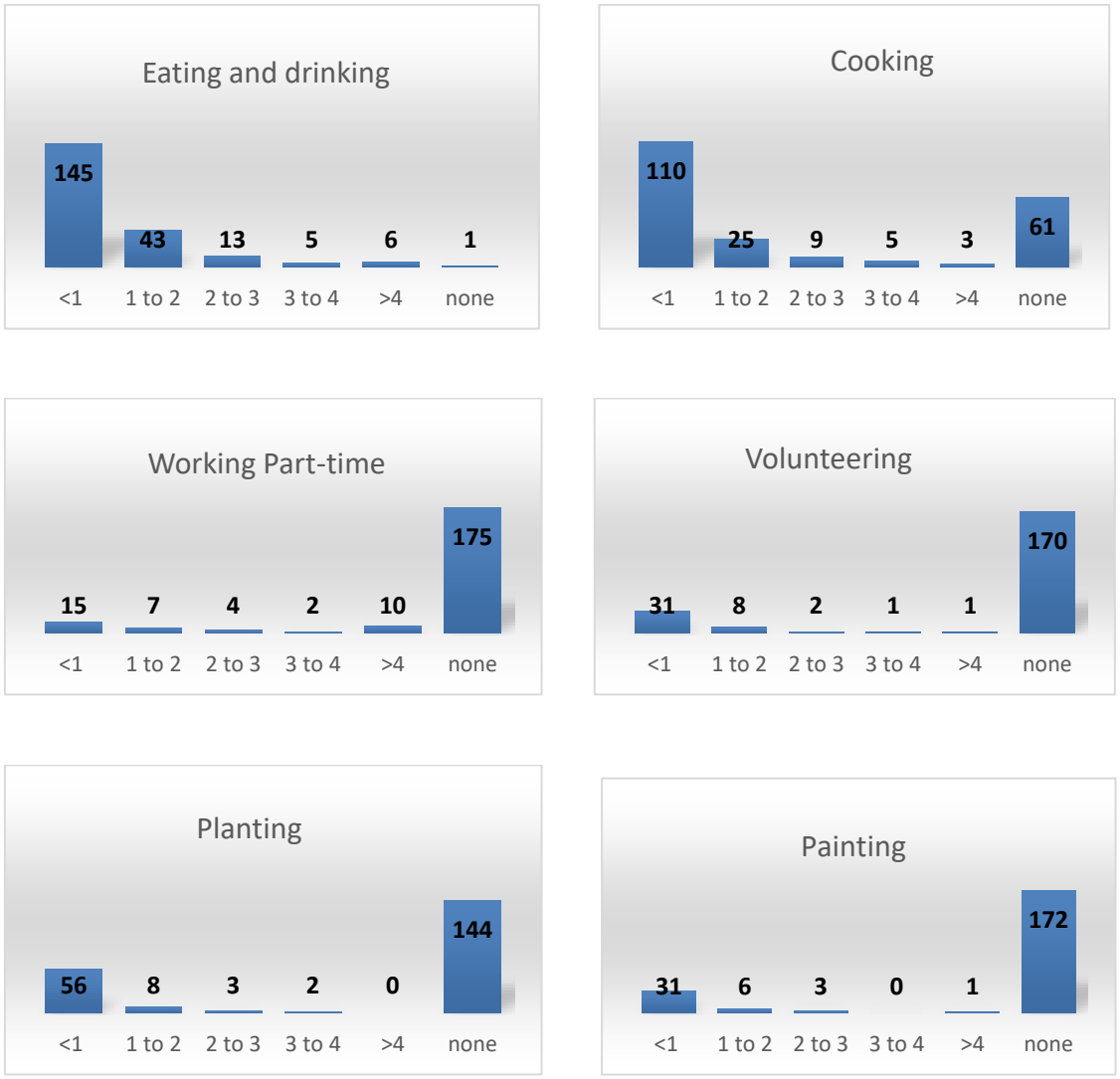

Figure 5: The students' leisure weekend activities during MCO for eating, cooking, working part-time, volunteering, planting, and painting.

the table, there is no activity that has an association with age, where all the *p-values* are greater than 0.05 for all 15 activities.Meanwhile, there are several activities that have an association with gender, program, and part. The study shows that

1. playing indoor, doing homework, social media, playing outdoor, shopping, cooking, and planting activities are influenced by gender,
2. reading and doing homework activities are influenced by program, and
3. eating and drinking, and planting activities are influenced by their program and current semester.

For the seven activities which have an association with gender, it can be deduced that there is a statistically significant relationship between gender and the four activities. This means that there is a statistically significant difference between male and female students in their spending hours for indoor and outdoor games, doing homework, surfing social networking sites, shopping, cooking and planting activities. For the four activities which have an association with their program enroll, it is assumed that there is a statistically significant difference between students from the different

programs in spending their time for reading, doing homework, eating and drinking, as well as planting. Besides, both activities which have an association with part or number of semesters, it is inferred that there is a statistically significant difference between students from the various part in spending time for eating and drinking, and planting.

The differences of the seven activities which associated with gender are clearly portrayed in Figure 6. Based on the stack bar plot, there are different divisions from male and female students in their time spend for all the seven activities. These proved that there is an association between gender and the seven activities. Figure 6 also depicts the most favour activity for male students is online shopping, while female students tend to spend most of their time on doing homework and surfing social media site. These activities can be catecorized as leisure activities, productive relaxaion and passive relaxation according to Meeras (2010). Leisure time is important because it can help increase physical fitness, emotional well-being, mental, spiritual, self-awareness, and self-esteem (Binder & Freytag, 2013), especially during MCO.

Table 2: Chi-square test of independence for each variable with *p-value*.

Variables	*p-value* of Chi-square and Fisher Exact			
	Gender	Age	Program	Part
Watching Television	0.1078[a]	0.3437[a]	0.5774[a]	0.1502[a]
Reading	0.0709[a]	0.8947[a]	**0.0434[a]**	0.1582[a]
Playing indoor games	**0.0207[a]**	0.5943[a]	0.4826[a]	0.7417[a]
Doing homework	**0.0000[b]**	0.9281[b]	**0.0000[b]**	0.1500[b]
Social networking sites	**0.0031[b]**	0.2970[b]	0.4903[b]	0.5320[b]
Family	0.3762[b]	0.2899[b]	0.8713[b]	0.1122[b]
Playing outdoor games	**0.0000[b]**	0.6163[b]	0.1426[b]	0.4521[b]
Shopping	**0.0458[b]**	0.1564[b]	0.9174[b]	0.2568[b]
Eating and drinking	0.9633[b]	0.0809[b]	**0.0212[b]**	**0.0000[b]**
Cooking	**0.0005[b]**	0.0222[b]	0.5720[b]	0.0567[b]
Working part-time	0.8383[b]	0.9520[b]	0.6359[b]	0.5421[b]
Volunteering	0.1282[b]	0.9782[b]	0.4234[b]	0.9803[b]
Sleeping	0.5542[a]	0.6745[a]	0.5515[a]	0.6131[a]
Planting	**0.0047[b]**	0.1383[b]	**0.0000[b]**	**0.0224[b]**
Painting	0.5184[b]	0.3691[b]	0.7311[b]	0.9653[b]

[a] Chi-Square test [b] Fisher Exact test

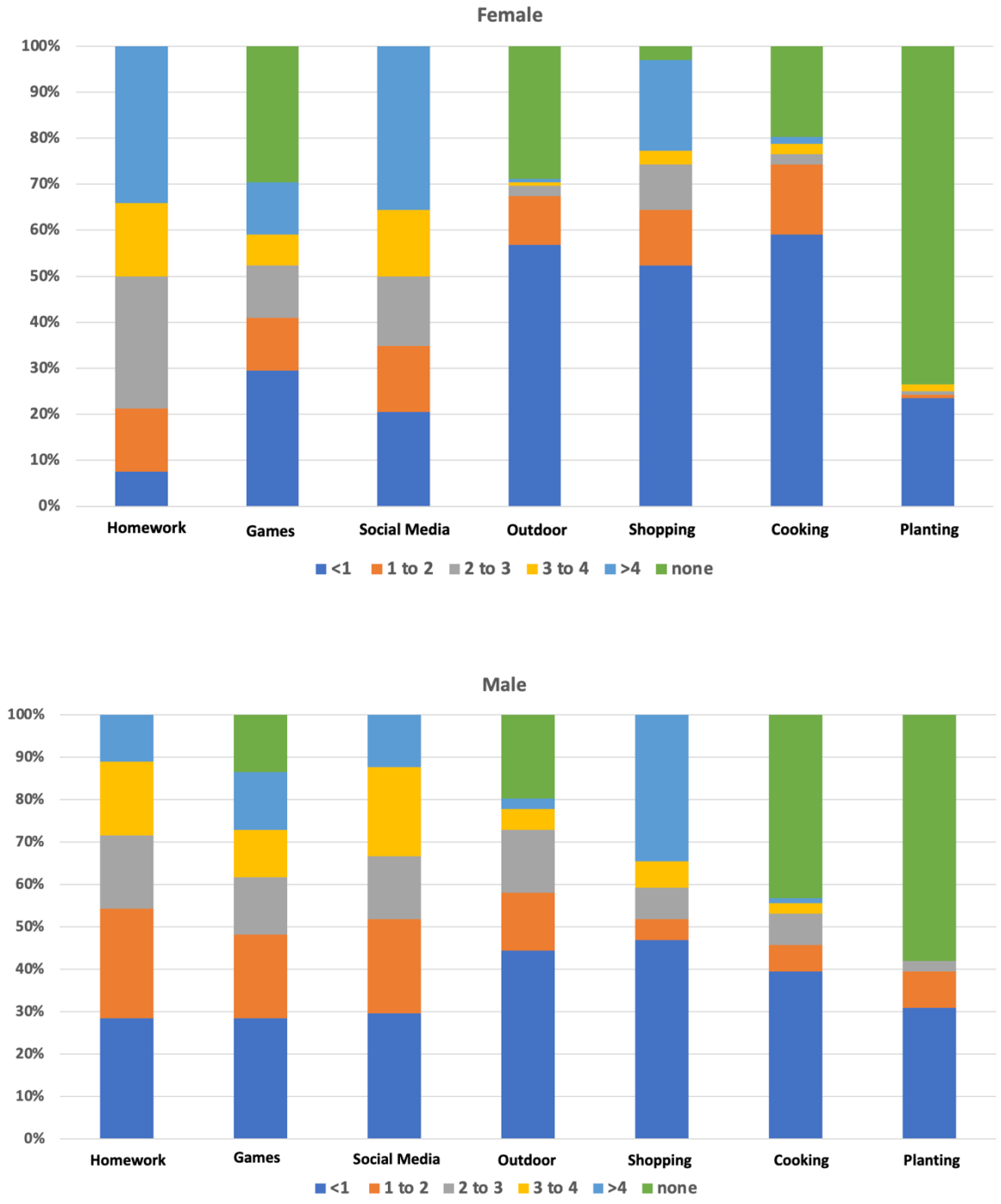

Figure 6: The seven students' leisure weekend activities by gender during MCO.

5. Conclusion

As the new normal has changed due to the spread of the COVID-19 pandemic, the usual students' activities must have been much affected. This study was conducted to describe the students' leisure weekend activities during the movement control order (MCO), in which the number of places students normally visit and usual activities they do have become limited.

The obtained results have shown that most of the students did not have the to-do list on weekends during the MCO because the usual activities have been limited. Almost half of the respondents slept for more than four hours on weekends. This is due to their hectic weekdays, which were compact with online classes and completing the given tasks or assignments. Hence, they prefer to get enough and proper rest before going through the same routine for the next weeks. From the statistical analysis, it can be deduced that the students' activities on weekends are associated with their gender, the program, or the current semester they are enrolled.

The pandemic has caused online learning to continue for more than a year. The enjoyment of online classes is different from physical classes. Therefore, lecturers should be considerate when giving tasks or assignments to be completed within the weekdays, without interfering with the weekends, so that students can do proper activities on weekends and revive before joining the online classes. The conducted study was focused only on the students in UiTM Jengka, Pahang, hence future works can be broadened across other public universities. As the MCO is still being extended, the public university students' leisure weekend activities can further be identified.

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References

Baloran, E. T. (2020). Knowledge, Attitudes, Anxiety, and Coping Strategies of Students during COVID-19 Pandemic. *Journal of Loss and Trauma*, 25(8).

Binder, M. and Freytag, A. (2013). Volunteering, subjective well-being and public policy,‖ *J. Econ. Psychol.*, vol. 34, pp. 97–119.

Brightbill, C.K. (1960). The challenge of leisure. Englewood Cliffs, NJ: Prentice Hall.

Boorsma, M., and F. Chiaravalloti, ―Arts Marketing Performance : An Artistic-Mission-Led Approach to Evaluation,‖ *J. Artsmanagement, Law, Soc.*, vol. 40, no. 1, pp. 297–317, 2010.

Carliner, S. (2004). An overview of online learning (2nd ed.). Armherst, MA: Human Resource Development Press.

Chen, P., Mao, L. and Nassis, G. (2020). Coronavirus disease (COVID-19): the need to maintain regular physical activity while taking precautions. *J Sport Health Sci. 2020*;9(2):103–4. https://doi.org/10.1016/j.jshs.2020.02.001

Dhawan, S. (2020). Online learning: a panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems* 0(0): 1–18.

Ellis, G.D., & Witt, P.A. (1991). Conceptualization and measurement of leisure: Making the abstract concrete. In: T.L. Goodale, P.A. Witt (Eds.), Recreation and leisure: Issues in an era of change (pp. 377–395). State College, PA: Venture Publishing, Inc.

Hirschmann, R. (2020). Main Leisure activities during COVI-19 MCM Malaysia 2020.

Kamarudin, K. (2020). 'Not All Students Can Benefit From Online Teaching'. Available at:https://www.bernama.com/en/features/news.php?id=1827297

Kleiber, D.A., Walker, G.J., & Mannell, R.C. (2011). A social psychology of leisure (2nd ed.). State College, PA: Venture Publishing.

Kondo, N., Kazama, M., Suzuki, K., Yamagata, Z. (2008). Impact of mental health on daily living activities of Japanese elderly. Prev Med. 2008;46(5):457–62. https://doi.org/10.1016/j.ypmed.2007.12.007.

Larson, R.W., and Verma, S. (1999). How children and adolescents spend time across the world: Work, play, and developmental opportunities. Psychological Bulletin, 125(6), 701–736.

Massimini, F., and Carli, M. (1988). The systematic assessment of fl ow in daily experience. In: M. Csikszentmihalyi & I. Csikszentmihalyi, (Eds.). Optimal Experience: Psychological studies of fl ow in consciousness (pp. 266–287). Cambridge: Cambridge University Press.

Meeras, L. (2010). Leisure and Recreation. UNIVERSITY OF TARTU Pärnu College Department of Tourism Studies.

Mokhtar, S. M., Adnan, N. A. A., Shazali, N. M., & Ahmad, N. (2020). Why are students involved in e-learning? A reasoning study at Universiti Kebangsaan Malaysia, *International Journal of Education and Pedagogy*, 2(1), 152-159.

Neulinger, J. (1974). The psychology of leisure: Research approaches to the study of leisure. Springfield. IL: Charles C. Thomas.

Pavlova M.K and Silbereisen R.K. (2015). Leisure activities choices among adolescents. *Encyclopedia of the Social & Behavioral Sciences*, 2nd edition, Volume 13, pp. 829-836. doi:10.1016/B978-0-08-097086-8.26003-0.

Smigel, E.O. (Ed.) (1963). Work and leisure: A contemporary social problem. New Heaven: College & University Press.

Taat, M. S., and Francis, A. (2020). Factors Influencing the Students' Acceptance of E-Learning at Teacher Education Institute: An Exploratory Study in Malaysia. International Journal of Higher Education, 9(1), 133-141

Turhan, N. S. (2020). Karl Pearson's chi-square tests. *Academic Journal*, 15(9):575-580.

Wajdi, M. B. N., Kuswandi, I., Faruq, U. Al, Zulhijra, Z., Khairudin, K., & Khoiriyah, K. (2020). Education Policy Overcome Coronavirus, A Study of Indonesians. EDUTEC : Journal of Education And Technology, 3(2), 96–106. https://doi.org/10.29062/edu.v3i2.42

Wong, J., Baars, M., Davis, D., Van Der Zee, T., Houben, G.J., and Paas, F. (2019). Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review. *Int. J. Hum. Comput. Interact.*, vol. 35, no. 4–5, pp. 356–373.

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