

Prevalence of Carpal Tunnel Syndrome Among the Faculty of Computer Science and Information Technology (FCSIT) Undergraduate Students in UNIMAS and Its Association with Computer Usage

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ABSTRACT

Carpal Tunnel Syndrome (CTS) is the most common type of nerve entrapment and it is due to the compression of the median nerve which passes through the carpal tunnel in the wrist. Previous research had found that the development of CTS is related to the prolonged use and repetitive movement of the wrist such as typing. Thus, this research is conducted to determine the prevalence of CTS among the Faculty of Computer Science and Information Technology (FCSIT) undergraduate students in UNIMAS and its association with computer usage. To achieve the study's objective, a quantitative cross-sectional study was conducted to assess the prevalence of CTS and its association with computer use among UNIMAS FCSIT undergraduate students. The data was collected by distributing a self-administrated questionnaire through online platforms. The questionnaire contained 4 main sections, which consisted of the respondent demographic information, respondent's computer usage and knowledge on computer ergonomics, Patient Rated Wrist Evaluation (PRWE) and Boston Carpal Tunnel Syndrome questionnaire (BCTQ). The collected data were analysed by using SPSS statistical software version 21. A total of 338 responses from UNIMAS FCSIT students with a mean age of 22.04 were collected; 59.5% of the respondents were females and 40.5% were males. Among the 338 respondents, about 90.8% were healthy with no pre-existing medical condition while only 3.8% of them were diagnosed with CTS prior to this study. Next, most of the respondents had average knowledge on computer ergonomics. (28.4%). According to the PRWE result, most of the respondents had minimal pain (44.1%). For the BCTQ severity score result, most of the respondents showed minimal CTS symptoms (42%) while for the BCTQ function score, up to 60.7% of the respondents did not show CTS symptoms. Other findings of our study showed that there was no relationship between CTS and computer usage either in terms of daily duration on computer use, years on computer use or knowledge on computer ergonomics. In conclusion, there is minimal correlation between computer usage and the risk of developing CTS.

Keywords: Carpal Tunnel Syndrome (CTS), FCSIT undergraduate students, Patient Rated Wrist Evaluation (PRWE), Boston Carpal Tunnel Questionnaire (BCTQ)

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INTRODUCTION

Carpal tunnel syndrome (CTS) is the most common type of nerve entrapment and it is due to the compression of the median nerve which passes through the carpal tunnel in the wrist (Chammas et al., 2014). The median nerve provides motor supply to the thenar muscles, index fingers, middle fingers, and the radial side of ring fingers and it also provides sensory innervation to the second digits, then third digits, and ventral-lateral two-thirds of the hand (Rapp & Soos, 2020). Apart from the median nerve, the carpal tunnel also serves as a canal for the tendon of *flexor pollicis longus*, four *flexor digitorum profundus*, and four *flexor digitorum superficialis* (Presazzi et al., 2011). Entrapment of the median nerve occurs when the pressure in the carpal tunnel increases and increased pressure in the carpal tunnel can be due to the flexion and extension of the wrist, and the flexion of fingers (Bland, 2007). In CTS, median nerve entrapment will lead to a series of symptoms such as tingling, numbness, burning, or pain sensation (Ashworth, 2016). These symptoms are described to deteriorate from midnight until awakening from sleep (Aroori & Spence, 2008).

People who are elderly (Blumenthal et al., 2006), hypothyroid (Palumbo et al., 2000), or who have experienced distal wrist fracture (Yeh et al., 2020) have potential risk of CTS. There is also a study indicating that females are more prone to suffer from CTS than males (Lam & Thurston, 1998). Apart from that, overuse and improper positioning of the wrist in daily life will also lead to CTS. In a study done among female touchscreen users in Majmaah University, the results showed that females have a high prevalence of CTS (Mohammad, 2019). Furthermore, people who remain in an unnatural wrist posture for a long time also have a doubly increased risk of CTS (You et al., 2014).

Nowadays, computers and the internet have become very important (Diomidous et al., 2016). Tasks like typing and scrolling using the mouse or on screen require frequent movement of wrists and fingers. A study with a sample of 648 computer professionals showed that they have a high risk for CTS (Ali & Sathiyasekaran, 2006). Another study conducted in Southern Taiwan concluded that an extreme extension of the wrist when typing on the keyboard would increase the risk of getting CTS (Liu et al., 2003). Moreover, another study suggested that prolonged typing may result in acute changes to the median nerve (Toosi et al., 2011). In contrast, there is a study that concluded that computer use actually has no marked relation to CTS (Bhandari et al., 2017). In a review conducted by Thomsen et al. (2008), it was found that there was lack of evidence to link computer usage and CTS. Furthermore, the risk of CTS among computer users and the general population appeared to be the same (Stevens et al., 2001). To date, there is no uniform agreement about the relationship between computer use and CTS.

Therefore, this research is conducted to study the prevalence of CTS and its association with computer use among the undergraduate students of Faculty of Computer Science and Information Technology (FCSIT) in University Malaysia Sarawak (UNIMAS).

MATERIALS AND METHODS

Study design and participants

This research is a cross-sectional study assessing the prevalence of Carpal Tunnel Syndrome among the Faculty of Computer Science and Information Technology undergraduate students in UNIMAS and its association with computer use.

Sample size determination

Keeping the confidence level of 95%, margin of error of 5% and indicator percentage of 0.50, the calculated sample size for this research was 323. The calculation of minimum representative sample size was done using a Raosoft sample size calculator.

Data collection instrument

The self-administered questionnaire had a total of four sections. The first section was on the respondent demographic information, which includes questions regarding their gender, age, year of study, pre-existing medical condition, and whether they had ever been diagnosed with Carpal Tunnel Syndrome. The second section was about respondent's computer usage and knowledge on computer ergonomics which were divided into two components. The first component was the respondent's computer usage in which the respondents were questioned regarding their computer usage, which include the types of computers they owned, hours spent on computer, years of exposure, awareness of wrist and body position while using the computer. The second component pertained to knowledge on computer ergonomics; the questions were adopted from the Computer Workstation Ergonomics: Self-Assessment Checklist. Respondents were asked if they were aware of their wrist position whenever they used their computers, if their mouse was comfortable to use and whether they had short breaks after prolonged use of the computer. They were also asked whether they had a comfortable environment in which to use a computer (Abida Ellahi et al., 2011). Next, the questions for section 3 were adopted from the Patient Rated Wrist Evaluation (PRWE). The last section of the questionnaire also adopted the questions from Boston Carpal Tunnel Questionnaire (BCTQ) which comprises two subscales: Symptom Severity Scale and Functional Status Scale.

Data collection procedure

The questionnaire was first created in Google Form before distribution via online platforms or social media, targeting the undergraduate students of the Faculty of Computer Science and Information Technology of UNIMAS. The undergraduate students were selected using purposive sampling. The respondents were required to answer all the questions in the questionnaire and the answers were automatically saved upon submission.

Data entry and analysis

All data obtained were analysed using Statistical Package for the Social Sciences (SPSS) software. The total scores for Sections 3 and 4 with the maximum scores of 100 and 10 respectively were calculated. For Section 4 which is the Patient Rated Wrist Evaluation (PRWE), the 'pain' subscale score is the sum of the five items while the

'function' subscale score is calculated by the sum of the ten items divided by two. The total score of the PRWE is the sum of the scores of both subscales. A score of 100 represents the worst functional score, whereas 0 represents no disability (Macdermid et al., 1998). For Section 4 which is the Boston Carpal Tunnel Syndrome Questionnaire (BCTQ), the total score for both subscales are also summed up. The score totals used for symptom severity were categorized into the following areas: asymptomatic, mild, moderate, severe and very severe. At the same time, function scores were grouped into the following categories: asymptomatic, mild, moderate, severe and very severe (Rozali et al., 2012).

RESULT

Demographics

338 respondents from FCSIT participated in our study. 201 (59.5%) of them were female while 137 (40.5%) of them were male. The mean age of the respondents was 22.04 years old. Most of the respondents were second year students (30.2%), followed by fourth year students (26.0%), first year students (25.1%), third year students (17.8%) and lastly fifth year students (0.9%). About 90.8% (n=307) of the respondents had no pre-existing medical conditions and only 3.8% (n=13) of the respondents had been previously diagnosed with CTS.

76% of the respondents owned a laptop and most of them (63.9%) had used a computer for more than 5 years. The majority of the respondents (43.5%) spent 4-8 hours on the computer per day. Although the respondents had a long period of computer usage, 62.1% of them were not aware of their wrist position (62.1%) while 59.5% would slouch during their computing activities.

Knowledge on computer ergonomics

Table 1. Respondents' Level of Knowledge on Computer Ergonomics

Level of knowledge	n	%	Mean
1. Very bad	4	1.2	4.53
2. Bad	22	6.5	
3. Fairly bad	44	13.0	
4. Average	96	28.4	
5. Fairly good	85	25.1	
6. Good	69	20.4	
7. Very good	18	5.3	

Based on Table 1, most of the respondents (28.4%) had an average knowledge on computer ergonomics (mean: 4.53). The results suggested that the respondents did not fully understand computer ergonomics.

Patient-Rated Wrist Evaluation

Table 2. FCSIT undergraduate score on PRWE

PRWE score	n	%	Mean
1. No pain	52	15.4	2.46
2. Minimal pain	149	44.1	
3. Mild pain	81	24.0	
4. Moderate pain	45	13.3	
5. Severe pain	9	2.7	
6. Very severe pain	2	0.6	

Based on Table 2, the result showed that most of the respondents were at low risk to develop wrist pain (mean: 2.46). Only 2 (0.6%) respondents faced very severe pain while doing the activities stated in the PRWE questionnaire.

Boston Carpal Tunnel Syndrome Questionnaire (BCTQ)

Table 3.1 Categorization of BCTQ Severity Scoring (N=338)

Respondents' symptoms category based on BCTQ Symptoms severity score	n (%)	Mean
Asymptomatic	142 (42.0)	1.70
Mild symptoms	160 (47.3)	
Moderate symptoms	32 (9.5)	
Severe symptoms	4 (1.2)	

Table 3.2 Categorization of BCTQ function scoring

Respondents' symptoms category based on BCTQ function score	n (%)	Mean
Asymptomatic	205 (60.7)	1.45
Mild symptoms	118 (34.9)	
Moderate symptoms	10 (3.0)	
Severe symptoms	5 (1.5)	

Tables 3.1 and 3.2 showed that the mean score for BCTQ symptoms severity score and function score were 1.70 and 1.45 respectively. Both results indicated that the majority of the respondents were asymptomatic, which means that the respondents, who were computer science students, had low risk to develop CTS. Besides, only 4 (1.2%) respondents and 5 (1.5%) respondents respectively from both tables were categorized as having severe CTS symptoms.

Relationship between computer usage and CTS

Table 4 below showed the summary of p-values obtained from the Chi-square tests. Chi-square tests were done to discover the relationship between computer usage and CTS.

Table 4. Chi-square test results

Tests	Variables			
	Years of computer usage	Daily hours of computer usage	Body positions while computing	Knowledge on computer ergonomics
PRWE score	0.14	0.58	0.68	0.57
BCTQ symptom severity score	0.49	0.45	0.60	0.35
BCTQ functional score	0.36	0.49	0.85	0.45

According to Table 4, all the p-values were greater than the standard alpha value, 0.05. Hence, the results suggest that there is statistically no significant relationship between CTS and computer usage.

DISCUSSION

In this study, it was found that the female respondents outnumbered the male respondents by 19%. This is supported by Yong (2017) which noted a Gender Parity Index was greater than 2.0 which means female undergraduates exceeded male undergraduates by two to one. The mean age of the overall respondents was 22.04 years with ages ranging from 19 to 28 years old. The majority of the respondents were from Year 2 followed by Year 4, Year 1, Year 3 and Year 5. 90.8% of respondents were healthy without pre-existing medical conditions which means that the FCSIT undergraduate students were generally healthy. Among the respondents, 76% of respondents owned a laptop and the majority (63.9%) of them had been using a computer for more than 5 years. For daily usage, 43.5% used their laptop for about 4-8 hours per day. The result showed that the use of computers in education had become a general trend and it would potentially revolutionize the way the student learns in the future (Schindler et. al., 2017).

Practising good computer ergonomics is a strategy to prevent musculoskeletal diseases (MSD) that is initiated through risk assessment, safety measures and control procedures of computer users (Khan et al, 2012). In our study, the respondents were questioned regarding their knowledge and practices while using their computers on a daily basis. Based on the overall results, the study showed a mean of 4.5, indicating that most of the respondents had average knowledge regarding computer ergonomics despite being computer science students. This was in line with Jasmine et al. (2020) which noted that only 9% of software engineers had adequate knowledge on ergonomics.

The etiology of computer related CTS is not fully understood but is suggested to be multifactorial (Khan et al., 2012). In a study conducted by Burt et al. (2011), the summarized risk factors were force, repetition, posture, vibration and computer use. Despite being exposed to these factors, most of the study respondents were healthy and only 3.8% of them had been previously diagnosed with CTS, indicating that there is a low prevalence of CTS among FCSIT students. It was found that less than half (44.10%) had minimal pain followed by mild pain and only 15.4% of the respondents did not experience wrist pain, according to the PRWE classification score. The PRWE score results showed a mean of 1.46 indicating that the FCSIT students had a low risk of developing wrist pain. This outcome is in line with a study by IJmker et al. (2011) which noted that there was a low risk of experiencing arm-wrist-hand symptoms upon the usage of computers during two years of study follow-up. For the BCTQ symptoms severity subscale, almost half of the respondents (47.3%) had mild symptoms of CTS. This result is in line with Mat Zain et al. (2014) whereby most of the study respondents experienced mild CTS symptoms. Moving on to the results of BCTQ functional status score, 60.7% of participants had normal functions or were asymptomatic in carrying out their daily activities and only 1.5% experienced severe symptoms. This result is in line with Al Shahrani et al. (2019), in which there was no significant number of respondents scored highly on the functional status scale, as the scores were affected by other factors rather than CTS only.

The result from this study shows that there was no significant relationship between computer use and CTS among undergraduate students ($p > 0.05$). Bhanderi et al. (2017) supports this finding, in which their study reported a

negative association between computer use and CTS. In contrast, a meta-analysis by Shiri and Falah-Hassani (2015) highly suggested there was a positive association between computer use and CTS by comparing computer workers with that of the general population. Ali and Sathiyasekaran (2006) also reported a high risk of CTS among 648 participants with more intensive exposure to computer work. This study found that there was no significant association between knowledge of computer ergonomics and the prevalence of CTS symptoms among FCSIT undergraduate students ($p > 0.05$). Such a result is in contrast with Jacobs et al. (2009) which found that students who had a good score on their ergonomic quiz had significantly less computer-related musculoskeletal discomfort including wrist pain. In addition, there is no significant association between hours of computer work per day or years of computer exposure and CTS symptoms found in our study ($p > 0.05$). This is in contrast to a study by Burt et al. (2011), which noted some association between CTS and mouse usage for over 20 hours a week but not with keyboard usage. Besides, it is found that people with 4 or more years of computer work and 8 or more hours of computer work per day had a higher prevalence of CTS (Mohamed Ali & Sathiyasekaran, 2006). There was also no significant association between wrist posture and CTS symptoms in our study ($p > 0.05$) although a study found that wrist posture and repetition led to higher risk of CTS when the wrist is kept flexed or extended when compared to a neutral position (Mohamed Ali & Sathiyasekaran, 2006). However, a study conducted in Soetomo General Hospital Surabaya showed there was no correlation between extension of hand position with CTS based on the nerve conduction study median nerve wrist results (Rahardjo et al., 2020).

CONCLUSION

The results of this study showed the prevalence of CTS among the FCSIT undergraduate students in UNIMAS and its association with computer use. The findings showed that most of the respondents were healthy and only 3.8% of them had been previously diagnosed with CTS. Besides, laptops were the most preferred type of computer device and most of the respondents have worked with computers for many years. However, despite being FCSIT students, most of the respondents only had average knowledge regarding computer ergonomics.

Meanwhile, according to the results from PRWE and BCTQ in our study, there was a low prevalence of CTS among the FCSIT undergraduate students. Besides, the results indicated that there is no significant relationship between CTS and computer use. Hence, we concluded that there is minimal correlation between computer usage and the risk of developing CTS.

REFERENCES

- Abida Ellahi & M. Shahid Khalil & Fouzia Akram. (2011, February 2). *Computer users at risk: Health disorders associated with prolonged computer use*. Economics and Finance Research | IDEAS/RePEc. <https://ideas.repec.org/a/etr/series/v2y2011i4p171-182.html>
- Al Shahrani, A. S., Albogami, S. S., Alabdali, A. F., Alohal, S. K., Almedbal, H. S., & Aldossary, G. F. (2019). Does the use of electronic devices provoke the carpal tunnel syndrome (CTS) symptoms and functional impairment? A cross-sectional study. *The Egyptian Rheumatologist*, 41(4), 313-317. <https://doi.org/10.1016/j.ejr.2019.03.001>
- Ali, K. M., & Sathiyasekaran, B. W. (2006). Computer professionals and Carpal Tunnel Syndrome (CTS). *Int J Occup Saf Ergon*, 12(3), 319-325. <https://doi.org/10.1080/10803548.2006.11076691>
- Aroori, S., & Spence, R. A. (2008, Jan). Carpal tunnel syndrome. *The Ulster Medical Journal*, 77(1), 6-17. <https://www.ncbi.nlm.nih.gov/pubmed/18269111>
- Ashworth, N. L. (2016, Nov 15). Carpal Tunnel Syndrome. *American Family Physician*, 94(10), 830-831. <https://www.ncbi.nlm.nih.gov/pubmed/27929273>
- Bhandari, D. J., Mishra, D. G., Parikh, S. M., & Sharma, D. B. (2017, Sep-Dec). Computer Use and Carpal Tunnel Syndrome: A Case-control Study. *Indian J Occup Environ Med*, 21(3), 109-114. https://doi.org/10.4103/ijoem.IJOEM_66_17
- Bland, J. D. (2007, Aug 18). Carpal tunnel syndrome. *BMJ*, 335(7615), 343-346. <https://doi.org/10.1136/bmj.39282.623553.AD>
- Blumenthal, S., Herskovitz, S., & Verghese, J. (2006, Jul). Carpal tunnel syndrome in older adults. *Muscle Nerve*, 34(1), 78-83. <https://doi.org/10.1002/mus.20559>
- Burt, S., Crombie, K., Jin, Y., Wurzelbacher, S., Ramsey, J., & Deddens, J. (2011). Workplace and individual risk factors for carpal tunnel syndrome. *Occupational and Environmental Medicine*, 68(12), 928-933. <https://doi.org/10.1136/oem.2010.063677>
- Chammas, M., Boretto, J., Burmann, L. M., Ramos, R. M., Dos Santos Neto, F. C., & Silva, J. B. (2014, Sep-Oct). Carpal tunnel syndrome - Part I (anatomy, physiology, etiology and diagnosis). *Rev Bras Ortop*, 49(5), 429-436. <https://doi.org/10.1016/j.rboe.2014.08.001>

- Diomidous, M., Chardalias, K., Magita, A., Koutonias, P., Panagiotopoulou, P., & Mantas, J. (2016, Feb). Social and Psychological Effects of the Internet Use. *Acta Inform Med*, 24(1), 66-68. <https://doi.org/10.5455/aim.2016.24.66-68>
- IJmker, S., Huysmans, M., van der Beek, A., Knol, D., van Mechelen, W., Bongers, P., & Blatter, B. (2011). *Software-recorded and self-reported duration of computer use in relation to the onset of severe arm-wrist-hand pain and neck-shoulder pain.* <https://doi.org/10.1136/oem.2010.056267>
- Jacobs, K., Johnson, P., Dennerlein, J., Peterson, D., Kaufman, J., Gold, J., Williams, S., Richmond, N., Karban, S., Firm, E., Ansong, E., Hudak, S., Tung, K., Hall, V., Pencina, K., & Pencina, M. (2009). University students' notebook computer use. *Applied Ergonomics*, 40(3), 404-409. <https://doi.org/10.1016/j.apergo.2008.11.009>
- Jasmine, M., Fasna, L., Chellaiyan, V. G., Raja, V. P., & Ravivarman, G. (2020, August 25). A study on knowledge and practice of ergonomics among the software engineers in a private firm, Chennai, Tamil Nadu. PubMed Central (PMC). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7586624/>
- Khan, R., Surti, A., Rehman, R., & Ali, U. (2012). Knowledge and practices of ergonomics in computer users. *JPMMA. The Journal of the Pakistan Medical Association*, 62(3), 213-217. <https://pubmed.ncbi.nlm.nih.gov/22764450/>
- Lam, N., & Thurston, A. (1998, Mar). Association of obesity, gender, age and occupation with carpal tunnel syndrome. *Aust N Z J Surg*, 68(3), 190-193. <https://doi.org/10.1111/j.1445-2197.1998.tb04743.x>
- Liu, C. W., Chen, T. W., Wang, M. C., Chen, C. H., Lee, C. L., & Huang, M. H. (2003, Dec). Relationship between carpal tunnel syndrome and wrist angle in computer workers. *Kaohsiung J Med Sci*, 19(12), 617-623. [https://doi.org/10.1016/S1607-551X\(09\)70515-7](https://doi.org/10.1016/S1607-551X(09)70515-7)
- MacDermid, J. C. (1996). Development of a Scale for Patient Rating of Wrist Pain and Disability. *Journal Of Hand Therapy*, 9, 178-183. [https://doi.org/10.1016/s0894-1130\(96\)80076-7](https://doi.org/10.1016/s0894-1130(96)80076-7)
- Mat Zain, N. H., Jaafar, A., Abdul Razak, F. H. (2014). Severity Scoring of Symptoms Associated with Carpal Tunnel Syndrome Based on Recall of Computer Game Playing Experiences. *Journal of Theoretical & Applied Information Technology*, 63(1), 125-135.
- Mohamed Ali, K. & Sathiyasekaran, B. W. C. (2006). Computer Professionals and Carpal Tunnel Syndrome (CTS). *International Journal of Occupational Safety and Ergonomics*, 12(3), 319-325. <https://doi.org/10.1080/10803548.2006.11076691>
- Mohammad, W. S. (2019, Sep-Oct). Work-related risk factors for Carpal Tunnel Syndrome among Majmaah University female touchscreen users. *Pak J Med Sci*, 35(5), 1221-1226. <https://doi.org/10.12669/pjms.35.5.683>
- Palumbo, C. F., Szabo, R. M., & Olmsted, S. L. (2000, Jul). The effects of hypothyroidism and thyroid replacement on the development of carpal tunnel syndrome. *J Hand Surg Am*, 25(4), 734-739. <https://doi.org/10.1053/jhsu.2000.8642>
- Presazzi, A., Bortolotto, C., Zacchino, M., Madonia, L., & Draghi, F. (2011, Mar). Carpal tunnel: Normal anatomy, anatomical variants and ultrasound technique. *J Ultrasound*, 14(1), 40-46. <https://doi.org/10.1016/j.jus.2011.01.006>
- Rapp, F. A., & Soos, M. P. (2020). Anatomy, Shoulder and Upper Limb, Hand Cutaneous Innervation. In *StatPearls*. <https://www.ncbi.nlm.nih.gov/pubmed/31334967>
- Rahardjo, J., Hamdan, M., Basuki, M., Fidiana, Fadil, & Susetyo, H. (2020). Correlation between Duration of Work and Hand Position Using Computer with Carpal Tunnel Syndrome(CTS) at the Registration Administration Officer in Dr. Soetomo General Hospital Surabaya. *Indian Journal of Public Health Research & Development*, 11(3), 2604-2609. <http://repository.unair.ac.id/97534/1/Correlation%20between%20Duration.pdf>
- Rozali, Z. I., Noorman, F. M., De Cruz, P. K., Feng, Y. K., Razab, H. W., & Sapuan, J., Singh, R. & Sikkandar, F. M. (2012). Impact of carpal tunnel syndrome on the expectant woman's life. *Asia Pacific Family Medicine*, 11(1). <https://doi.org/10.1186/1447-056x-11-1>
- Schindler, L. A., Burkholder, G. J., Morad, O. A., & Marsh, C. (2017). Computer-based technology and student engagement: a critical review of the literature. *International Journal of Educational Technology in Higher Education*, 14(1), 25. <https://doi.org/10.1186/s41239-017-0063-0>
- Shiri, R., & Falah-Hassani, K. (2015). Computer use and carpal tunnel syndrome: A meta-analysis. *Journal of The Neurological Sciences*, 349(1-2), 15-19. <https://doi.org/10.1016/j.jns.2014.12.037>
- Stevens, J. C., Witt, J. C., Smith, B. E., & Weaver, A. L. (2001). The frequency of carpal tunnel syndrome in computer users at a medical facility. *Neurology*, 56(11), 1568-1570. <https://doi.org/10.1212/wnl.56.11.1568>
- Thomsen, J. F., Gerr, F., & Atroshi, I. (2008). Carpal tunnel syndrome and the use of computer mouse and keyboard: a systematic review. *BMC Musculoskelet Disord*, 9, 134. <https://doi.org/10.1186/1471-2474-9-134>

- Toosi, K. K., Impink, B. G., Baker, N. A., & Boninger, M. L. (2011, Nov). Effects of computer keyboarding on ultrasonographic measures of the median nerve. *Am J Ind Med*, 54(11), 826-833. <https://doi.org/10.1002/ajim.20983>
- Yeh, K. T., Lee, R. P., Yu, T. C., Wang, J. H., Liu, K. L., Peng, C. H., Chen, H. W., Chen, I. H., Hsu, C. Y., Lin, C. L., & Wu, W. T. (2020, Jan 16). Risk factors for carpal tunnel syndrome or trigger finger following distal radius fracture: a nationwide study. *Sci Rep*, 10(1), 469. <https://doi.org/10.1038/s41598-020-57415-x>
- Yong, J. T. (2017). The Gender Gap in Malaysian Public Universities: Examining The 'Lost Boys'. *Journal of International and Comparative Education*, 6(1). <https://doi.org/10.14425/JICE.2017.6.1.0116>
- You, D., Smith, A. H., & Rempel, D. (2014, Mar). Meta-analysis: association between wrist posture and carpal tunnel syndrome among workers. *Saf Health Work*, 5(1), 27-31. <https://doi.org/10.1016/j.shaw.2014.01.003>

Knowledge, Perception and Attitude of Year 1 Undergraduate Students in the Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS) on Coronary Artery Disease (CAD)

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ABSTRACT

Coronary Artery Disease (CAD) is a cardiovascular disease where there is plaque buildup in the wall of the coronary artery, an artery that supplies blood to the heart. This disease is also often referred to as coronary heart disease or ischemic heart disease. Globally and in Malaysia, CAD has been known as the most common type of heart disease and the leading cause of death. Hence, this study aims to determine the knowledge, attitude and perception of CAD among the students of the University of Malaysia, Sarawak (UNIMAS). The minimum number of Year 1 FMHS students involved in this study was calculated by using Raosoft Sample Size Calculator software. A Google online form (self-administered questionnaire) that consisted of respondent's characteristics, perception of CAD, knowledge on risk factors and clinical presentation of CAD, and attitude towards the preventive measure of CAD was used to collect the data. The data collected was analyzed by using IBM SPSS Statistics software version 27 while the frequencies, means, standard deviation, and p-value were calculated to achieve the specific objectives of this study. According to the results, out of 200 respondents, most of the respondents were female (76.5%) and participation from medical students (66.5%) was more than the nursing students (33.5%). Overall, females have a better level of knowledge on CAD compared to males. Nursing students have a better level of attitude towards the preventive measure of CAD than medical students while medical students have a higher level of knowledge on other parts of the questionnaire compared to nursing students. There is a significant correlation between the perception of CAD, its risk factors, clinical presentation, and the attitude towards the preventive measure of CAD. Knowledge of CAD clinical presentation and preventive measures has a significant correlation with the gender of the respondents. Meanwhile, the knowledge of risk factors of CAD has a significant correlation with the courses of the students. However, the perception of CAD does not have a significant correlation with both gender and the courses of the students. Furthermore, the results obtained from the study may not represent the level of knowledge regarding CAD on a large scale. Therefore, more research regarding this issue should be conducted more often as it will help to give an even better overview of the level of knowledge about CAD and its association with the attitude on CAD preventive measures among the community.

Keywords: Coronary Artery Disease (CAD), Year 1 Faculty of Medicine and Health Sciences undergraduate students

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INTRODUCTION

Coronary artery disease (CAD) is a disease where the myocardium of the heart receives an insufficient amount of blood that carries oxygen. It is grouped under the general cardiovascular diseases which consists of other kinds of diseases that affect the heart and blood vessels. The earliest case of CAD is documented in Egypt where a princess who lived between 1580 and 1550 BC passed away in her early 40s (Allam et al., 2011). It was found that plaque was formed in the blood vessel supplying the heart. This plaque formation is currently known as atherosclerosis. One of the people that describe the term was the well-known artist Leonardo da Vinci (Hajar, 2017). His interest in anatomy was inspired by Marcantonio Della Torre, an anatomy professor. According to Hajar (2017), Leonardo stated that tunics thickening of blood vessels in the elderly restrict the transit of blood.

Prolonged condition of insufficient oxygen supply to the heart will lead to ischemic changes. One of the symptoms of CAD is angina which is usually described as chest pain and discomfort (Hermiz & Sedhai, 2021). The patient may experience pressure or heaviness exerted on their chest, which is accompanied by shortness of breath. Angina then occurs due to an imbalance of oxygen loss and oxygen demand by the heart. When the heart is continuously under ischemic conditions, infarction or the death of cardiac cells and tissue may happen (Hashmi & Al-Salam, 2015). This condition can affect normal heart function and cause complications such as left ventricular aneurysm heart failure (Montrief et al., 2019).

There are modifiable and non-modifiable risk factors of CAD. Modifiable risk factors include smoking, hypertension, obesity, and diabetes while non-modifiable risk factors include family history, age, and gender. A study on the perceptions of patients with cardiovascular disease about the causes of CAD shows that 79% of the respondents can identify at least one of the three main modifiable risk factors and only 7% can name all three (Zerwic et al, 1997). This proved that most of the patients did not know their risk factors. Another study on the disease and risk factor perception among patients with CAD in Kuala Terengganu demonstrated that most of the respondents knew about the modifiable risk factors and yet 52% of respondents had less than 25% knowledge of CAD (Yusoff et al., 1994).

The morbidity and mortality associated with CAD have been dramatically reduced as a result of early detection of risk factors and primary prevention. To minimize cardiovascular risk factors, lifestyle changes such as diet, exercise, and quitting smoking are essential. On the other hand, better treatment of hypertension, diabetes, and hyperlipidemia is required to lower the risk of CAD (Regmi & Siccardi, 2021). Generally, predominantly males have CAD compared to females despite the different age groups. In subjects older than 20 years old, 7.9% of men have CAD while women only account for 5.1% (Ferreira-González, 2014).

It is necessary to reduce the growing threat of CAD. Besides that, there is very little research on CAD among medical students in Sarawak, Malaysia. Hence, a study on the knowledge, perception, and attitude of CAD is being conducted at University Malaysia Sarawak (UNIMAS) among the year 1 FMHS students.

MATERIALS AND METHODS

Study design and participants

This research is a cross-sectional study to assess the knowledge, perception, and attitude of University Malaysia Sarawak (UNIMAS) Year 1 undergraduate students from Faculty Medicine and Health Science (FMHS) on Coronary Artery Disease (CAD).

Sample size determination

By using the Raosoft Sample size calculator, the minimum number of respondents needed to be a representative sample for the population of UNIMAS undergraduate students can be determined. The minimum sample size required is 140 with a response distribution of 50 %, for a confidence level of 95% and a margin error of 5%.

Data collection instruments

The self-administered questionnaire consists of five sections. Section 1 was on respondent demographic information which includes name, matric number, gender, and age. Section 2 was on the respondents' perception of CAD. There were 7 questions in this section to examine students' perception of CAD. The mean was used to determine whether respondents' perception of CAD correlate with their knowledge. Section 3 pertains to the respondents' knowledge on the risk factors of CAD, comprising 8 questions. The mean was used to determine whether respondents had good or poor knowledge about the CAD risk factors. Section 4 relates to the respondents' knowledge of the clinical presentation of CAD which consists of 5 questions. The mean was used to determine whether the respondents had good or poor knowledge about the clinical presentation of CAD. Section 5 was about the respondents' attitude towards the preventive measure of CAD and comprised of 6 questions. The mean was used to determine whether the respondents were at a high risk of getting CAD.

Data collection procedure

The questionnaires that were created in the Google Form were distributed to the undergraduate FMHS students of UNIMAS via an online platform and social media. The undergraduate students were selected using simple random sampling. The answers of the respondents were automatically saved in the Google Form once they

had completed and submitted their responses.

Data entry and analysis

The data collected were analyzed by using the Statistical Package for the Social Sciences (SPSS) software. Frequency, mean, standard deviation, and independents sample t-test were used to achieve specific objectives of this study. The total scores from sections 2 to 5 were calculated and evaluated in percentages. The percentage for a good level of knowledge was 50% and above while the percentage for a poor level of knowledge was 49% and below. Spearman correlation test was done to determine the correlation of the perception of CAD, knowledge on CAD risk factors, its clinical presentation as well as the attitude towards the preventive measure on CAD with the age, gender, and disciplines or program enrolled by the students.

RESULT

Demographic

200 students from FMHS Year 1 students had participated in this study. There were 153 (76.5%) female students while 47 (23.5%) of the total respondents were male students. In FMHS, there are only 2 programmes, which are the Medical and Nursing. 133 (66.5%) students were from the Medical programme while the remaining 67 (33.5%) students were Nursing programme students. Most of the respondents (142; 71%) were 20 years old. There were 30 (15%) students who were 20 years old and 24 (12%) were 19 years old. The remaining 4 (2%) students were 22 years old.

Knowledge on CAD

Table 1. Level of Knowledge on CAD among the respondents

Section	n		%	
	Good Knowledge level	Poor Knowledge level	Good Knowledge level	Poor Knowledge level
Perception on CAD	133	67	66.5	33.5
Knowledge on CAD risk factors	141	59	70.5	29.5
Knowledge on CAD clinical presentation	119	81	59.5	40.5
Attitude towards preventive measures of CAD	139	61	69.5	30.5

Based on Table 1, more than half of the total respondents showed a good level of knowledge on CAD with the highest percentage (70.5%) of the respondents having a good level of knowledge of CAD risk factors.

Mean score obtained by the respondents for each section of survey

Table 2.1 Overall mean score obtained based on programme enrolled by the respondents

Section	Overall Mean Score	
	Medical students	Nursing students
Perception on CAD	4.00	3.82
Knowledge on CAD risk factors	4.00	3.82
Knowledge on CAD clinical presentation	4.44	4.30
Attitude towards preventive measure of CAD	3.53	3.64

Table 2.1 shows the overall mean score obtained for each section of the survey based on the programme

enrolled by the respondents. Generally, the mean score obtained is higher among the medical students than the nursing students for most sections except for that of the attitude towards preventive measures of CAD. This showed that the medical students have a higher level of knowledge on CAD compared to the nursing students in general.

Table 2.2 Overall mean score obtained based on respondent’s gender

Section	Overall Mean Score	
	Female students	Male students
Perception on CAD	3.96	3.88
Knowledge on CAD risk factors	3.96	3.88
Knowledge on CAD clinical presentation	4.45	4.23
Attitude towards preventive measure of CAD	4.16	3.84

Table 2.2 shows the overall mean score obtained by the respondents for each section of the survey based on their genders. From the table, it can be seen that the mean score obtained by female respondents is higher than the male respondents, indicating that the female students have better knowledge on CAD than their male counterparts.

Relation between each of the section in survey and age, gender and courses of the respondents

Table 3. Spearman Correlation test results

Parameters	1	2	3	4	5	6	7
1. Age	--						
2. Gender	0.056	--					
3. Courses	- 0.273**	- 0.169*	--				
4. Perception on CAD	-0.127	0.102	0.134	--			
5. Knowledge on CAD risk factors	-0.071	0.069	0.218**	0.647**	--		
6. Knowledge on CAD clinical presentation	-0.075	0.155*	0.093	0.651**	0.673**	--	
7. Preventive knowledge on CAD	-0.040	0.239**	0.088	0.460**	0.406**	0.485**	--

p-value obtained from non-parametric Spearman Correlation

*p<.05, **p<.01, ***p<.001

Table 4 represents the results obtained from the Spearman Correlation Test. Referring to the table, the r value between the age and the other parameters were generally negative (except for that with gender), indicating no correlation between the parameters. This was also the case between gender and the courses (discipline).

DISCUSSION

Most of the respondents in our study were 20 years old (born in 2001). The majority of them were females (153) as compared to males (47). From a total of 219 Year 1 undergraduate students in FMHS, 200 participated in the study survey whereby 133 out of 151 students were from medical courses while 67 out of 68 students were from Nursing courses.

A clinical practice guideline on the prevention of cardiovascular disease published in 2017 stated that

cardiovascular disease has been the leading cause of morbidity and mortality for more than a decade in Malaysia. In the perception on CAD section of our study, the respondents were required to answer a few questions related to the disease. From the results obtained, the mean score obtained for the section were 4.08, with 66.5% of the respondents showing a good level of knowledge on CAD. A similar study was conducted by Islam et al. (2019) where the knowledge among 183 urban school students were 57.9% showing a good knowledge level, 41.5% with average knowledge and 0.5% with poor knowledge of Non Communicable Diseases. This indicates that most of the respondents have some information pertaining to about CAD.

There are lot of risk factors that can contribute to CAD. Hence, there is a section where the respondents were asked about the risk factors of CAD for which the respondents managed to obtain a mean score of 3.95. This was the lowest mean score of all the survey sections. Nevertheless, the majority of the respondents (70.5%) were shown to have good level of knowledge on CAD risk factors. Meanwhile, a study conducted by Zerwic et al. (1997) had a contrasting result which noted that 79% of the respondents could identify at least one of the three main modifiable risk factors and only 7% could name all three, proving that most of the respondents did not know the risk factors associated with CAD.

The mean score obtained for the knowledge on CAD clinical presentation was the highest among the survey sections with a mean score of 4.44, with more than half (59.5%) of the respondents showing a high level of knowledge. This result showed that the respondents were generally well informed regarding the clinical presentation of CAD, despite the smaller percentage of respondents with good level of knowledge. Although our study shows a positive result, research done by Khan et al. (2017) has a different result, in which it was noted that the knowledge of the symptoms and risk factors of the disease was at an unsatisfactory level.

For the attitude towards the preventive measure of CAD, the mean score obtained was 4.09 which indicated that most of the respondents (69.5%) had a good level of knowledge. The result obtained from our study is similar with that of Rosediani Muhamad et al. (2012) which focused on the women population. In that study, it was revealed that the percentage of good level of knowledge, attitude and practice on CAD among the North-East Coast Malaysian women were 55.6%, 55.1% and 51.1% respectively.

In general, the mean score obtained for each section is higher for female students compared to male students. This is because the number of female students is higher compared to male students in the Year 1 FMHS students. A study conducted among rural Malays in Malaysia noted a similar finding where there were more female respondents (346) than male (263) (Nawawi et al, 2002). As for mean score obtained based on the programme enrolled by the respondents, it is higher among the medical students compared to the nursing students except for the section on knowledge on CAD clinical presentation. This was also due to the higher number of medical students compared to the nursing students.

From the Spearman Correlation test, there is a significant correlation between perception of CAD with the knowledge on risk factors of CAD, knowledge of clinical presentation CAD and preventive knowledge of CAD. There is also significant correlation between the programmes taken by the students with their perception on CAD, knowledge of CAD risk factors, its clinical presentation and preventive knowledge on CAD. On the other hand, the knowledge of clinical presentation CAD was significantly correlated with gender, perception of CAD and knowledge on risk factors of CAD. In a similar research (Consoli, n.d.), the results showed that more educated participants have higher risk factor knowledge than less educated participants; this was also contributed by the background of participants. Adopting means to reduce the risk of CAD, particularly by diet change, cessation of smoking, increase in physical activity and blood pressure control can be effective in preventing CAD or managing CAD complications (Masic et al., 2011).

CONCLUSION

The result of this study showed that knowledge on CAD, its risk factor, clinical presentation, and attitude towards the CAD preventive measures amongst Year 1 FMSH students were at a good level. The perception of CAD, its risk factors, clinical presentation, and the attitude towards the CAD preventive measure correlated to each other. The knowledge on CAD clinical presentation and preventive measures were correlated with the gender of the respondents while the knowledge on risk factors of CAD was correlated with the programmes

of the respondents. However, the perception of CAD did not correlate with both gender and the programmes of the respondents. To conclude, the knowledge and perception of CAD affect the attitude of UNIMAS undergraduate students towards the preventive measure of CAD.

REFERENCES

- Allam, A. H., Thompson, R. C., Wann, L. S., Miyamoto, M. I., Nur El-Din, A., El-Maksoud, G. A., Al-Tohamy Soliman, M., Badr, I., El-Rahman Amer, H. A., Sutherland, M. L., Sutherland, J. D., & Thomas, G. S. (2011). Atherosclerosis in ancient Egyptian mummies: the Horus study. *JACC. Cardiovascular imaging*, 4(4), 315–327. <https://doi.org/10.1016/j.jcmg.2011.02.002>
- Consoli, S. M. (n.d.). Educational level has a major impact on the representations of cholesterol: a study in 1579 hypercholesterolemic patients. <https://pubmed.ncbi.nlm.nih.gov/14766115/>
- Ferreira-González I. (2014). The epidemiology of coronary heart disease. *Revista espanola de cardiologia (English ed.)*, 67(2), 139–144. <https://doi.org/10.1016/j.rec.2013.10.002>
- Hajar R. (2017). Coronary Heart Disease: From Mummies to 21st Century. *Heart views: the official journal of the Gulf Heart Association*, 18(2), 68–74. https://doi.org/10.4103/HEARTVIEWS.HEARTVIEWS_57_17
- Hashmi, S., & Al-Salam, S. (2015). Acute myocardial infarction and myocardial ischemia- reperfusion injury: a comparison. *International Journal of Clinical and Experimental Pathology*, 8(8), 8786–8796. <https://pubmed.ncbi.nlm.nih.gov/26464621/>
- Hermiz, C., & Sedhai, Y. R. (2021). *Angina*. <https://www.ncbi.nlm.nih.gov/books/NBK557672/>
- Islam, M. Z., Rahman, M. M., & Moly, A. H. (2019, June). Knowledge about NonCommunicable Diseases among Selected Urban School Students. *JAFMC Bangladesh*, 15(1), 90-93. <https://doi.org/10.3329/jafmc.v15i1.48654>
- Khan, N. S., Shehnaz, S. I., Guruswami, G. K., Ibrahim, S., & Mustafa, S. (2017). Knowledge of warning signs, presenting symptoms and risk factors of coronary heart disease among the population of Dubai and Northern Emirates in UAE: a cross-sectional study. *Nepal Journal of Epidemiology*, 7(2), 670–680. <https://doi.org/10.3126/nje.v7i2.17973>
- Masic, I., Rahimic, M., & Dilic, M. (2011). *Socio-medical Characteristics of Coronary Disease in Bosnia and Herzegovina and the World*. <https://doi.org/10.5455/msm.2011.23.171-183>
- Montrief, T., Davis, W. T., Koyfman, A., & Long, B. (2019). Mechanical, inflammatory, and embolic complications of myocardial infarction: An emergency medicine review. *The American Journal of Emergency Medicine*, 37(6), 1175–1183. <https://doi.org/10.1016/j.ajem.2019.04.003>
- Nawawi, H. M., Nor, I. M., Noor, I. M., Karim, N. A., Arshad, F., Khan, R., & Yusoff, K. (2002). Current status of coronary risk factors among rural Malays in Malaysia. *European Journal of Cardiovascular Prevention & Rehabilitation*, 9(1), 17-23. <https://doi.org/10.1177/174182670200900103>
- Regmi, M. & Siccardi, M. A. (2021, August 11). *Coronary artery disease prevention*. <https://www.ncbi.nlm.nih.gov/books/NBK547760/>
- Rosediani Muhamad, Ranimah Yahya, Harny Mohamed Yusoff. (2012). Knowledge, Attitude and Practice on Cardiovascular Disease among Women in North-Eastcoast Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 4(1), 85-98. <https://www.iomcworld.org/articles/knowledge-attitude-and-practice-on-cardiovascular-diseaseamong-women-in-northeastcoast-malaysia.pdf>
- Yusoff K., Malina O., Rofiah A., Latinah M., Thahirahtul A.Z., Zaridah M.S., Tan M.H. (1994). Disease and Risk Factor Perception Among Patients with Coronary Artery Disease in Kuala Terengganu. *Med J Malaysia*, 49(3), 205-208.
- Zerwic J. J., King K. B., Wlasowicz G. S. (1997). Perceptions of patients with cardiovascular disease about the causes of coronary artery disease. *Heart & Lung*, 26(2), 92–98. [https://doi.org/10.1016/s0147-9563\(97\)90068-6](https://doi.org/10.1016/s0147-9563(97)90068-6)

Knowledge, Awareness and Perceptions towards Prostate Cancer Amongst Male UNIMAS Undergraduates

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ABSTRACT

Prostate cancer has always been thought as a cancer of elderly men. However, men of any age can develop prostate cancer. Early onset prostate cancer has become an emerging public health concern as there is an increased incidence of prostate cancer amongst men aged ≤ 55 years over the last two decades. This quantitative cross sectional study was to assess the knowledge, awareness, and perceptions toward prostate cancer among 322 male local undergraduates in UNIMAS. The results showed that only a small percentage of the respondents (12.1%) had a high knowledge and awareness level and less than half (44.7%) showed good perception towards cancer of prostate. Chi-square results indicated that the year of study and study programmes had significant association with knowledge and awareness towards prostate cancer. This study provides preliminary data which are useful for the planning of community-based program to educate the younger adults regarding prostate cancer as well as a basis for further research.

Keywords: Awareness, knowledge, male undergraduates, perceptions, prostate cancer

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INTRODUCTION

Prostate cancer occurs when malignant cells begin to multiply and proliferate in an uncontrolled way in the gland cells of the prostate (American Cancer Society, 2019). Cancer of the prostate gland is a major concern to men as it is the second most frequently detected cancer amongst the male population worldwide with an age-standardised rate of 29.3 cases per 100,000 persons per year (Bray et al., 2018). Besides, the rate of prostate cancer is expected to grow proportionately in relation to an increase in overall life expectancy and aging population (Chin et al., 2015). However, prostate cancer had always been thought as a cancer of elderly men but men of any age can develop it. Sutcliffe and Colditz (2013) proposed that prostate glands are more likely to be exposed to carcinogens early in life. Salinas et al. (2014) reported that the incidence of prostate cancer has increased drastically over the last two decades amongst men aged 55 or younger. This makes early onset prostate cancer an important public health issue.

In the Malaysian National Cancer Registry Report 2007-2011 (Azizah, et al., 2015), men of Chinese race had the highest incidence rate of cancer of the prostate (9.0 per 100,000), followed by Indians (6.1 per 100,000) and then Malays (5.3 per 100,000). The majority of the cancer patients were detected at the late stage with poor prognoses, resulting in a much lower possibility of survival as treatment became more complicated (Cancer Research UK, 2018). Men were more at risk when they grew older, had family history of prostate cancer, or were from African and Caribbean descents (Merriel et al., 2018). An institutional study done by Hong et al. (2010) in Malaysia revealed that over half of the cases of prostate cancer were diagnosed at Stage IV of the disease. Late diagnosis of prostate cancer in Malaysia which results in poor survival rates had been attributed to lack of awareness, poor knowledge and attitude regarding cancer (Ismail et al., 2018). Hence, knowledge and awareness has an important role not only in decision making, but also in the prevention of the disease. Nakandi et al. (2013) mentioned that a deficit of knowledge on its risks and screening methods had led to a low screening level of prostate cancer.

There are quite a number of studies regarding knowledge, awareness, attitude, practice and perception towards prostate cancer in other countries, especially in the Western population and amongst the population over 40 years of age. However, similar studies are generally lacking in Malaysia, especially in the Sarawak context. One of the motivations to conduct this study was the ethnic differences between East and West populations. Also, past studies suggested that more effort need to be done to teach younger men regarding prostate cancer and general health (Mincey et al., 2017). Therefore, this study aims to provide useful data and additional insight regarding

knowledge, awareness, and perception of prostate cancer amongst young adults that are undergraduates at Universiti of Malaysia, Sarawak (UNIMAS). The findings could be useful for the planning of community-based programmes to educate younger adults.

MATERIALS & METHODS

A cross sectional study was conducted at the Faculty of Computer Science and Information Technology (FCSIT) and Faculty of Economics and Business (FEB) in UNIMAS. These two faculties were chosen due to a larger population of male local students. These two faculties represented the science and art disciplines of study. Convenience sampling was used to recruit the respondents. The inclusion criteria were local male undergraduates who were willing to participate. Ethical approval was obtained from Research Committee, Faculty of Medicine and Health Sciences, UNIMAS. The aspects of information of the study, assurance of confidentiality of data and informed consent were duly addressed.

The sample size was determined and calculated using the Open Epi, Version 3, open source calculator, SSPropor (Dean et al., 2013) with the formula:

$$n = \frac{DEFF \times Np(1 - p)}{\frac{d^2(N - 1)}{Z_{1-\alpha/2}^2} + p(1 - p)}$$

where n is sample size, DEFF is design effect for cluster surveys which is 1.0, N is population size for finite population correction factor which is 1500, d is precision 0.05, Z is Z statistic for a 95% confidence interval which is 1.96, and p is hypothesized percentage frequency of outcome factor in the population which is 62.1% (Ismail et al, 2018). Therefore, a total of 322 participants with ten percent drop-out rate added to anticipate non-response were taken.

A structured questionnaire in English and Malay version was adopted and modified with the permission to use from Mohammad Fadhil et al. (2016). The questionnaire consisted of three sections. Section A is related to socio-demographic characteristics of the respondents. Section B consisted of eight multiple choices questions on knowledge and awareness of prostate cancer scored with a 'Yes' and 'No' response. 'Yes' indicated the correct answer and one-point was given and 'No' indicated the wrong answer and a zero-point is scored. The level of knowledge and awareness is based on the total number of correct answers; a score of five-points and above indicates a good level of knowledge, while a score of four-points and below is considered a poor knowledge level. Section C assessed the perception of susceptibility, seriousness, and benefits of prostate cancer and its screening that was scored with a Four-point Likert scale ranging from strongly disagree to strongly agree. A score of fifteen and above with a maximum score of thirty is considered to have a good perception, whereas score of below fifteen indicated a low perception level.

A pilot study was conducted using the same inclusion criteria. Cronbach's alpha of 0.682 was obtained for the questionnaire. A value of 0.61 to 0.70 is considered desirable for basic research or evaluation studies (Gliem & Gliem, 2003). Data for this study was collected from 24th February 2020 until 13th March 2020. Online questionnaire using Google form with a cover letter that included the purpose of study as well as the nature of voluntary participation was shared with the respondents. A self-administered questionnaire was also distributed and collected due to the low and slow response rate for the online questionnaire. Data was then entered and analyzed using the Statistical Package for Social Sciences (SPSS) software (v.22.0). Descriptive statistics such as frequency and percentages were used to report the socio-demographic characteristics, levels of knowledge, awareness, and perception of prostate cancer of the respondents. Chi-square tests were used to analyse the association between socio-demographic characteristics with the levels of knowledge, awareness, and perceptions of prostate cancer. A p-value of less than 0.05 was considered as statistically significant.

RESULTS

This study achieved a 100% response rate. Most of the respondents were aged 20 to 22 years old (n=188, 58.4%), Chinese (n=151, 46.9%), and from Year 1 and Year 2 (n=186, 57.8%) of their study. Table 1 illustrated the socio-demographic characteristics of the respondents.

Table 1. Socio-demographic characteristics amongst male undergraduates.

Variables	n	%
Age		
20 – 22	188	58.4
23 – 25	134	41.6
Race		
Malay	101	31.4
Chinese	151	46.9
Others	70	21.7
Year of Study		
Year 1 and Year 2	186	57.8
Year 3 and Year 4	136	42.2
Faculty Study		
FCSIT	161	50
FEB	161	50

The majority of the respondents (n=283, 87.9%) in this study recorded a low level of knowledge and awareness towards cancer of prostate with a score of 4. Only 12.1% (n =39) had a high level of knowledge and awareness. Table 2 listed the detailed results for the knowledge and awareness towards prostate cancer. More than three quarters of the respondents (n=248, 77.0%) had heard of prostate cancer and about half of the respondents (n=168, 52.2%) had identified the location of the prostate gland correctly. Only 33 (10.2%) respondents mentioned that they knew of persons who had prostate cancer before and none of the respondents had been told whether they had a prostate condition, either a enlarged prostate or prostate cancer.

Table 2. Knowledge and awareness towards cancer of prostate amongst undergraduates.

Statement about Knowledge and Awareness towards Prostate Cancer	Yes		No	
	n	%	n	%
Have you ever heard about prostate cancer	248	77.0	74	23.0
Do you know anyone that has had prostate cancer before	33	10.2	289	89.8
Knows the location of the prostate gland	168	52.2	154	47.8
Knows prostate cancer affects which gender	293	91.0	29	9.0
Knows factors could make a person more likely to develop prostate cancer	34	10.6	288	89.4
Have you ever received information from health care professionals about prostate cancer	4	1.2	318	98.8
Are you familiar with symptoms of prostate cancer	46	14.3	276	85.7
Have you been told that you have prostate condition/cancer	0	0	322	100.0

For the perception towards cancer of prostate that measured on a total of thirty-point, slightly over half of the respondents (n=178, 55.3%) scored ≤ 15 which indicated a poor level of perception. The remainder of the respondents (n= 144, 44.7%) had a good level of perception. For the perceived susceptibility towards cancer of prostate, most of them disagreed that a person could prevent prostate cancer by not being aware of it (n=181, 56.2%); any male of advancing age could have prostate cancer (n=160, 49.7%), and cancer of prostate was caused by a sexually-transmitted infection (n=159, 49.4%). For the perception of seriousness of prostate cancer, the majority of them disagreed that cancer of prostate was a deadly disease (43.8%); it could not make them infertile (48.1%), and it had no cure (54.3%). As for the perceived benefit on prostate cancer, 43.8% of the respondents (n=141) agreed that undergoing a regular medical check-up would have a great benefit. Further details for the respondents' perception towards cancer of prostate can be found in Table 3.

Chi-square tests showed that levels of knowledge and awareness had significant association with Year of study, $\chi^2(1, N= 322)= 4.35, p= 0.037$ and study programme, $\chi^2(1, N= 322)= 5.72, p= 0.017$. However, there was no significant association between knowledge and perception $\chi^2(1, N= 322)= 3.02, p= 0.082$.

Table 3. Perceptions towards cancer of prostate amongst undergraduates.

Statement about Perceptions towards Prostate Cancer	SD	D	A	SA
	n (%)			
Perception on Susceptibility				
If I am not aware of prostate cancer, I can't have it.	112 (34.8)	181 (56.2)	28 (8.7)	1 (0.3)
Any male of advancing age can have prostate cancer.	3 (0.9)	160 (49.7)	156 (48.4)	3 (0.9)
Prostate cancer is an infection that can be transmitted sexually.	87 (27.0)	159 (49.4)	75 (23.3)	1 (0.3)
All men are at risk of having prostate cancer.	10 (3.1)	17 (5.3)	231 (71.7)	64 (19.9)
Prostate cancer affects only white people.	195 (60.6)	118 (36.6)	1 (0.3)	8 (2.5)
Perception on Seriousness				
Prostate cancer is a deadly disease.	4 (1.2)	141 (43.8)	132 (41.0)	45 (14.0)
Prostate cancer has no cure.	109 (33.9)	175 (54.3)	38 (11.8)	0
Prostate cancer cannot make me infertile.	60 (18.6)	155 (48.1)	89 (27.6)	18 (5.6)
Prostate cancer does not kill.	10 (3.1)	234 (72.7)	78 (24.2)	0
Perception on Benefit				
I perceive a great benefit in going to the clinic regularly for a medical check-up.	5 (1.5)	130 (40.4)	141 (43.8)	46 (14.3)

DISCUSSION

A total of 283 respondents (87.9%) in this study had low knowledge and awareness towards prostate cancer but the majority of all respondents (77.0%) had heard of prostate cancer. The rate was higher than to one previous study amongst 80 male staff in a tertiary teaching hospital in Kelantan although in different age population that reported 68.8% had a low knowledge and awareness level and 65.0% had heard of prostate cancer (Mohammad Fadhil et al., 2016). However, results from another study done amongst 168 Malay males from three traditional villages in Negeri Sembilan and amongst 625 male teachers in the Sunyani Municipality revealed that 58.5% and 57.5% of the respondents respectively had a good knowledge level regarding prostate cancer (Ismail et al., 2018; Yeboah-Asiamaha et al., 2017). A small percentage of the respondents (14.3%) reported that they were familiar with the symptoms of prostate cancer and knew the factors more likely to lead to it (10.6%). Slightly more than 10% (10.2%) knew someone diagnosed with prostate cancer and only 1.2% had ever received information from a healthcare provider. The low knowledge and awareness level noted in this study could be due to the younger age of the respondents and lack of accessibility to prostate health information (Campbell & McClain, 2013; Adibe et al., 2017). Campbell and McClain (2013) also suggested that it was unlikely for college students to seek health care providers and gain any education on cancer unless they experienced any significant others being diagnosed with cancer.

In this study, more than half of the respondents (n=178, 55.3%) have a poor level of perception towards prostate cancer. This is consistent with another study that indicated that 53.9% had a negative perception (Adibe et al., 2017). However, Adibe et al. (2017) highlighted that only 13.7% of the staff in the Faculty of Medical Sciences' had a positive perception on prostate cancer; this was unexpected in view of the fact that they were all involved in the medical field. Nonetheless, Mohammad Fadhil et al. (2016) and Yeboah-Asiamaha et al. (2017) found a very high percentage (95.0% and 90.6% respectively) of the respondents who had a good perception on cancer of the prostate which are in contrast with the findings of this study. High perception towards prostate cancer in these studies were due to the respondents being hospital staff with a high level of knowledge on cancer of the prostate (Mohammad Fadhil et al., 2016; Yeboah-Asiamaha et al., 2017). Hence, the low knowledge and awareness and poor perception towards prostate cancer could be due to the respondents in this study being from non-medical fields of study, unlike previous studies (Adibe et al., 2017; Ogunsanya et al., 2017).

Year of study was found to have a significant association with the level of knowledge and awareness towards prostate cancer. The results demonstrated that the number of respondents with higher knowledge and awareness level increased with the year of study and those studied in science discipline. Previous studies found the effect of education on the level of knowledge and awareness on prostate cancer (Ismail et al., 2018; Mofolo et al., 2015; Nakandi et al., 2013). This could be attributed to people with higher level of education being more exposed and alert to health issue (Kabore et al., 2013; Mofolo et al., 2015). People who have a higher level of knowledge and awareness also have more positive perception toward prostate cancer (Yeboah-Asiamaha et al., 2017). Higher percentage of respondents from the science faculty was found to have higher knowledge and awareness level than those in the art faculty; however, the reason for this significant association was not clear. In contrast with previous study (Yeboah-Asiamaha et al., 2017), knowledge and awareness was not found to influence perception toward prostate cancer.

CONCLUSION

This study found that male UNIMAS undergraduates had low knowledge, awareness, and perception level towards prostate cancer. This could be attributed to being college students who are unlikely to seek for cancer information from healthcare providers unless unnecessary. This study has provided useful information regarding knowledge, awareness, and perception of prostate cancer amongst young adults in Sarawak. However, due to the usage of the convenience sampling method, the findings may not be generalizable to all young adults. Further studies at different geographical areas are recommended. Community-based health education programs targeting younger adults could also be done to create better awareness regarding prostate cancer. These programs could include relevant information on risks factors, symptoms, screening methods and treatment of prostate cancer. The health education and information gained by younger adults would prepare them to recognise prostate cancer in later life.

REFERENCES

- Adibe, M. O., Aluh, D. O., Isah, A., & Anosike, C. (2017). Knowledge, Attitudes and Perceptions of Prostate Cancer among Male Staff of the University of Nigeria. *Asian Pacific journal of cancer prevention*, 18(7), 1961–1966. <https://doi.org/10.22034/APJCP.2017.18.7.1961>
- American Cancer Society. (2019). *Prostate Cancer*. <https://www.cancer.org/cancer/prostate-cancer.html>
- Azizah, Ab. M., Nor Saleha, I. T., Noor Hashimah, A., Asmah, Z.A., & Mastulu, W. (2015). *Malaysian National Cancer Registry Report 2007-2011*. <https://www.crc.gov.my/wp-content/uploads/documents/report/MNCRRepor2007-2011.pdf>
- Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *A Cancer Journal for Clinicians*, 68(6), 394–424. <https://doi.org/10.3322/caac.21492>
- Campbell, L. C., & McClain, J. (2013). Exploring Prostate Cancer Literacy and Family Cancer Awareness in College Students: Getting Ahead of the Curve in Cancer Education. *Journal of Cancer Education*, 28(4), 617–622. <https://doi.org/10.1007/s13187-013-0546-1>
- Cancer Research UK. (2018). *Why is early diagnosis important?* <https://www.cancerresearchuk.org/about-cancer/cancer-symptoms/why-is-early-diagnosis-important>
- Chin, H. W., Kim, J., Rasp, G., & Hristov, B. (2015). Prostate Cancer in Seniors: Part 1: Epidemiology, Pathology, and Screening. *Federal practitioner : for the health care professionals of the VA, DoD, and PHS*, 32(Suppl 4), 41S–44S.
- Dean, A.G., Sullivan, K.M., & Soe, M.M. (2013). *OpenEpi: Open Source Epidemiologic Statistics for Public Health, Version*. <http://www.OpenEpi.com>
- Gliem, J. A. and Gliem, R. R.. (2003). Calculating, Intepreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, 82-88.
- Hong, G. E., Kong, C. H., Singam, P., Cheok, L. B., Zainuddin, Z. M., & Azrif, M. (2010). Seven-year review of prostate carcinomas diagnosed by TRUS biopsy in a single Malaysian institution. *Asian Pacific Journal of Cancer Prevention*, 11(5), 1351-1353.
- Ismail, S., Zainuddin, H., Hamedon, T. R., Juni, M., Afiah, N., Zulkefli, M., & Saliluddin, S. (2018). Factors associated with awareness, knowledge and attitude towards prostate cancer among Malay men in traditional Malay villages, Negeri Sembilan, Malaysia. *Malaysian Journal of Medicine and Health Sciences*, 14, 31-38.
- Kabore, F. A., Kambou, T., Zango, B., & Ouédraogo, A. (2013). Knowledge and Awareness of Prostate Cancer Among the General Public in Burkina Faso. *Journal of Cancer Education*, 29(1), 69–73. <https://doi.org/10.1007/s13187-013-0545-2>

- Merriel, S. W., Funston, G., & Hamilton, W. (2018). Prostate cancer in primary care. *Advances in Therapy*, 35(9), 1285-94.
- Mincey, K., Turner, B., Anderson, K., Maurice, S., Neal, R., & White, C. (2017). Prostate Knowledge, Attitudes and Beliefs in Black College Men: A Qualitative Study. *Journal of Community Health*, 42, 1096-1101. <https://doi.org/10.1007/s10900-017-0357-0>
- Mofolo, N., Betshu, O., Kenna, O., Koroma, S., Lebeko, T., Claassen, F. M. and Joubert, G. (2015). Knowledge of prostate cancer among males attending a urology clinic, a South African study. *Springerplus*, 4(67). <https://doi.org/10.1186/s40064-015-0824-y>
- Mohammad Fadhil Hafiz, M. S., Soon, L. K., Azlina, Y. (2016). Knowledge, awareness and perception towards prostate cancer among male public staffs in kelantan. *International Journal of Public Health and Clinical Sciences*, 3 (6), 105-115.
- Nakandi, H., Kirabo, M., Semugabo, C., Kittengo, A., Kitayimbwa, P., Kalungi, S., & Maena, J. (2013). Knowledge, attitudes and practices of Ugandan men regarding prostate cancer. *African journal of urology: the official journal of the Pan African Urological Surgeons' Association (PAUSA)*, 19(4), 165–170. <https://doi.org/10.1016/j.afju.2013.08.001>
- Ogunsanya, M. E., Brown, C. M., Odedina, F. T., Barner, J. C., Adedipe, T. B., & Corbell, B. (2017). Knowledge of Prostate Cancer and Screening Among Young Multiethnic Black Men. *American journal of men's health*, 11(4), 1008–1018. <https://doi.org/10.1177/1557988316689497>
- Salinas, C. A., Tsodikov, A., Ishak-Howard, M., & Cooney, K. A. (2014). Prostate cancer in young men: an important clinical entity. *Nature reviews. Urology*, 11(6), 317–323. <https://doi.org/10.1038/nrurol.2014.91>
- Sutcliffe, S., & Colditz, G. A. (2013). Prostate cancer: is it time to expand the research focus to early-life exposures? *Nature reviews. Cancer*, 13(3), 208–518. <https://doi.org/10.1038/nrc3434>
- Yeboah-Asiamaha, B., Yirenya-Tawiah, D., Baafic, D., & Ackumey, M. M. (2017). Perceptions and knowledge about prostate cancer and attitudes towards prostate cancer screening among male teachers in the Sunyani Municipality, Ghana. *African Journal of Urology*, 23, 184–191.

Disclosure of Traditional and Complementary Medicine Use and its Associated Factors to Medical Doctors Among the Longhouse Community in Julau, Sarawak

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ABSTRACT

Traditional and complementary medicine (TCM) practice is increasing worldwide and Malaysia is no exception. Despite the wide use of TCM by the population, there seems to be an issue of not disclosing TCM use to their medical doctor. The aim was to explore the related factors that influence the disclosure of TCM use to medical doctor among respondents in selected longhouses in Sarawak. A cross-sectional study was conducted on 90 respondents from selected Iban longhouses in Julau, Sarikei District. Data was collected via face-to-face interviews based on a questionnaire comprising sociodemographic characteristics, TCM use and disclosure, health profile, healthcare utilization and attitude towards TCM. To determine the factors related to disclosure of TCM use, independent t-test and Chi-square (χ^2) test was used to examine the relationship between various variables and disclosure of TCM use. The mean age of studied participants was 45.20 (± 14.92) years and 80% were married. The prevalence of usage of TCM treatment was 70% and the rate of disclosure of TCM use among respondents was 27%. Univariate analyses yielded three main factors that were significantly associated with the disclosure of TCM use among respondents, which were education level, presence of chronic diseases and type of chronic diseases. The rate of disclosure of TCM use in this study was very low, consistent with other local and foreign studies. Thus, other relevant factors that are not studied need to be further explored for better understanding in order to have better integration between TCM and current health system.

Keywords: TCM use, disclosure, longhouse community, Sarawak, attitudes

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INTRODUCTION

Traditional and Complementary Medicine (TCM) is defined as a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine. It is a form of health-related practice across all ethnic groups, that includes homeopathy and complementary therapies but excludes registered medical practices (TCM Division, Ministry of Health Malaysia, 2011). It had gained popularity in both developed and developing countries as it is more accessible, affordable and acceptable to the local population (Zhang, 2015). Studies made in Malaysia reported that 69.4% of the population had used TCM in their lifetime, and about 55.6% of people used TCM within the last twelve months (Siti Zuraidah Mahmud et al., 2009).

Regardless of the wide usage of TCM by the population, there seems to be an issue of not disclosing TCM use to medical doctors by patients. Disclosure of TCM refers to an individual's willingness to share their usage of TCM openly. According to a study conducted by Johnny, Cheah & Razitasham Safii (2017), the percentage of disclosure of TCM use to medical doctors among primary care clinic attendees in Kuching Division, Sarawak was low at 9.6%. Besides, a meta-analysis done by Foley et al. (2019) revealed that there was only a 33% disclosure rate for biological-based complementary medicine.

Not disclosing TCM use to a medical doctor while seeking for allopathic treatment could pose harm to the health status of TCM users. While TCM itself could be beneficial and have fewer side effects, usage of both TCM and chemical drugs at the same time could bring about serious adverse effects or reduce the effect of chemical drugs (WHO, 2002). For example, a combination of warfarin and ginseng that has antiplatelet activity can cause over

anti-coagulation (Kleijnen, Knipschild & Riet 1989). Therefore, medical doctors need to learn about the effect of TCM use on their patients' health status.

However, many factors affect the decision to disclose TCM use by the population, such as belief in the safety of TCM, perception of disclosure as unimportant and lack of inquiry from medical providers (Foley et al., 2019). Besides, most patients fear being scolded if they continued making enquiries about TCM (Johny, Cheah & Razitasham, 2017). Moreover, WHO (2002) also stated that lack of knowledge of possible interactions between TCM and chemical drugs can lead to non-disclosure. In other words, attitude towards TCM use can influence disclosure. Healthcare providers need to educate and encourage patients to unveil their TCM use as the private practice of TCM usage in combination with conventional medication might bring about adverse effects or unsafe interactions that can harm the patients. Hence, this study aims to determine the proportion of disclosure of TCM use and factors associated with the decision of disclosing TCM usage to medical doctors among the longhouse community in Julau, Sarawak, Malaysia.

MATERIALS AND METHODS

Study setting

This study was conducted at Rumah Banai Anak Tambat, Nanga Ayam, in Julau, Sarikei, Sarawak. The longhouse consists of twenty doors comprising of approximately 200 residents of mixed ages. The duration of this study is approximately 8 weeks, starting from December 2019 until February 2020.

Sample size estimation

The sampling method to conduct this study was convenience sampling. The sample size was calculated using the open-source calculator by OpenEpi Version 3.01 with the formula, $n = [DEFF * Np(1-p)] / [(d^2/Z^2_{1-\alpha/2} * (N-1) + p(1-p))]$, where n =sample size; N =population size, 200; p =hypothesised prevalence of TCM disclosure based on previous study, 9.6% (Johny, Cheah & Razitasham 2017); d =confidence limit, 5%; $DEFF$ =design effect of 1; with 10% inflated considering non-responses, thus, the calculated sample size was 90.

Inclusion criteria

Included were all residents aged 18 years and above, and have neither mental health problems nor chronic medical morbidities.

Data collection

The data were collected by face-to-face interview based on the structured questionnaire. The questionnaires, along with a written consent form, was distributed to the respondents. A short briefing was conducted beforehand to avoid any misunderstandings and to obtain the optimum results from the respondents. A trilingual (Malay, English and Iban) questionnaire was adapted based on the questionnaire used in the "Health Belief Model" and "Anderson's Health Behavioural Model" which involves five sections:

- 1) Part A: Sociodemographic characteristic: To assess the sociodemographic and economic characteristics of the study participants: gender, age, race, religion, educational level, marital status, occupation, family average monthly income and health insurance.
- 2) Part B: TCM Use and Disclosure: To assess the usage of TCM as well as participants' disclosure to the doctor.
- 3) Part C: Health profile of respondents: the questionnaire assesses the health profile of respondents by collecting data on the medical condition and self-rated health status. Respondents asked if they have any chronic medical condition such as hypertension, diabetes mellitus and hyperlipidemia. The self-rated health status of respondents was evaluated by asking: "In general, how would you rate your health today?" with a 5-point Likert scale, "1 = very good" to "5 = very bad".
- 4) Part D: Healthcare utilisation: data on healthcare utilisation was on the number of clinic visits and hospitalisation for the past 12 months.
- 5) Part E: Attitude toward TCM Use: This part of the questionnaire was adapted from the previous study and comprised of sixteen items on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) which assessed the perceived benefits with a range score from 11 to 55 and barrier with a range score from 5 to 25 (Chang, Tiralongo & Wallis 2011).

Data analysis

The collected data was recorded, entered, and analysed using Statistical Package for Social Sciences version 22.0. Data cleaning to check for incomplete responses was done before proceeding to the analysis. The studied variables

were presented using percentages and proportions. Categorical data was expressed in terms of mean and standard deviations, while frequency and percentages were used to express the continuous data. An independent t-test was used to examine the relationship between various factors and disclosure of TCM use. Meanwhile, Chi-square (χ^2) test analysis was used to examine the relationship between categorical variables and disclosure of TCM use. A p-value of less than 0.05 was considered to be significant.

RESULTS

Sociodemographic characteristic of the respondents

A total of 90 villagers participated in this study with the mean age of 45.20 ± 14.92 years, as depicted in Table 1. The age of participants ranged from 18 to 80 years old. The majority of them were females (62.2%), and 37.8% were males. Among the respondents, most of them were married (80%) and had a monthly income group of \leq RM 1,000 (70%).

A percentage of 85.6% of the total respondents attained secondary education and below compared to tertiary level education (14.4%, $n = 13$). Slightly more than 70% of total respondents worked with various types of occupations where the majority of them worked as farmers (47.8%, $n = 43$). Besides that, the respondents predominantly do not have health insurance (83.3%).

Table 1. Sociodemographic characteristic of respondents ($n = 90$).

Variables	Frequency	%	Mean (SD)
Age (years)			45.20 (± 14.92)
Gender			
Male	34	37.8	
Female	56	62.2	
Marital status			
Single	11	12.2	
Married	72	80.0	
Widow/divorce	7	7.8	
Educational level			
No formal education	24	26.7	
Primary education	23	25.6	
Secondary education	30	33.3	
Tertiary education	13	14.4	
Occupation			
Unemployed	23	25.6	
Farmer	43	47.8	
Businessman	6	6.7	
Government	4	4.4	
Private	11	12.2	
Retiree	3	3.3	
Monthly Income (RM)			1186.88 (± 793.91)
\leq RM1000	63	70.0	
RM 1001 – RM 2000	20	22.2	
RM 2001 – RM 3000	1	1.1	
RM 3001 – RM4000	1	1.1	
RM 4001 – RM 5000	4	4.4	
$>$ RM 5000	1	1.1	
Health insurance			
Yes	15	16.7	
No	75	83.3	

Health profile and healthcare utilisation of the respondents

Based on Table 2, the majority of the respondents (56.7%) were diagnosed with chronic diseases. Furthermore, it showed that more than half of the respondents were diagnosed with at least one chronic disease in their lifetime. Three most common chronic diseases were hypertension (37.8%) followed by hyperlipidemia (16.7%) and diabetes mellitus (10.0%). Besides that, more than two-thirds (72.2%) of the respondents had their health rated as good-excellent.

Government clinic recorded the highest number (n=87) for the types of clinic/ hospital most visited among respondents followed by government hospital (n=66). The highest number of respondents (43%) had visited clinic/ hospital “1 to 10 times” in the past 12 months while the least (2%) is more than “20 times”. The majority of the respondents (88%) had never been hospitalised in the last 12 months. 8.9% of the respondents had been hospitalised once, and only 3.3% had been hospitalised more than once in the last 12 months.

Table 2. Health profile and healthcare utilisation of the respondents (N=90).

Variables	Frequency	%	Mean (SD)
Presence of chronic diseases	51	56.7	
Type of chronic diseases			
Hypertension	34	37.8	
Hyperlipidaemia	15	16.7	
Diabetes mellitus	9	10.0	
Gout	7	7.8	
Asthma	6	6.7	
Heart disease	5	5.6	
Cancer	0	0.0	
Stroke	1	1.1	
Others**	5	5.5	
Number of chronic diseases			
0	39	43.3	
1	19	21.1	
2	21	23.3	
3	5	5.6	
4	6	6.7	
Self-rated health status			
Good-excellent	65	72.2	
Poor-fair	25	27.7	
Types of clinic or hospital visited			
Government hospital	66	73.3	
Government clinic	87	96.7	
Private hospital	21	23.3	
Private clinic	30	33.3	
Frequency of clinic/hospital visits within 12 months			2.10 (0.794)
Never	22	25.0	
1 – 10 visits	39	43.0	
11 – 20 visits	27	30.0	
More than 20	2	2.0	
Ever been admitted to the hospital within the past 12 months	11	12.2	
Frequency of hospitalisation in the last 12 months			1.16 (0.447)
Never been admitted	79	87.8	
Admitted once	8	8.9	
Admitted more than once	3	3.3	

Others**: Gastritis, Osteoarthritis, Retinopathy, Thyroiditis

The study also found that 63 (70%) out of 90 respondents reported having ever used TCM in their lifetime to maintain health and treatment.

Further analysis showed that respondents that have used or taken various types of TCM treatments either with or without seeing TCM practitioners within the past twelve months. Among 63 respondents that used or received TCM treatments within the past twelve months, 58.7% (n = 37) have received or used at least one type of TCM treatment, 25.4% (n = 16) have received or used three to five types of TCM, 12.7% (n = 8) of them have received or used six to eight types of TCM, and 3.2% (n = 2) have received or used more than eight types of TCM.

Types of TCM treatment received among respondents

Results showed that there are nine main types of TCM treatments that have been used by the respondents (n = 63) within the past twelve months. The nine main types of TCM treatment received or used by the respondents were traditional herbs, traditional massage, postnatal care, supplement, *manang* (Iban traditional healer), *sampi* (Iban prayer), cupping, and naturopathy, among others.

The traditional herbs (with the highest percentage of 39.7%) was the TCM treatment most practised by the respondents followed by traditional massage with 33.3% and postnatal care with 23.8%. Meanwhile, supplements and *manang* (Iban traditional healer) recorded percentages of 20.6% and 15.9% respectively. Other than that, *sampi* (Iban prayer) and cupping both recorded percentages of 14.3%. Therefore, the least type of TCM treatment received or used by the respondents was naturopathy at 7.9%.

Attitude towards TCM use among respondents

Table 3 shows that more than 60% of the respondents agreed that TCM could improve some of their symptoms. On the other side, more than 40% of the respondents disagreed that using both methods of medications were better than using just one medication. Regarding perceived barriers, more than 50% of the respondents agreed that they do not have enough knowledge to select the right TCM for themselves. Apart from that, more than 60% of the respondents disagreed that usage of TCM may harm the body. The majority of the respondents (73%, n = 46) claimed that they had never disclosed either the use of TCM in their lifetime or even recent usage of TCM within the past twelve months to medical officers.

Factors related to disclosure of TCM used among respondents.

From the results of the independent t-test, there is a significant difference between mean age and disclosure of TCM used. Respondents who were much older with mean age 51.53(12.97) years old tended to disclose their TCM use to medical officers. There is no significant difference comparing respondents with a high and low mean monthly income to the disclosure of TCM use to medical officers. Respondents who have more than one medically diagnosed chronic diseases were significantly higher in their disclosure of TCM use compared to those who are healthy. Based on Table 4, in terms of attitude towards TCM use, the respondents that disclose TCM use and who had perceived benefits towards showed a mean SD score of 37.06 ± 7.19 while those who had perceived barriers towards the disclosure of TCM use had a mean SD score of 14.53 ± 3.83 .

Table 3. Attitude of the respondents (N = 63) toward TCM use.

Item	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
Perceived benefits					
Using both methods of medication is better than only using one alone	11 (17.5%)	16 (25.4%)	6 (9.5%)	16 (25.4%)	14 (22.2%)
TCM can make body feel better	2 (3.2%)	6 (9.5%)	17 (27.0%)	25 (39.7%)	13 (20.6%)
Will introduce some effective TCM to other people	6 (9.5%)	13 (20.6%)	7 (11.1%)	24 (38.1%)	13 (20.6%)
TCM can improve some of the symptoms	3 (4.8%)	8 (12.7%)	12 (19.0%)	28 (44.4%)	12 (19.0%)
The use of TCM can complement to the shortage of Western Medicine	10 (15.9%)	16 (25.4%)	5 (7.9%)	23 (36.5%)	9 (14.3%)
TCM can easily control illness	3 (4.8%)	6 (9.5%)	16 (25.4%)	30 (47.6%)	8 (12.7%)
The use of TCM has more advantages than disadvantages	2 (3.2%)	9 (14.3%)	23 (36.5%)	21 (33.3%)	8 (12.7%)

Table 3. Attitude of the respondents ($N = 63$) toward TCM use (Contd.)

Item	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
Perceived benefits					
Interested in any kind of TCM which helps body self-healing	6 (9.5%)	10 (15.9%)	11 (17.5%)	29 (46.0%)	7 (11.1%)
TCM can strengthen the effect of western medication	5 (7.9%)	11 (17.55)	16 (25.4%)	25 (39.7%)	6 (9.5%)
The treatment of the alternative therapy is more gentle and safe	2 (3.2%)	11 (17.5%)	22 (34.9%)	23 (36.5%)	5 (7.9%)
TCM can prevent illness complication	3 (4.8%)	18 (28.6%)	20 (31.7%)	17 (27.0%)	5 (7.9%)
Perceived barriers					
TCM may bring terrible interactions with western medication	5 (7.9%)	23 (36.5%)	14 (22.2%)	14 (22.2%)	7 (11.1%)
Do not have enough knowledge to select the right TCM	5 (7.9%)	16 (25.4%)	9 (14.3%)	27 (42.9%)	6 (9.5%)
Consider that using TCM is expensive	15 (23.8%)	26 (41.3%)	7 (11.1%)	11 (17.5%)	4 (6.3%)
Doctor may be opposed to use of TCM	17 (27.0%)	18 (28.6%)	17 (27.0%)	9 (14.3%)	2 (3.2%)
TCM may possibly harm the body	15 (23.8%)	31 (49.2%)	8 (12.7%)	8 (12.7%)	1 (1.6%)

Table 4. Result of *t*-test comparing the mean of age, monthly income, number of chronic diseases and attitude of respondents ($N=63$) toward the disclosure of TCM use.

Variables	Disclosure of TCM use		t-stats (df ^b)	Mean Difference (95% CI ^c)	p value ^{d, e}
	Mean (SD ^a)				
	Yes	No			
Age (years)	51.53 (12.9)	42.37 (14.57)	0.50 (88)	9.160 (1.12,17.20)	0.026
Household income per month (RM)	961.76 (1181.83)	1207.52 (1184.76)	0.85 (88)	-245.757 (-917.75,426.23)	0.467
Number of chronic diseases	1.82 (1.59)	0.98 (1.15)	0.05(61)	0.845 (-1.57, -0.12)	0.023
Attitude toward TCM use					
Perceived benefits score	37.06 (7.19)	36.52 (6.10)	0.52 (61)	0.537 (-3.10,4.17)	0.769
Perceived barriers score	14.53 (3.83)	12.59 (3.19)	0.19 (61)	1.942 (0.32,3.85)	0.046

^astandard deviation

^bdegree of freedom

^cConfidence interval

There was a significant relationship between education level, presence of chronic diseases and types of chronic diseases (heart disease) with the disclosure of TCM used among the respondents. Based on Table 5, there are statistically significant associations between educational level ($\chi^2 = 11.31, p = 0.023$) and presence of chronic diseases, ($\chi^2 = 4.75, p = 0.029$) towards the disclosure of TCM used. However, out of all the chronic diseases, only heart disease showed a statistically significant association with the disclosure of TCM, ($\chi^2 = 11.56, p = 0.004$).

Table 5. Result of χ^2 analysis between sociodemographic characteristic, knowledge, and disclosure of TCM used to a medical doctor ($N= 63$).

Variable	Disclosure of TCM use		χ^2	p-value
	Yes n (%)	No n (%)		
Gender				
Male	7 (31.8%)	15 (68.2%)	0.40	0.527
Female	10 (24.4%)	31 (75.6%)		
Marital Status				
Single	0	7 (100%)	6.37	0.095
Married	14 (27.5%)	37 (72.5%)		
Widow/Divorce	3 (60.0%)	2 (40.0%)		
Education				
No schooling	9 (56.3%)	7 (43.8%)	11.31	0.023
Primary education	4 (25.0%)	12 (75.0%)		
Secondary education	2 (9.1%)	20 (90.9%)		
Tertiary education	2 (22.2%)	7 (77.8%)		
Occupation				
Unemployed	4 (23.5%)	13 (76.5%)	7.04	0.317
Farmer	9 (30.0%)	21 (70.0%)		
Government	2 (66.7%)	1 (33.3%)		
Private	0	4 (100%)		
Own business	0	3 (100%)		
Others	2 (27.0%)	4 (73.0%)		
Health insurance				
Yes	4 (30.8%)	9 (69.2%)	0.12	0.730
No	13 (26.0%)	37 (74.0%)		
Health profile				
Presence of chronic diseases				
Yes	13 (38.2%)	21 (61.8%)	4.75	0.029
No	4 (13.8%)	25 (86.2%)		
Type of chronic diseases				
Hypertension				
Yes	9 (37.5%)	15 (62.5%)	2.18	0.157
No	8 (20.5%)	31 (79.5%)		
Diabetes Mellitus				
Yes	3 (37.5%)	5 (62.5%)	0.51	0.671
No	14 (25.5%)	41 (74.5%)		
Hyperlipidaemia				
Yes	4 (36.4%)	7 (63.6%)	0.60	0.469
No	13 (25.0%)	39 (75.0%)		
Asthma				
Yes	2 (50.0%)	2 (50.0%)	1.15	0.293
No	15 (25.4%)	44 (74.6%)		
Heart disease				
Yes	4 (100.0%)	0 (0.0%)	11.56	0.004
No	13 (22.0%)	46 (78.0%)		
Stroke				
Yes	1 (100%)	0	2.75	0.270
No	16 (25.8%)	46 (74.2%)		
Gout				
Yes	3 (42.9%)	4 (57.1%)	1.01	0.375
No	14 (25.0%)	42 (75.0%)		
Self-rated health status				
Poor-fair	7 (33.3%)	14 (66.7%)	0.65	0.422
Good-excellent	10 (23.8)	32 (76.2)		

DISCUSSION

Prevalence of disclosure of TCM use

In this study, only 23% of the respondents disclosed their use of TCM to a medical doctor or healthcare professional. The prevalence of non-disclosure of TCM use among respondents in this study was very high (as much 73%) in which they claimed they had never disclosed either the use of TCM in their lifetime or recent use within the past 12 months to a medical doctor. Similar findings were noted in a study conducted among primary healthcare attendees in Kuching Division, Sarawak, where 9.6% of the respondents had discussed their use of TCM with a medical doctor (Johny Cheah & Razitasham 2017). The rate of non-disclosure of TCM use is consistent with another study conducted in the North East of England among hospitalised patients by Bello, Winit-Watjana, Baqir and Mcgarry (2012), which noted that 86% of the respondents did not inform healthcare professionals regarding their use of TCM. However, many factors affect the decision to disclose TCM use, such as the belief of TCM to be safe, perception of disclosure as unimportant and lack of inquiry from medical providers (Foley, Steel, Cramer, Wardle & Adams 2019). Some patients are afraid of disclosing the use of TCM as they worried that the trust between doctors and patients would be affected. Besides, most patients fear their doctor's negative emotions, such as anger, and being scolded if they continued asking about TCM (Johny, Cheah & Razitasham 2017). Moreover, WHO (2002) also stated that the lack of knowledge about possible interactions between TCM and chemical drugs can lead to non-disclosure. This reflects that attitude towards TCM use can influence disclosure.

Association between factors related to disclosure of TCM use among respondents.

In this study, the disclosure of TCM use among the respondents was significantly associated with sociodemographic factors such as age and education level. In addition, a few factors were also found to be significantly associated with the disclosure of TCM use to the medical doctor such as perceived barrier of respondents towards TCM, presence and type of chronic diseases among respondents.

This study found that a significantly higher percentage of respondents aged more than 50 years old had disclosed TCM use to the medical doctor. Similarly, another study demonstrated a higher proportion of disclosure of TCM among older adults. This was in line with Sirois, Riess and Upchurch (2017) who proved that older ages tended to disclose their TCM usage compared to the younger age group. However, opposite findings from other studies (Barbara et al., 2012) claimed that younger age in one population had a significantly higher proportion of disclosure of TCM use, and there was an association between the sample's age and their disclosure to TCM use. The average age among the respondents in that study was 45.2 years (SD= 14.92), and the age ranged from 18 to 80 years old, which indicate that the majority of the study participants were from the middle-age category. This association was significant with the mean age of approximately 46 years old, which is almost the same with the previous study in which the mean age of respondents who disclosed TCM use were 51 years old. This occurs due to several factors such as miscommunication among the community and doctors. Many elderly respondents had communication breakdown with doctors as most of them were only capable of speaking in Iban language. Thus, the rate of disclosure of TCM use among the elderly was reduced (Johny, Cheah & Razitasham, 2017).

Based on this study, the significantly higher proportion of disclosure of TCM use was amongst respondents with no formal education (56.3%). This is in contrast to a previous study where a high proportion of disclosure of TCM use was from the highest educational level (Barbara et al., 2012). Saxe et al. (2008) also found that the more the educated participants were significantly more likely to disclose information about their use of TCM. This is because our studies had shown that most of our respondents did not have any educational background and this gave rise to a low level of knowledge regarding the usage of the right TCM and the importance of referring to medical professionals regarding the use of it (Johny, Cheah & Razitasham, 2017). Hence, this decreases the rate of disclosure of TCM use among the respondents. A study by Liu et al. (2009) showed there is an association between educational level and the rate of disclosure of TCM use among HIV-infected women. The studies showed that more of those with tertiary education level (41.41%) disclosed their TCM use to healthcare providers compared to those with primary and secondary education levels.

There is a significant association between the respondent's perceived barrier in which the respondents lack the knowledge to select the right TCM, and the disclosure of TCM use. This also correlates with the previous study which showed a significant association between perceived barrier and disclosure of TCM use. In that study, the patients' hesitancy to disclose TCM usage was due to the fear that the effects of what they consumed could significantly affect their treatment. It is important to know that most TCM was not recommended by certified medical personnel and most TCM users were influenced by false claims in the social media and by recommendations of friends and family members (Johny, Cheah & Razitasham, 2017).

In this study, out of the listed chronic diseases in the table, only heart disease showed a statistically significant association with the disclosure of TCM ($\chi^2 = 11.56$, $p = 0.004$). 100% of the respondents who had heart disease disclosed the usage of TCM to their medical doctor. This could be due to the worrying statistics revealed by The Department of Statistics Malaysia (2019), which showed that ischaemic heart disease was ranked first in the principal five causes of death in 2018. This could have led the medical doctors to establish a better patient-doctor relationship where questions regarding TCM usage were considered. The other factors such as gender, occupation, marital status, monthly income, health insurance and perceived benefits were not significantly associated with the disclosure of TCM use, but a comparison can be made for each factor.

In this study, males (31.8%) had a higher percentage of disclosing TCM use than females (24.4%). This contradicts a cross-sectional study that was carried out among primary healthcare clinics attendees in Kuching Division, Sarawak that showed a significantly higher disclosure proportion of TCM use among females (8.8) than males (4.5%) (Johny, Cheah & Razitasham, 2017). In addition, according to a study that was done by Chao, Wade and Kronenberg (2008) in the continental United States, females were found to be more likely to disclose than males. This was due to them having lower health status, which encouraged them to disclose the use of TCM (Chao, Wade & Kronenberg 2008). Sirois, Riess and Upchurch (2017) also noted a significant association between gender and disclosure of TCM; a higher percentage of women (54.7%) was noted in disclosing their TCM use compared to men. This might be due to women having more awareness and curiosity about TCM and the side effects of TCM on their health. However, there was no significant association between gender and the rate of disclosure of TCM use in this study. Therefore, there is no clear preference regarding gender to influence the disclosure of TCM use to a medical doctor.

This study found no statistically significant association between occupation and disclosure of TCM use. In our study, farmers showed a higher proportion of disclosure of TCM use compared to those working in private or government sectors. This is in line with Johny, Cheah and Razitasham (2017) which noted that unemployed occupants have a higher proportion of disclosure of TCM use, in a cross-sectional study carried out on primary healthcare attendees across randomised selected health clinics within the Division Kuching, Sarawak, Malaysia. Our study show that most of the respondents who disclose TCM use were married while a few of them denied any TCM use. However, there was no significant association between marital status and disclosure of TCM use. This is in contradiction to Ashikaga et al. (2002) who noted higher proportions of disclosure of TCM among the cancer patients amongst those who were married or living with a partner.

Our study shows that those who disclose TCM use had a mean income of RM916.76 per month which indicated that they had a low income per month. This is almost the same as a previous study in which the respondents had the mean income of RM1,096.83 per month (Johny, Cheah & Razitasham 2017). Previous studies from Barbara et al. (2012) found that most of the cancer patients that come from families with higher household income are more likely to disclose TCM use. Similar findings were noted for those who were still receiving chemotherapy and radiation therapy after surgery. However, there was no statistically significant difference between mean monthly income and disclosure of TCM use ($p = 0.467$).

Based on our study, the majority of our respondents (30.8%) did not have any health insurance. A previous study had also demonstrated the same result (Johny, Cheah & Razitasham, 2017). However, no significant association was noted between having health insurance and disclosure of TCM use. This was in line with a study in the United States which found that non-access to health insurance did not influence the rate of disclosure among the users (Chao, Wade, & Kronenberg, 2008). However, Liu et al. (2009) demonstrated a significant association between health insurance and disclosure of TCM ($p < 0.0001$).

Our study had shown that the perceived benefits among the respondents and disclosure of TCM use showed a mean score of 37.09 while a previous study found a mean score of 44.06 (Johny, Cheah & Razitasham 2017). However, no significant association was noted, for this study, between the respondent's perceived benefits and their disclosure towards the usage of it, which is opposite to that found by Sirois et al. (2017) who noted that over three-quarters of TCM users reported that TCM improved their overall health, and over 40% reported specific psychological and physical benefits from TCM including improved sleep, better coping, improved emotional well-being, and stress management. It is assumed that TCM is likely used for health self-management and wellness rather than for strictly therapeutic purposes. When TCM is perceived to be effective, the findings indicate that users are more likely to disclose their TCM use to healthcare providers.

Prevalence of TCM practices among respondents

According to World Health Organization's medicine strategy (2014-2023), there were sizeable differences in the range of TCM treatments used among different countries, for example, Spain with 41%, 70% for Canada and Australia with 82%. Our study, involving 90 respondents, showed 70% of the respondents used TCM treatments which is much higher compared to 29.25% found by the National Health Morbidity Survey. Ganasegeran, Rajendran and Al-Dubai (2014) found that the prevalence of TCM use was 53.1% among 288 occupants across four rural Malay villages within the District of Selama, Perak, Malaysia; still low compared to our study. This was because our research project only involved a small study area with fewer study participants compared to the National Health Morbidity Survey 2015 which covered urban and rural areas and all age groups in Peninsular Malaysia, Sarawak and Sabah.

Type of TCM treatments

Most of the participants received more than a single type of TCM treatment. 58.7% of the participants received 1-2 types of TCM treatments which include most traditional herbs and traditional massage, as these type of TCM treatments have high accessibility and acceptability according to National Health Morbidity Survey (2015). Next, 25.4% of the participants have received three to five types of TCM treatment, and only 12.7% of participants received more than six types of TCM treatment.

In this study, the most widely practised TCM was traditional herbs which is consistent with other studies (Che Noriah & Maryam Farooqui 2014, & Siti et al., 2009). Szabadi (2006) stated that herbal medicine is widely practised because plant extracts are considered more 'natural' as compared to conventional medicine due to presence of compounds with therapeutic effects that are not well-researched. Herbal medicine is also more popular because it is cheap, effective and easily accessible (Ohemu et al., 2017). A study conducted among the Malays in Penang revealed that a total of 112 plant species could be used to cure various illnesses (Nordin & Zakaria, 2016) which supports the fact that traditional herbs are easily accessible.

The next most widely practised type of TCM is the traditional massage in which other studies showed similar results (Chang, Tam & Norazah, 2015). According to the TCM Division (2009), traditional Malay massage can be classified into two categories which are wellness and therapeutic massage. Wellness helps to reduce anxiety, improve sleep, enhance the body's immune system and reduce stress. Meanwhile, therapeutic massage aids in healing an illness and relieving severity of pain. It is for these purposes that makes a traditional massage a common practice among the other types of TCM. Traditional massage therapy is also said to have a low incidence of side effects (TCM Division, 2009), making it a more acceptable choice of TCM.

Traditional postnatal care or confinement beliefs are widely practised. A study conducted among 68 women in Penang reported that all of them practise traditional postpartum care, with reasons given such as self-belief, convenience and family pressure (Munirah et al. 2010). Confinement is said to aid in restoring the balance in the body's elements such as blood or the 'hot' element that is said to become 'cold' after giving birth due to loss of blood (Health Technology Assessment Section, 2015). Traditional postnatal care is also said to restore normal sexual and reproductive function, promote health, restore the mother's energy and decrease one's body weight (Health Technology Assessment Section, 2015). The act of '*bertangas*' or traditional spa is also a common practice of postnatal care among the Ibans which is said to help get rid of build-up toxins in the body during pregnancy and after giving birth (Chang Yi 2014).

20.6% among the study respondents that use TCM reported the use of supplements. A study conducted among 3,000 Malaysians revealed that 28.1% consume vitamin and mineral supplements, while 34% consume food supplements (Nor Azian et al., 2018). Nor Azian et al. (2018) also suggested that supplements was a popular choice due to its easy accessibility and variety, and because of one's own perceived benefits of it.

The practice of *manang* and *sampi* falls under the practice of traditional healers. A study done among 134 psychiatric patients revealed that 69% of them had visited a traditional healer for their condition before seeing a psychiatrist (Salleh & Muhammad Najib, 2000). Another study among breast cancer patients in Malaysia revealed that out of 400 patients, 28.8% had visited a traditional healer (Aina et al., 2018). Nadia (2015) stated that the reasons people seek traditional healers include influence by society's beliefs, influence by the healer himself or being pressured on finding an instant solution. Traditional healing is said to relieve pain and treat cancer in its early stages (Merriam & Mazanah, 2013). Other reasons why patients choose traditional healing is because it treats not only physical illness but also brings emotional comfort, provides spiritual guidance and provides palliative care (Merriam & Mazanah, 2013).

Cupping was practised in 14.3% of our respondents who use TCM. The Institute for Public Health (IPH) (2015) revealed that 6.45% practise Malay cupping while 2.28% practise Chinese cupping. Cupping is said to improve blood flow and promote recovery (IPH, 2015). Only a minority of our respondents practise cupping; this may be because most of them were part of the older generation. Farezza (2017) stated that blood cupping was more prevalent among the younger generations as they were more open-minded and more willing to take risks while older generations tended to be more sceptical towards the effects of blood cupping.

Naturopathy is the least used TCM with a prevalence of 7.9% among our respondents who practised TCM. According to the National Centre for Health Statistics 2007, around 72,900 adults in the United States had visited a naturopathy practitioner in 2006 while in 2012, the number had increased to about 957,000 adults as reported in the NHIS 2012 (Clarke et al., 2015). The NHIS 2007 reported visiting a naturopathy practitioner as one of the costliest TCM practice.

Perceived benefits of respondents toward TCM use

Based on our study, majority of the respondents perceived TCM as a benefit to them. The majority of the respondents agreed that TCM could make the body feel better, improve some of the symptoms, easily control illness and prevent illness complications. TCM was used not only in maintaining health but is also for the treatment of disease and prevention against any illnesses (Hatje, 2016). Wan Farzana Fasya et al. (2017) also reported that Malay massage was used to enhance the blood flow and eliminate solid lumps in blood vessels due to wind via hand manipulation, and also as a relaxation therapy to provide symptomatic relief of painful muscles and fascia, which may then induce local biochemical changes to improve physiologic and clinical outcomes, as well as mobility in postpartum care and post stroke conditions.

Moreover, around 50% of respondents believed that the use of TCM could complement the shortage of Western medicine. According to the Malaysian Medical Council, Ministry of Health, Malaysia (2001), the integration of TCM in the Malaysian healthcare system is to achieve a holistic approach towards enhancing health and the quality of life rather than to cure. For example, postnatal massage is used to relieve muscle cramps and fatigue after labour, traditional Malay massage and acupuncture are used for chronic pain and stroke, or herbal oncology is used to complement allopathic therapy (Abuduli, Ezat & Aljunid, 2011).

The treatment of alternative therapy is more gentle and safer. In Malaysia, about half of the respondents agreed with the use of TCM for minor ailments. The majority agreed with the use of TCM for their health and well-being. The minority (12.3%) chose to use TCM because it is safe (Shazia Qasim Muhammad Umair Khan, Akram Ahmad & Elkami, 2016). All these findings reflect that TCM had more advantages compared to disadvantages as almost half of the respondents agreed with this statement. This correlates to the next finding in which most of the respondents (58.7%) said that they introduce effective TCM treatments to others.

However, 49.2% of the respondents agreed that TCM could strengthen the effect of Western medication. Belief in combined and complementary use of TCM with modern medicine to cure the disease better and faster came from surrounding culture such as family, close friends and also by doctors or pharmacists as the patients' last option (Lee et al., 2004). However, the risk of the interaction between TCM and modern medicine is not well documented (Othman et. al, 2012).

Furthermore, more than 40% of the respondents disagreed that using both treatment methods was better than using one alone. This finding is supported by a study conducted by Sridhar et al. (2017) among the general public of Ras Al-Khaimah, UAE. The study reported that for 27.3% of the respondents, once they started using TCM they eventually stop using conventional medication. While TCM itself could be beneficial with fewer side effects, concurrent usage of both TCM and chemical drugs could bring about serious adverse effects or the reduction in the effect of the chemical drugs (WHO, 2002). Medagama et al. (2014) stated that significant complications can result from the usage of both TCM and conventional medications and conditions can worsen if the medications have a low therapeutic index and are thus less safe. Thus, it is crucial to disclose TCM use to enable the detection and prevention of any potential adverse effects that can result due to usage of TCM alone or in combination with other drugs (Sridhar et al., 2017).

Perceived barriers of respondents toward TCM use

According to this study, more than half of the respondents perceived that they do not have enough knowledge on the selection of the right TCM. Knowledge of the predictors of TCM use may help health care providers to identify patients at increased risk who would be candidates for receiving guidance for safe use of TCM (Aziz & Tey, 2008). Besides, some of the respondents (33.3 %) claimed that they did not use TCM because they were afraid that consuming TCM might interfere with western medication. This is also a reason why the persons are

reluctant to disclose their TCM use. It is important to note that most of the TCM is not prescribed by certified medical personnel. The main source of TCM use is often through the advice and recommendation of friends and family members (Algier, Hanoglu, Ozden, & Kara, 2005). Furthermore, most of the respondents (65%) do not consider TCM usage as expensive. This shows that the expenditure of TCM is not a perceived barrier in its usage. This perception could be an incentive towards using TCM rather than seeking professional medical treatment. In fact, according to Abuduli, Ezat and Aljunid (2011), the cheaper cost of TCM is a factor towards its usage. This can be further observed by the expenditure for Ayurveda that costed 50% less compared to conventional medical treatment (Orme-Johnson & Herron, 1997).

More than 50% of the respondents disagreed that doctors might oppose the use of TCM. In fact, after completing a study, Mwaka, Tusabe, Orach and Vohra (2018) concluded that the integration of TCM principles into medical school curricula is reasonable to have a better understanding of TCM and thus, enabling quality control and patient safety in traditional medicine practices.

More than 70% of the respondents disagreed that TCM may harm the body. TCM is proven to help to manage pain and treating diseases. According to Lao, Bergman, Langenberg, Wong and Berman (1995) TCM in the form of acupuncture can temporarily alleviate postoperative oral surgery pain. Furthermore, acupuncture is used as adjuvant therapy in treating postoperative pain (Wu et al., 2016). Also, TCM is used in the clinical treatment of lumbar intervertebral disc herniation (Zhang, Xu, Wang, Liu, & Sun, 2017).

LIMITATIONS AND RECOMMENDATIONS

The main limitation of the study was that it included a small number of respondents which is homogenous in ethnicity, which may not be an actual representative sample population of Sarawak. The responses related to TCM usage and disclosure to a medical doctor were exclusively based on self-reporting; as such some of the measures of TCM practices and disclosure may have been over or underestimated. In addition, the selection of participants in selected villages via convenience sampling may not be representative of the general Iban population in Sarawak. Furthermore, the cross-sectional nature of data collection, in which the data for independent and dependent variables were simultaneously collected, may allow the identification of associations but causality cannot be inferred.

It is recommended that a further study be conducted involving a larger Sarawakian population, and covering more TCM practices amongst other ethnics, and factors associated to their disclosure. This could provide more significant results and the findings can be more generalised. Next, a qualitative study should be conducted to better understand other factors that predict the disclosure of TCM use not covered in this study.

CONCLUSION

This study investigated the pattern of TCM use and factors influencing the decision among occupants of the longhouse in Julau, Sarikei Division, Sarawak to disclose their TCM use to medical officers. The prevalence of TCM use was as high as 70% among respondents, but the disclosure of TCM use to a medical doctor was only 27%. Variables such as older age, low educational level, presence and type of chronic diseases were found to be significantly associated with the disclosure of TCM use. Thus, healthcare providers can play a critical role to educate the general public in certain issues such as the benefits and implications of TCM, possible after-effects regarding the concurrent usage of both TCM and chemical drugs, the importance of adherence to prescribed medications if they have chronic diseases and the importance of informing about any TCM use to their healthcare providers. Lastly, more studies are needed to investigate the relationship of specific TCM use with certain types of diseases to increase the usefulness and safety of TCM usage.

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REFERENCES

- Abuduli, M., Ezat, S. & Aljunid, S. (2011) Role of traditional and complementary medicine in universal coverage. *Malaysian Journal of Public Health Medicine*, 11(2), 1-5.
- Aina Farhana Zulkipli, Tania Islam, Nur Aishah Mohd Taib, Maznah Dahlui, Nirmala Bhoo-Pathy et al. (2018) Use of complementary and alternative medicine among newly diagnosed breast cancer patients in Malaysia: an early report from the MyBCC study. *Integrative cancer therapies*, 17(2), 312-321. <https://doi.org/10.1177/1534735417745248>
- Algier, L.A., Hanoglu, Z., Ozden, G., & Kara, F. (2005) The use of complementary and alternative (non-conventional) medicine in cancer patients in Turkey. *European Journal of Oncology Nursing*, 9(2), 138-146. <https://doi.org/10.1016/j.ejon.2005.03.010>
- Ashikaga, T., Bosompra, K., O'Brien, P., & Nelson, L. (2002). Use of complementary and alternative medicine by breast cancer patients: prevalence, patterns and communication with physicians. *Supportive Care in Cancer* 10(7), 542– 548. <https://doi.org/10.1007/s00520-002-0356-1>
- Aziz, Z. & Tey, N.P. (2008) Herbal medicines: Prevalence and predictors of use among Malaysian adults. *Complement Therapies in Medicine* 2009 Jan, 17(1), 44-50. <https://doi.org/10.1016/j.ctim.2008.04.008>
- Barbara, A.M., Byeongsang, O., Esther, L.D., Phyllis, N.B., & Stephen, C. (2012). Cancer patient disclosure and patient-doctor communication of complementary and alternative medicine use. *The Oncologist* 17(11), 1475-1481. <https://doi.org/10.1634/theoncologist.2012-0223>
- Bello, N., Winit-Watjana, W., Baqir, W. & McGarry, K. (2012) Disclosure and adverse effects of complementary and alternative medicine used by hospitalised patients in the north east of England. *Pharmacy Practice*, 10(3), 125-135. <https://doi.org/10.4321/S1886-36552012000300002>
- Chang, H.Y., Tiralongo, E., Wallis, M. (2011) Predictors of complementary and alternative medicine use by people with type 2 diabetes. *Journal of Advanced Nursing*, 68(6), 1256-1266. <https://doi.org/10.1111/j.1365-2648.2011.05827.x>
- Chang, M.L.D., Tam, Y.L.A. & Norazah Mohd. Suki (2015). The prevalence of TCM usage in Sabah, Malaysia. *6th International Conference on Business and Economics Research (ICBER 2015) proceeding*. Kota Kinabalu, Sabah. 23- 24 March 2015. [https://www.academia.edu/25565378/The Prevalence of Traditional and Complementary Medicine Usage in Sabah Malaysia](https://www.academia.edu/25565378/The_Prevalence_of_Traditional_and_Complementary_Medicine_Usage_in_Sabah_Malaysia)
- Chang Yi. (2014, December 14). Bertangas – Iban traditional herbal spa. *The Borneo Post*. <https://www.theborneopost.com/2014/12/14/bertangas-iban-traditional-herbal-spa/>
- Chao, M.T., Wade, C., & Kronenberg, F. (2008). Disclosure of complementary and alternative medicine to conventional medical providers: variation by race/ethnicity and type of CAM. *Journal of the National Medical Association*, 100(11), 1341–1349. [https://doi.org/10.1016/S0027-9684\(15\)31514-5](https://doi.org/10.1016/S0027-9684(15)31514-5)
- Clarke, T.C., Black, L.I., Stussman, B.J., Bames, P.M. & Nahin, R.L. (2015) *Trends in the use of complementary health approaches among adults: United States, 2002–2012*. National Health Statistics Report No. 79. Hyattsville, MD: National Center for Health Statistics.
- Department of Statistics Malaysia, Statistics on Causes of Death, Malaysia 2019. https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=401&bul_id=RUxISDNkcnRVazJn akNCNVN2VGgrdz09&menu_id=L0pheU43NWJwRWVVSZkiWdzQ4TlhUUT09
- Foley, H., Steel, A., Cramer, H., Wardle, J., & Adams, J. (2019). Disclosure of complementary medicine use to medical providers: A systematic review and meta-analysis. *Scientific Reports*, 9(1), 1573. <https://doi.org/10.1038/s41598-018-38279-8>
- Ganasegeran, K., Rajendran, A.K., Al-Dubai, S.A.R. (2014) Psycho-socioeconomic factors affecting complementary and alternative medicine use among selected rural communities in Malaysia: a cross-sectional study. *PLoS ONE*, 9(11): e112124. <https://doi.org/10.1371/journal.pone.0112124>
- Hatje, V. (2016). Pharmaceuticals. In M.J. Kennish (Ed.), *Encyclopedia of Estuaries* (pp.481-483), Springer. https://doi.org/10.1007/978-94-017-8801-4_141
- Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia. (2015). *Traditional postnatal care in restoring women's physical and mental health*. http://www.moh.gov.my/index.php/database_stores/attach_download/348/267
- Hishamshah, M., Ramzan, M., Rashid, A.K., Wan Mustaffa, W.N.H., Haroon, R. & Badaruddin, N.B. (2010) Belief and practices of traditional postpartum care among a rural community in Penang Malaysia. *The Internet Journal of Third World Medicine*, 9(2), 1-9. <https://doi.org/10.5580/49f>
- Hopman, P., Heins, M.J., Rijken, M. & Schellevis, F.G. (2015). Health care utilisation of patients with multiple chronic diseases in the Netherlands: Differences and underlying factors. *European Journal of Internal Medicine*, 26(3), 190-196. <https://doi.org/10.1016/j.ejim.2015.02.006>

- Institute for Public Health (IPH). (2015). *National health and morbidity survey 2015 (NHMS 2015), Volume IV: Traditional & complementary medicine*. <http://www.moh.gov.my/moh/resources/NHMS2015-VolumeIV.pdf>
- Jamshed, S.Q., Khan, M.U., Ahmad, A., Elkalmi, R.M. (2016) Knowledge, perceptions, and attitudes toward complementary and alternative medicines among pharmacy students of a Malaysian Public University. *Journal of Pharmacy and Bioallied Sciences*, 8(1), 34. <https://doi.org/10.4103/0975-7406.171686>
- Johny, A.K., Cheah, W.L. & Razitasham, S. (2017) Disclosure of Traditional and Complementary Medicine Use and Its Associated Factors to Medical Doctor in Primary Care Clinics in Kuching Division, Sarawak, Malaysia. *Evidence-Based Complementary and Alternative Medicine*, 2017, 5146478. <https://doi.org/10.1155/2017/5146478>
- Kleijnen, J., Knipschild, P. & ter Riet, G. (1989). Garlic, onions and cardiovascular risk factors. A review of the evidence from human experiments with emphasis on commercially available preparations. *British Journal of Clinical Pharmacology*, 28(5), 535–544. <https://doi.org/10.1111/j.1365-2125.1989.tb03539.x>
- Lao, L., Bergman, S., Langenberg, P., Wong, R.H. & Berman, B. (1995) Efficacy of chinese acupuncture on postoperative oral surgery pain. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 79(4), 423-8. [https://doi.org/10.1016/S1079-2104\(05\)80121-0](https://doi.org/10.1016/S1079-2104(05)80121-0)
- Lee, G.B.W., Charn, T.C., Chewa, Z.H. & Ng, T.P. (2004). Complementary and alternative medicine use in patients with chronic diseases in primary care is associated with perceived quality of care and cultural beliefs. *Family Practice*, 21(6), 654-660. <https://doi.org/10.1093/fampra/cmh613>
- Liu, C., Yang, Y., Gange, S.J., Weber, K., Sharp, G.B., Wilson, T.E., Levine, A., Robison, E., Goparaju, L., Gandhi, M. and Merenstein, D. (2009). Disclosure of complementary and alternative medicine use to health care providers among HIV-infected women. *AIDS Patient Care and STDs*, 23(11), 965-971. <https://doi.org/10.1089/apc.2009.0134>
- Malaysian Medical Council, Ministry of Health, Malaysia (2001) National policy on traditional/complementary medicine, Malaysia. <https://www.mps.org.my/html/National%20Policy%20on%20Tra%20Med%20Malaysia.pdf>
- Medagama, A.B. & Bandara, R. (2014). The use of complementary and alternative medicines (CAMs) in the treatment of diabetes mellitus: Is continue or effective? *Nutrition Journal*, 13, 102. <https://doi.org/10.1186/1475-2891-13-102>
- Merriam, S. & Muhamad, M. (2013). Roles traditional healers play in cancer treatment in Malaysia: implications for health promotion and education. *Asian Pacific Journal of Cancer Prevention*, 14(6), 3593-3601. <https://doi.org/10.7314/APJCP.2013.14.6.3593>
- Mohd Razali, S. & Muhammad Najib, M.A. (2000). Help-seeking pathways among Malay psychiatric patients. *International Journal of Social Psychiatry*, 46(4), 281-289. <https://doi.org/10.1177/002076400004600405>
- Mohd Zaki, N.A., Rasidi, M.N., Awaluddin, S.M., Tee, G.H., Ismail, H., Mohamad Nor, N.S. (2018) Prevalence and characteristic of dietary supplement users in Malaysia: data from the Malaysian Adult Nutrition Survey (MANS) 2014. *Global Journal of Health Science*, 10(12), 127-135. <https://doi.org/10.5539/gjhs.v10n12p127>
- Mwaka, A.D., Tusabe, G., Orach, C.G., & Vohra, S. (2018) Turning a blind eye and a deaf ear to TCM practice does not make it go away: A qualitative study exploring perceptions and attitudes of stakeholders towards the integration of TCM into medical school curriculum in Uganda. *BMC Medical Education*, 18(1), 310. <https://doi.org/10.1186/s12909-018-1419-4>
- National Center for Health Statistics. (2007). *National Health Interview Survey (NHIS): 2007 data release [online]*. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2007/althealt_freq.pdf
- Nordin, M.S. and Zakaria, N.H. (2016). Plants used for medicines by the indigenous Malay of Pahang, Malaysia. *Medicinal Plants-International Journal of Phytomedicines and Related Industries*, 8(2), 137-145. <https://doi.org/10.5958/0975-6892.2016.00017.4>
- Othman, C.N., Farooqui, M., Che Lamina, R.A. & Din, N. (2012). Malay traditional massage therapy (MTMT) seeking behaviours among Malays for their chronic diseases-case study. *Procedia-Social and Behavioural Sciences*, 50, 591-601. <https://doi.org/10.1016/j.sbspro.2012.08.062>
- Ohemu, T.L., Sariem, C.N., Dafam, D.G., Ohemu, B.O., Okwori, V.A., Olotu, P.N. & Jerome, C. (2017). Knowledge, attitude and practice of traditional medicine among people of Jos North local government area of Plateau state, Nigeria. *International Journal of Pharmacognosy and Phytochemical Research*, 9(10), 1353–1358.
- Orme-Johnson, D.W. & Herron, R.E. (1997) An innovative approach to reducing medical care utilisation and expenditures. *American Journal of Managed Care*, 3(1), 135–44.
- Saxe, G.A., Madlensky, L., Kealey, S., Wu, D.P.H., Freeman, K.L., & Pierce, J.P. (2008). Disclosure to physicians of CAM use by breast cancer patients: findings from the women’s healthy eating and living study. *Integrated Cancer Therapies*, 7(3), 122-129. <https://doi.org/10.1177/1534735408323081>

- Sirois, F., Riess, H. and Upchurch, D. (2017). Implicit Reasons for Disclosure of the Use of Complementary Health Approaches (CHA): A Consumer Commitment Perspective. *Annals of Behavioral Medicine*, 51(5), 764–774. <https://doi.org/10.1007/s12160-017-9900-6>
- Siti, Z.M., Tahir, A., Ida Farah, A., Ami Fazlin, S.M., Sondi, S., Azman, A.H., Maimunah, A.H., Haniza, M.A., Siti Haslinda, M.D., Zulkarnain, A.K., Zakiah, I. and Wan Zaleha, W.C. (2009). Use of traditional and complementary medicine in Malaysia: A baseline study. *Complementary Therapies in Medicine*, 17(5), 292-299. <https://doi.org/10.1016/j.ctim.2009.04.002>
- Sridhar, S.B., Shariff, A., Al Halabi, N., Sarmini, R., Harb, L.A. (2017). Assessment of Perception, Experience, and Information-seeking Behavior of the Public of Ras Al-Khaimah, United Arab Emirates, Toward Usage and Safety of Complementary and Alternative Medicine. *J Pharm Bioallied Sci.*, 9(1), 48-55. https://doi.org/10.4103/jpbs.JPBS_337_16
- Szabadi, E. (2006). Book review of *St. John's Wort and its active principles in depression and anxiety*, by Walter E. Müller (Ed.). *British Journal of Clinical Pharmacology*, 62(3), 377-378. <https://doi.org/10.1111/j.1365-2125.2006.02692.x>
- Traditional and Complementary Medicine Division, Ministry of Health Malaysia. (2009). *Traditional and complementary medicine practice guidelines on Malay massage*. <http://tcm.moh.gov.my/en/upload/garispenduan/amalan/MALAYTRADITIONAL.pdf>
- Traditional and Complementary Medicine Division, Ministry of Health Malaysia. (2011). *A handbook of traditional and complementary medicine programme in Malaysia*. <https://docplayer.net/20026471-A-handbook-of-traditional-and-complementary-medicine-programme-in-malaysia.html>
- Wan Farzana Fasya, W.H., Devita. V.D., Nurul Ain, A., Noor Amanina, S., Suriani, I. & Rosliza, A.M. (2017). The use of traditional Malay massage and traditional Malay herbs in Malaysia: a review. *International Journal of Public Health and Clinical Sciences*, 4(5), 24-37.
- World Health Organization (WHO). (2002). *WHO traditional medicine strategy 2002-2005*. <https://apps.who.int/medicinedocs/en/d/Js2297e/5.3.html>
- Wu, M.S., Chen, K.H., Chen, I.F., Huang, S.K., Tzeng, P.C., Yeh, M.L., Lee, F.P., Lin, J.G., Chen, C.F. (2016) The efficacy of acupuncture in postoperative pain management: A systematic review and meta-analysis. *PLoS One*, 11(3), e0150367. <https://doi.org/10.1371/journal.pone.0150367>
- Zhang, B., Xu, H., Wang, J., Liu, B., & Sun, G. (2017) A narrative review of non-operative treatment, especially traditional Chinese medicine therapy, for lumbar intervertebral disc herniation. *BioScience Trends*, 11(4), 406-417. <https://doi.org/10.5582/bst.2017.01199>
- Zhang, Q. (2015). Traditional and Complementary Medicine in Primary Health Care. In A. Medcalf, S. Bhattacharya, H. Momen, et al.(Eds.), *Health For All: The Journey of Universal Health Coverage*. Orient Blackswan. <https://www.ncbi.nlm.nih.gov/books/NBK316267/?report=reader>

Knowledge, Attitude, and Compliance to Standard Precautions Among Universiti Malaysia Sarawak Nursing Students

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ABSTRACT

Standard precautions pertain to the minimum standards of infection prevention practices that apply to patient care, regardless of confirmed or suspected infection status among patients in any setting where medical care is given. These practice guidelines not only help to minimize the spread of infection among patients but also help to avoid healthcare workers from contracting infections when caring for patients. Nursing students are equally at risk to exposure to infections during their clinical attachments in the healthcare setting. Hence, this study aims to assess the level of knowledge, attitude, and compliance toward standard precautions among undergraduate nursing students in Universiti Malaysia Sarawak. It also aims to identify the associations between knowledge, attitude, and compliance toward standard precautions among Universiti Malaysia Sarawak nursing students. Data was collected from a total of 167 participants using a self-administered questionnaire which was disseminated online via Google Forms. The data collection tool consisted of a 46-item structured questionnaire in 4-parts investigating participant's sociodemographic profile, knowledge, attitude and compliance towards standard precautions. Study participants consisted of students from the Bachelor of Science in Nursing (with honours) Programme in Universiti Malaysia Sarawak. Data collected were entered into a Microsoft Excel spreadsheet and was further analyzed using IBM SPSS version 26. The majority of the study participants demonstrated very good (46.7%, n=78) and good level of knowledge (50.9%, n=85) levels while only a minority demonstrated a fair level of knowledge (2.4%, n=4) with none exhibiting low knowledge levels toward standard precautions. Most nursing students (97.6%, n=163) investigated in this study showed positive attitudes toward standard precaution practices. Most study participants self-reported their compliance toward standard precaution practices to be high (89.8%, n=150) with a minority reporting average (7.8%, n=13), low (0.6%, n=1) and very low (1.8%, n=3) compliance respectively. Further analyses revealed significant correlations between knowledge and attitude ($r = .165, p = .033, p < .05$); and attitude and compliance ($r = -.505, p = .000, p < .05$) with no significant correlations between knowledge and compliance ($r = -.036, p = .645, p > .05$). Undergraduate nursing students of Universiti Malaysia Sarawak in this study demonstrated desirably good knowledge levels and positive attitudes with a high level of compliance toward standard precaution practices. Despite the overall desirable findings, there is still room for targeted improvements in the undergraduate programme delivery specifically aimed at misconceptions regarding the use of personal protection equipment (PPE) to maintain and further enhance student's knowledge, attitudes and compliance toward standard precautions.

Keywords: Knowledge, attitude, compliance, standard precautions

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INTRODUCTION

Standard precautions or also known as universal precautions was coined by the Centre for Disease Control and Prevention (CDC) in 1996. Standard precautions pertain to the minimum standards of infection prevention practices that apply to patient care, regardless of confirmed or suspected infection status among patients in any setting where medical care is given (Centre for Disease Control and Prevention, 2018). According to Zeb et al. (2019), these practice guidelines not only help to minimize the spread of infection among patients but also help to prevent healthcare workers from contracting infections when caring for patients. The five main domains in standard precautions include hand hygiene, use of Personal Protective Equipment (PPE), safe injection practices, safe handling and cleaning of

contaminated equipment, and respiratory hygiene or cough etiquette (Labrague et al., 2012). According to Almoghrabi et al. (2018), hand hygiene is the simplest, and perhaps the most effective action to avoid infections linked to healthcare. Even though hand rubs are useful and convenient in healthcare settings for hand hygiene, it does not substitute hand washing completely. When hands are soiled with blood, or body fluids, hand washing with soap and water should be practised (Centre for Diseases Control and Prevention, 2018). Studies have also suggested relationships between improving hand hygiene practices and reducing infection rates (Almoghrabi et al., 2018). Personal protective equipment (PPE) refers to wearable equipment including gloves, face mask, protective eyewear, face shields, and protective clothing designed to protect healthcare workers from exposure to or contact with infectious agents (Centre for Diseases Control and Prevention, 2018). Safe injection practice is another aspect of standard precaution defined as not harming the recipient, not exposing the provider to risk, and avoiding waste disposal which endangers the community. Safe injection practices are established to minimize risks to both healthcare personnel and patients when preparing and administering parenteral medications (Centre for Diseases Control and Prevention, 2018). Infection control measures for respiratory hygiene or cough etiquette are intended to restrict the spread of respiratory pathogens via means of droplet and airborne transmission (Centre for Diseases Control and Prevention, 2018).

Beyamo et al. (2019) explained that occupational exposure to blood and body fluids is a serious concern for healthcare staff and poses a substantial possibility for spreading blood-borne infections such as human immune-deficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV). Healthcare providers are regularly exposed to microorganisms that can cause extreme or even fatal infections. In particular, nurses are frequently exposed to a myriad of infections during the period of nursing practices. Likewise, during their clinical practice sessions, nursing students are often at risk of such illnesses and accidents because of inadvertent contamination. According to Angaw et al. (2019), in developing countries, over 90 percent of these infections are estimated to occur among healthcare workers and healthcare students. Therefore, appropriate standard precautions should be practised among the healthcare workers so that healthcare facilities do not become the source of infection and epidemic (Beyamo et al., 2019). This study aims to ascertain the current knowledge levels, attitudes, and compliance of nursing students towards standard precautions.

MATERIAL & METHODS

This study was conducted at the Faculty of Medicine and Health Sciences of Universiti Malaysia Sarawak, Malaysia. The study employed a quantitative cross-sectional design. In this study, total population sampling was used to achieve the objectives of the study. The study involved a total of 167 undergraduate nursing students ranging from year 2 to 4 of their studies. Permission to conduct the study was sought from the Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak. Full disclosure of the purpose and objectives of the study were detailed in the information sheet accompanying the questionnaire distributed to participants. Informed consent was obtained from individual respondents. Respondents' privacy and anonymity were assured with no use of personal details tracing back to individual respondents in the data collection. Respondents were afforded the right to withdraw from the study at any time without penalty or repercussion. Permissions to utilize the study instruments were obtained from the respective original authors.

The instrument used in this study consisted of an online self-administered questionnaire which was piloted prior to use in the actual study. The questionnaire was presented in English. The questionnaire consisted of four sections namely Part (A) socio-demographic data, Part (B) knowledge on standard precautions, Part (C) attitude toward standard precautions, and Part (D) Compliance with standard precautions. Part A collected data on the participant's socio-demographics which consisted of respondent's age, gender and year of study. Part B consisted of 18-items about knowledge toward standard precautions which were adopted from Labrague et al. (2012). Knowledge was measured using an 18-item dichotomous scale which assessed 3 domains mainly hand hygiene, nosocomial infections, and standard precautions. The possible responses were Yes or No. "Yes" responses were scored as 1, and "No" responses were scored as 0. A total score from 16 to 19 was considered Very Good Knowledge, a score between 12 to 15 Good Knowledge, a score of 8 to 11 was considered Fair Knowledge, and a score range between 0 to 7 was considered Poor Knowledge. Reliability testing of the instrument returned a Cronbach's Alpha value of 0.742. Part C consists of questions based on attitude toward standard precautions. This part of the questionnaire was adopted from Mohd-Nor and Bit-Lian (2019) and consisted of 13 items that included both positive and negative attitude statements. The answers were measured using a 5-point Likert scale with responses ranging from 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree. Respondents who achieved a mean score between 2.5 to 5 were considered to possess positive attitudes and mean scores between 0 to 2.4 were considered negative attitudes (Mohd-Nor & Bit-Lian, 2019). The total mean and standard deviations of the total possible score of between 15 to 75 were

used to determine attitude levels (Mohd-Nor & Bit-Lian, 2019). Part D consisted of 15 questions assessing the compliance with standard precautions adopted from Labrague et al. (2012). Items were measured using a 5-point Likert scale ranging between: 0 never, 1 seldom, 2 sometimes, 3 usually, and 4 always. The total possible scores ranged between 0 to 68. Respondents who achieved a mean score of between 3.51 to 4.00 were considered to have High compliance, 2.51 to 3.50 as Average Compliance, 1.51 to 2.50 as Low Compliance, and 0 to 1.50 as Very Low Compliance (Labrague et al., 2012). Reliability testing on this part returned a Cronbach’s Alpha value of 0.726.

Data Analysis Method

Data analyses were carried out using SPSS version 26. Descriptive statistics were used to present categorical data (gender, year of study, each response according to items). Continuous data (age, level of knowledge, attitude, and compliance score) were calculated to obtain their mean and standard deviations. Statistical significance for association between knowledge, attitude, and compliance of (NAME OF INSTITUTE) nursing students to standard precautions were tested using Spearman’s Rank Order Correlation. (Laerd Statistics, 2018).

RESULTS

Table 1 shows the socio-demographic characteristics of the study participants. A total of 167 responses were included for data analyses in this study. Out of 167 participants, 27 (16.2%) participants were males, and 140 (83.8%) participants were females. There were 25.7% (n= 43) of nursing students aged 21 years old and below, 40.7% (n= 68) of nursing students aged 22 years old, and 33.5% (n= 56) of nursing students aged 23 years old above participated in this study. There were a total of 32.9% (n=55) participants from Year 2, 37.7% (n=63) participants from Year 3 and 29.3% (n=55) participants from Year 4.

Table 1. Socio-Demographic Characteristics of Participants (N=167)

Characteristic	n (%)	Range (mean ± SD)
Age (years)		1.08 (±0.768)
21 years old and below	43 (25.7%)	
22 years old	68 (40.7%)	
23 years old and above	56 (33.5%)	
Gender		
Male	27 (16.2%)	
Female	140 (83.8%)	
Years of Study		
Year 2	55 (32.9%)	
Year 3	63 (37.7%)	
Year 4	49 (29.3%)	

Knowledge on Standard Precautions

Table 2 shows the distribution of participants’ knowledge on standard precautions. The majority of respondents (n=162, 97.0%) agreed that invasive procedures increase the risk of nosocomial infection, while 92.8% (n=155) believed that advanced age or very young age also contributes to the risk of nosocomial infection. With regards to the goals of standard precautions, the majority of respondents (n=166, 99.4%) knew that the ultimate goal of standard precautions was to protect both healthcare workers and patients from transmission of infection, while 3.6% (n=6) disagreed that standard precautions only applied to patients. 135 (n=80.8%) respondents believed that standard precautions are intended to protect only the patients from infections. Regarding knowledge on hand hygiene, 98.2% responded that hand hygiene is recommended before and after contact with patients, while half of the respondents (n=108, 64.7%) reported that hand hygiene is recommended before or after contact with patients. All the respondents (n=167, 100%) agree with the use of gloves when there is a risk of contact with the blood or body fluid, while 46.1% (n=77) think that gloves should be used for all procedures. Finally, the vast majority of respondents (n=167,100%) were aware that healthcare staff must wear masks, goggles, and gowns when there is a chance of blood and body fluids splashing or spraying.

Table 3 presents the cumulative scores of the respondents on the questionnaires on standard precautions. Nearly half (n=85, 50.9%) of the respondents scored within the scored range of 12 to 15 which is interpreted as “Good Knowledge”, while 46.7% (n=78) scored within the score range of 16-19 which is interpreted as “Very Good Knowledge”. In

general, Universiti Malaysia Sarawak nursing students possess “Good Knowledge” on standard precautions with a weighted mean score of 41.75.

Table 2. The Distributions of Participant on Knowledge of Standard Precautions (N=167)

No.	Knowledge Items	Yes	No
		n (%)	n (%)
<i>1. Nosocomial Infection</i>			
a.	Advanced age or very young age increases the risk of nosocomial infection.	155 (92.8%)	12 (7.2%)
b.	Invasive procedures increases the risk of nosocomial infection	162 (97.0%)	5 (3.0%)
<i>2. Precautions standards</i>			
a.	Include the recommendations to protect only the patients.	135 (80.8%)	32 (19.2%)
b.	Include the recommendations to protect the patients and the healthcare workers.	166 (99.4%)	1 (0.6%)
c.	Apply for all patients.	161 (96.4%)	6 (3.6%)
d.	Apply for only healthcare workers who have contact with body fluid.	111 (66.5%)	56 (33.5%)
<i>3. When is hand hygiene recommended?</i>			
a.	Before or after a contact with (or care of) a patient.	108 (64.7%)	59 (35.3%)
b.	Before and after a contact with (or care of) a patient.	164 (98.2%)	3 (1.8%)
c.	Between patient contact.	138 (82.6%)	29 (17.4%)
d.	After removal of gloves.	164 (98.2%)	3 (1.8%)
<i>4. The standard precautions recommended use of gloves?</i>			
a.	For each procedure.	77 (46.1%)	90 (53.9%)
b.	When there is a risk of contact with the blood or body fluid.	167 (100%)	0 (0%)
c.	When there is risk of a cut.	19 (11.4%)	148 (88.6%)
d.	When healthcare workers have cutaneous lesions.	160 (95.8%)	7 (4.2%)
<i>5. When there is a risk of splashes or spray of blood and body fluids, the healthcare workers must wear?</i>			
a.	Only mask	159 (95.2%)	8 (4.8%)
b.	Only eye protection.	161 (96.4%)	6 (3.6%)
c.	Only a gown.	161 (96.4%)	6 (3.6%)
d.	Mask, goggles, and gown.	167 (100%)	0 (0%)

Table 3. Level of Knowledge of Standard Precautions among Universiti Malaysia Sarawak Nursing Students.

No.	Level of Knowledge	Score Range	n	%
1.	Very Good Knowledge	16-19	78	46.7%
2.	Good Knowledge	12-15	85	50.9%
3.	Fair Knowledge	8-11	4	2.4%
4.	Poor Knowledge	0-7	0	0%
Average score =			41.75	

Attitude towards Standard Precautions

Table 4 shows the participants’ responses on attitude towards standard precautions. The aim of standard precautions, hand hygiene, the use of personal protective equipment (PPE) in various situations, environmental cleaning, and water disposal were among the questions posed. Nearly half of participants (n=77, 46.1%) agree with the statement that standard precautions are not easy to follow. This shows that the respondents show a negative attitude toward standard precautions as only 3.6 % (n=6) strongly disagree that standard precautions are not easy to follow. The majority of respondents agree that standard precautions can prevent the spread of infections and prefer to wash their hands before and after any intervention with patients with 70.7% (n=118) and 52.1% (n=66.5%) respectively. For the use of personal protective equipment (PPE), 52.1% (n=87) respondents who responded “strongly agree” to the statement stated that infectious diseases can be treated hence protective devices are not required. Nearly half of respondents (n=67, 40.1%) also agree that personal protective equipment can be used during emergencies and 18% (n=30) of respondent strongly disagree with the statement that it is difficult to work wearing personal protective equipment. A significant percentage of respondents responded “strongly agree” to the statement that changes of gloves is not

necessary during procedures even if heavily contaminated (58.1%, n=97) and should not use goggles, mask and other devices because it may harm patients psychologically (48.5%, n=81). It was also observed that 49.7% (n=83) of respondents strongly agreed that stationeries, telephones, and doorknobs are not sources of infection. The majority of respondents strongly agree that all healthcare providers should ensure the availability of adequate protective barriers and adequate disinfection of medical equipment with attitude rates of 58.1% (n=97) and 62.3% (n=104) respectively. Finally, almost all of the respondents (n=108, 64.7%) knew that transmission of the infectious organism can be reduced by adhering to standard and contact precautions and 52.7% (n=88) of respondents strongly agree that segregation of clinical and non-clinical waste is useful to prevent transmission of infections from one to another.

Table 5 shows the cumulative scores of the respondents on the questionnaire of attitude toward standard precautions. The majority of Universiti Malaysia Sarawak nursing students (n=163, 97.6%) scored within the mean score range of 5.0-2.5 which is interpreted as having a “Positive Attitude” while 2.4% (n=4) respondents scored within the mean range of 2.4-0 which is interpreted as having a “Negative Attitude”. In general, Universiti Malaysia Sarawak nursing students possess a “Positive Attitude” toward standard precautions with a weighted mean score of 41.75. The mean scores for each year of study were 40.62 (± 6.211), 41.33 (± 5.781), and 43.57 (± 4.937) for Year 2, Year 3, and Year 4 respectively (Table 6).

Table 4. The Distributions of Participant on Attitude towards Standard Precautions (N=167).

No.	Attitude Items	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
		n (%)	n (%)	n (%)	n (%)	n (%)
1.	Standard precautions is not easy to follow.	6 (3.6%)	28 (16.8%)	19 (11.4%)	77 (46.1%)	37 (22.2%)
2.	Standard precautions can prevent spread of infections from patients to healthcare workers and vice versa.	1 (0.6%)	0 (0%)	5 (3%)	43 (25.7%)	118 (70.7%)
3.	Infectious diseases can be treated hence protective devices are not required.	5 (3%)	6 (3.6%)	15 (9%)	54 (32.3%)	87 (52.1%)
4.	Prefers to wash hands before and after any intervention with patients.	1 (0.6%)	3 (1.8%)	4 (2.4%)	48 (28.7%)	111 (66.5%)
5.	Personal protective equipment can be used during emergencies.	3 (1.8%)	7 (4.2%)	33 (19.8%)	67 (40.1%)	57 (34.1%)
6.	Changes of gloves is not necessary during procedures even if heavily contaminated.	4 (2.4%)	5 (3%)	15 (9%)	46 (27.5%)	97 (58.1%)
7.	It is difficult to work wearing personal protective equipment.	30 (18%)	35 (21%)	52 (31.1%)	41 (24.6%)	9 (5.4%)
8.	All healthcare providers should ensure availability of adequate protective barriers.	1 (0.6%)	1 (0.6%)	9 (5.4%)	59 (35.3%)	97 (58.1%)
9.	Should not use goggles, masks, and other devices because it may harm patients psychologically.	2 (1.2%)	7 (4.2%)	19 (11.4%)	58 (34.7%)	81 (48.5%)
10.	Stationeries, telephone and door knobs are not sources of infections.	3 (1.8%)	7 (4.2%)	21 (12.6%)	53 (31.7%)	83 (49.7%)

Table 4. The Distributions of Participant on Attitude towards Standard Precautions (N=167) (Contd.)

11.	Segregation of clinical and non-clinical waste is useful to prevent transmission of infections from one to another.	1 (0.6%)	6 (3.6%)	21 (12.6%)	51 (30.5%)	88 (52.7%)
12.	Adequate disinfection of medical equipment should be ensured by all healthcare providers.	0 (0%)	0 (0%)	11 (6.6%)	52 (31.1%)	104 (62.3%)
13.	Transmission of infectious organism can be reduced by adhering to standard and contact precautions.	1 (0.6%)	1 (0.6%)	7 (4.2%)	50 (29.9%)	108 (64.7%)

Table 5. Level of Attitude of Standard Precautions among Universiti Malaysia Sarawak nursing students.

No.	Level of Attitude	n	%
1.	Positive Attitude	163	97.6%
2.	Negative Attitude	4	2.4%
Total=		167	100%

Table 6. The Distribution of Mean on Attitude of Universiti Malaysia Sarawak Nursing Students towards Standard Precautions.

No.	Year of Study	Minimum score	Maximum score	Mean Score (SD)
1.	Year 2	26	52	40.62 (±6.211)
2.	Year 3	26	51	41.33 (± 5.781)
3.	Year 4	33	51	43.57 (± 4.937)
Total Mean :				41.75 (±5.792)

Compliance towards Standard Precautions

Table 7 depicts the information obtained from the respondents regarding their compliance activities toward standard precautions.

The majority of the respondents (n=153, 91.6%) reported washing their hands immediately after contacting any blood, body fluids, secretion, excretion, and dirty substances, and more than half washed their hands when coming in contact with different patients (n=126, 75.4%) and after taking off the gloves (n=139, 83.2%). When it comes to wearing gloves, the vast majority of respondents do so when disposing of stool and urine (n=158, 94.6%), handling the mucosa of patients (n=155, 92.8%), saliva and sputum (n= 154, 92.2%), and come in contact with blood (n= 157, 94%). However, 1.8% (n=3) of respondents reported not wearing gloves when cleaning blood traces, which indicated a lower compliance level. The majority of the nursing students or respondents adhere to wearing masks and protective suits or gowns when performing procedures that might induce spraying of blood, body fluids, secretions, and excretions with a compliance rate of 92.8% (n=155) and 81.4% (n=136). However, a significant percentage of non-compliance (n=10, 6%) was noted, with respondents saying that they seldom use protective eyewear. With regards to proper care of used needles, 92.8% (n=155) of the nursing students reported disposing of needles and blades in the sharp disposal box or receptacle after use.

Table 8 shows the cumulative scores of the respondents on the questionnaire of compliance toward standard precautions. 89.8% (n=150) of the respondents scored within the mean score range of 3.51-4.00 which is interpreted as “High Compliance”, 7.8% (n=13) scored within the mean score range of 2.51-3.50 which is interpreted as “Average Compliance”, 0.6% (n=1) scored within the mean score range of 1.51-2.50 which is interpreted as “Low Compliance”, while 1.8% (n=3) scored within the mean score range of 0-1.50 which is interpreted as “Very Low Compliance”. It can be concluded that Universiti Malaysia Sarawak nursing students have a “High Compliance” of standard

precautions with a grand mean of 3.7892 (\pm 0.5436). The mean score for each year of study was 3.8764 (\pm 0.3211), 3.7048 (\pm 0.6472), and 3.8000 (\pm 0.5889) for Year 2, Year 3, and Year 4 respectively (Table 9).

Table 7. The Distributions of Participant on Compliance toward Standard Precautions (N= 167).

No.	Compliance Items	Always	Usually	Sometimes	Seldom	Never
		n (%)	n (%)	n (%)	n (%)	n (%)
1.	Washes hands when comes in contact with different patients.	126 (75.4%)	33 (19.8%)	5 (3%)	0 (0%)	3 (1.8%)
2.	Washes hands after taking off the gloves.	139 (83.2%)	21 (12.6%)	2 (1.2%)	0 (0%)	5 (3%)
3.	Washes hand immediately after contacting any blood, body fluids, secretion, excretion and dirty substances.	153 (91.6%)	7 (4.2%)	4 (2.4%)	1 (6%)	2 (1.2%)
4.	Wears gloves when drawing blood samples.	151 (90.4%)	10 (6%)	2 (1.2%)	1 (0.6%)	3 (1.8%)
5.	Wears gloves when disposing stool and urine.	158 (94.6%)	5 (3%)	1 (0.6%)	1 (0.6%)	2 (1.2%)
6.	Wears gloves when handling impaired patient skin.	138 (82.6%)	14 (8.4%)	5 (3%)	5 (3%)	5 (3%)
7.	Wears gloves when handling patients' mucosa.	155 (92.8%)	8 (4.8%)	1 (0.6%)	1 (0.6%)	2 (1.2%)
8.	Wears gloves when handling saliva or sputum culture.	154 (92.2%)	6 (3.6%)	3 (1.8%)	0 (0%)	4 (2.4%)
9.	Wears gloves when dressing wounds.	158 (94.6%)	3 (1.8%)	2 (1.2%)	2 (1.2%)	2 (1.2%)
10.	Wears gloves when cleaning blood traces.	155 (92.8%)	7 (4.2%)	2 (1.2%)	0 (0%)	3 (1.8%)
11.	Wears gloves when comes in contact with blood.	157 (94%)	6 (3.6%)	1 (0.6%)	1 (0.6%)	2 (1.2%)
12.	Wears mask when performing operations/procedures that might induce spraying of blood, body fluids, secretions and excretions.	155 (92.8%)	6 (3.6%)	2 (1.2%)	2 (1.2%)	2 (1.2%)
13.	Wears protective eye patch or goggles when performing operations/procedures that might induce spraying of blood, body fluid, secretions and excretions.	124 (74.3%)	18 (10.8%)	9 (5.4%)	10 (6%)	6 (3.6%)
14.	Wears protective suit or gown when performing operations/procedures that might induce spraying of blood, body fluid, secretions and excretions.	136 (81.4%)	20 (12%)	5 (3%)	4 (2.4%)	2 (1.2%)
15.	Disposes needles and blades in a sharp disposal box or receptacle after using.	155 (92.8%)	8 (4.8%)	2 (1.2%)	0 (0%)	2 (1.2%)

Table 8. Level of Compliance of Standard Precautions among Universiti Malaysia Sarawak Nursing Students

No.	Level of Compliance	n	%
1.	High Compliance	150	89.8%
2.	Average Compliance	13	7.8%
3.	Low Compliance	1	0.6%
4.	Very Low Compliance	3	1.8%
Total =		167	100%

Table 9. The Distribution of Mean Score on Compliance of Universiti Malaysia Sarawak Nursing Students towards Standard Precautions.

No.	Year of Study	Minimum score	Maximum score	Mean Score (SD)
1.	Year 2	2	4	3.8764 (± 0.3211)
2.	Year 3	0	4	3.7048 (± 0.6472)
3.	Year 4	0	51	3.8000 (± 0.5889)
Total mean score :				3.7892 (± 0.5436)

Association between Knowledge, Attitude and Compliance towards Standard Precautions

The association between level of knowledge, attitude and compliance to standard precautions among Universiti Malaysia Sarawak nursing students was investigated using Spearman's Rank Order Correlation. Table 10 shows that there is a weak positive correlation between the knowledge of standard precautions and attitude toward standard precautions with $r = .165$, $n = 167$, $p = .033$, $p < 0.05$. Thus, the level of knowledge of standard precautions is correlated with the attitude of Universiti Malaysia Sarawak nursing students towards standard precautions. There is also a weak negative correlation between the knowledge and compliance variable, but no significant correlation between the knowledge of standard precautions and compliance of Universiti Malaysia Sarawak nursing students toward standard precautions [$r = -.036$, $n = 167$, $p = .645$, $p > .05$]. Thus, the level of knowledge of standard precautions is not correlated with the attitude of Universiti Malaysia Sarawak nursing students toward standard precautions. There is a weak negative correlation between the level of attitude and level of compliance with a significant correlation found between the level of attitude and level of compliance of Universiti Malaysia Sarawak nursing students toward standard precautions, $r = -.505$, $n = 167$, $p = .000$, $p < .05$. Thus, these results show that the level of compliance is correlated with Universiti Malaysia Sarawak nursing students' attitude toward standard precautions.

Table 10. Association between Knowledge, Attitude and Compliance toward Standard Precautions.

Variable		Knowledge	Attitude	Compliance
Knowledge	Correlation Coefficient	1.000	.165*	-.036
	Sig. (2-tailed)	-	.033	.645
	N	167	167	167
Attitude	Correlation Coefficient	.165*	1.000	-.505**
	Sig. (2-tailed)	.033	-	.000
	N	167	167	167
Compliance	Correlation Coefficient	-.036	-.505**	1.000
	Sig. (2-tailed)	.645	.000	-
	N	167	167	167

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

DISCUSSION

Knowledge on Standard Precautions

Findings from this study indicated that the Universiti Malaysia Sarawak nursing students were knowledgeable on standard precautions with 46.7% demonstrating very good knowledge, 50.9% good knowledge, 2.4% fair knowledge with none demonstrating poor knowledge levels. The findings from this study are also similar to the findings from Labrague et al. (2012) where the majority of respondents (89.7%) had good knowledge about standard precautions. Similarly, the study by Kim et al. (2001) also found that knowledge of standard precautions was better among the nursing students when compared to other students. A separate study by Vaz et al. (2010) also showed that 90.0% of nursing students knew about standard precautions. On the level of hand washing when dealing with patients, 98.2% of respondents knew that they should perform hand washing before and after contact with patients. However, this result is in contrast with the findings from a study by Abou El-Mein and El-Mahdy (2018) where only 47.1% of their respondents knew that hand washing should be done before and after patient care. According to Mohd-Nor and Bit-Lian (2019), a study in Iran showed that 97.9% of respondents were aware that hand washing is an important method to control the spreading of infection from patients to nursing students and vice versa. The findings suggest that the nursing school's curriculum and syllabus play an integral role in equipping nursing students with fundamental

knowledge which forms the basis of effective and current standard precaution practices (Mohd-Nor & Bit-Lian, 2019).

Attitude towards Standard Precautions

Universiti Malaysia Sarawak nursing students demonstrated overall positive attitudes towards standard precautions with a mean score of 41.75 (± 5.792). The majority of 97.6% of nursing students reported having a positive attitude towards standard precautions, with a mere 2.4% of nursing students reporting negative attitudes toward standard precautions. These findings were similar to the results from a study by Mohd-Nor and Bit-Lian (2019), where 70% of respondents reported good attitudes. These findings are also consistent with the result of Singh et al. (2010), where most students demonstrated good attitudes toward standard precautions and believe infection control measures to be necessary. However, a study by Permana & Hidayah (2017) did report a contrasting finding where students reported negative attitudes towards the implementation of standard precautions. Permana and Hidayah (2017) further reiterated that the attributable reasons could be the lack of guidelines in the application of standard precautions and the lack of equipment provided by the hospital. Further according to Permana and Hidayah (2017), improvement in attitude among nursing students is compulsory in order to prevent the spread of hospital-acquired infection. Therefore, nursing students can improve their attitudes by getting used to applying standard precautions when giving care to patients.

Compliance towards Standard Precautions

The study findings revealed that nursing students from Universiti Malaysia Sarawak had high compliance (n=150, 89.8%) towards standard precautions with only 1.8% (n=3) of them reporting “very low compliance” towards standard precautions. The findings from this study are similar to the studies by Labrague et al. (2012), where the respondents also showed high compliance to standard precautions with a mean score of 3.59. This might be due to stringent monitoring done by the faculty relative to standard precautions practices during clinical rotations (Labrague et al., 2012). Therefore, they were able to monitor and follow up closely with their students during the performance of standard precautions compliances. However, this result is in contrast with findings from a study by Lam et al. (2010), where results indicated low compliance levels toward standard precautions, except in certain areas such as disposal of sharp instruments, use of gloves while handling the blood, and other body fluids. Lam et al. (2010) further explained that although standard precautions was a mandatory and serious topic in the nursing curriculum, it was still implemented insufficiently, inappropriately, and even selectively. Therefore, low to very low compliance which are represented by 2.4% of respondents in the study could be attributed to several factors such as deficiencies in the overall curricular and syllabus and insufficient clinical monitoring and mentoring by clinical supervisors and staff.

Association between Knowledge, Attitude and Compliance toward Standard Precautions

In this study, a lack of significant association was found between the knowledge and compliance with standard precautions. The findings suggests that knowledge of standard precautions does not necessarily affect the compliance and application in practice by the nursing students. These findings are similar to a study by Labrague et al. (2012) where no significant association was found between those two variables. This result, however, contradicts findings by Kim et al. (2001), who found that experience is associated with the use of standard precautions in their study. This could have been attributed to the lectures and clinical practice in the fundamental nursing course which highlights the importance of aseptic techniques, infection control, and standard precautions (Kim et al., 2001). The result from this study also contradicts the findings from other authors that firmly suggest that knowledge of standard precautions was positively correlated with compliance, suggesting that the greater the knowledge of students on standard precautions, the better their compliance toward standard precautions (Labrague et al., 2012). Furthermore, studies by Luo et al. (2010) also stated that knowledge of standard precautions was found to exert a great impact on the individual's compliance with standard precautions. Hence, it shows that nursing students' compliance toward standard precautions is more likely affected by their level of knowledge on standard precautions since lack of knowledge is the main reason for non-adherence to standard and isolation precautions (Sax et al., 2005). This study also revealed that there is a significant correlation between knowledge of standard precautions and attitude toward standard precautions among Universiti Malaysia Sarawak nursing students. This suggests that the nursing student's attitude toward standard precautions will be affected by their knowledge of standard precautions. This is consistent with the findings from the study done by Mohd-Nor and Bit-Lian (2019) which states that knowledge affects attitude and it is required to initiate the process that culminates in attitude. Thus, the provision of education and training courses on standard precautions could be considered important to ensure the continuity of a good attitude toward standard precautions among nursing students (Mohd-Nor & Bit-Lian, 2019). The study findings further suggests that there is a weak negative significant correlation between the level of attitude toward standard precautions and compliance toward standard precautions. This suggests that a positive attitude toward standard precautions is associated with high compliance toward standard

precautions among nursing students. Similarly, Askarian et al. (2004), found attitude to be one of the more significant factors influencing compliance with standard precautions. These findings are similar to those of Permana and Hidayah (2017), who found that good attitude is a precursor to good practice of standard precautions. In summary, students' attitudes toward standard precautions play a significant role in affecting their compliance with standard precautions.

CONCLUSION

In conclusion, this study found that majority of the undergraduate nursing students from the Bachelor of Science in Nursing (with honours) Programme in Universiti Malaysia Sarawak demonstrated very good (46.7%, n=78) and good knowledge (50.9%, n=85) towards standard precautions with desirably positive attitudes (97.6%, n=163) and high levels of compliance (89.8%, n=150) overall towards standard precaution practices.

This study revealed no significant correlation between the level of knowledge of standard precautions and level of compliance toward standard precautions with $r = -.036$, $n=167$, $p = .645$. However, there was a significant correlation between the knowledge of standard precautions and attitude toward standard precautions with $r = .165$, $n=167$, $p = .033$. A significant correlation was also observed between the attitude toward standard precautions and compliance toward standard precautions among Universiti Malaysia Sarawak nursing students with $r = -.505$, $n=167$, $p = .000$. Hence, higher knowledge levels on standard precautions may be a precursor to positive attitudes while better attitudes would also contribute to better compliance in standard precaution practices. Despite the overall desirable findings, there is still room for targeted improvements in the undergraduate programme delivery specifically aimed at misconceptions regarding the use of personal protection equipment (PPE) to maintain and further enhance student's knowledge, attitudes and compliance toward standard precautions. While the current study provides baseline data for undergraduate nursing students in Universiti Malaysia Sarawak, the study can be advanced further with the inclusion of nursing students from other institutions for generalizability of the findings to a wider population.

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REFERENCES

- Almoghribi, R., Aldosari, N., Bakhsh, A., Al Garni, F., Alseragi, E., & Omer, T. (2018). Standard precaution among nurses in primary health care centers: Knowledge and compliance. *IOSR Journal of Nursing and Health Science*, 7(4), 57-63.
- Amin, T. T., Al Noaim, K. I., Saad, M. A. B., Al Malhm, T. A., Al Mulhim, A. A., & Al Awad, M. A. (2013). Standard precautions and infection control, medical students' knowledge and behavior at a Saudi university: the need for change. *Global Journal of Health Science*, 5(4), 114. <https://doi.org/10.5539/gjhs.v5n4p114>
- Angaw, D. A., Gezie, L. D., & Dachew, B. A. (2019). Standard precaution practice and associated factors among health professionals working in Addis Ababa government hospitals, Ethiopia: a cross-sectional study using multilevel analysis. *BMJ Open*, 9(10), e030784. <https://doi.org/10.1136/bmjopen-2019-030784>
- Balami, L. G., Ismail, S., Saliluddin, S. M., & Garba, S. H. (2017). Role of knowledge and attitude in determining standard precaution practices among nursing students. *International Journal of Community Medicine and Public Health*, 4(2), 560-564. <https://doi.org/10.18203/2394-6040.ijcmph20170291>
- Beyamo, A., Dodicho, T., & Facha, W. (2019). Compliance with standard precaution practices and associated factors among health care workers in Dawuro Zone, South West Ethiopia, cross sectional study. *BMC Health Services Research*, 19, 381. <https://doi.org/10.1186/s12913-019-4172-4>
- Cambridge University Press (2021). Attitude. In *Cambridge Advanced Learner's Dictionary & Thesaurus*. <https://dictionary.cambridge.org/dictionary/english/attitude>
- Cambridge University Press (2021). Knowledge. In *Cambridge Advanced Learner's Dictionary & Thesaurus*. <https://dictionary.cambridge.org/dictionary/english/knowledge>

- Cambridge University Press (2021). Compliance. In *Cambridge Advanced Learner's Dictionary & Thesaurus*. <https://dictionary.cambridge.org/dictionary/english/compliance>
- Centers for Diseases Control and Prevention. (2018). Standard Precautions. Retrieved from <https://www.cdc.gov/oralhealth/infectioncontrol/summary-infection-prevention-practices/standard-precautions.html>
- Cherry, K., (2019). *How Does the Cross-Sectional Research Method Work?* Verywell mind. <https://www.verywellmind.com/what-is-a-cross-sectional-study-2794978#:~:text=A%20cross%2Dsectional%20study%20involves,on%20particular%20variables%20of%20interest>
- Cheung, K., Chan, C. K., Chang, M. Y., Chu, P. H., Fung, W. F., Kwan, K. C., Lau, M.Y., Li, W.K. & Mak, H. M. (2015). Predictors for compliance of standard precautions among nursing students. *American Journal of Infection Control*, 43(7), 729-734. <https://doi.org/10.1016/j.ajic.2015.03.007>
- Darawad, M. W., & Al-Hussami, M. (2013). Jordanian nursing students' knowledge of, attitudes towards, and compliance with infection control precautions. *Nurse Education Today*, 33(6), 580-583. <https://doi.org/10.1016/j.nedt.2012.06.009>
- Donati, D., Biagioli, V., Cianfrocca, C., De Marinis, M. G., & Tartaglini, D. (2019). Compliance with standard precautions among clinical nurses: Validity and reliability of the Italian version of the Compliance with Standard Precautions Scale (CSPS-It). *International Journal of Environmental Research and Public Health*, 16(1), 121. <https://doi.org/10.3390/ijerph16010121>
- García-Zapata, M. R. C., e Souza, A. C. S., Guimarães, J. V., Tipple, A. F. V., Prado, M. A., & García-Zapata, M. T. A. (2010). Standard precautions: knowledge and practice among nursing and medical students in a teaching hospital in Brazil. *International Journal of Infection Control*, 6(1). <https://doi.org/10.3396/ijic.v6i1.005.10>
- Glenn, S. (2018). *Total Population Sampling*. Statistics How To. <https://www.verywellmind.com/what-is-a-cross-sectional-study-2794978#:~:text=A%20cross%2Dsectional%20study%20involves,on%20particular%20of%20interest>
- Hamid, M. Z. A., Aziz, N. A., Anita, A. R., & Norlijah, O. (2010). Knowledge of blood-borne infectious diseases and the practice of universal precautions amongst health-care workers in a tertiary hospital in Malaysia. *Southeast Asian Journal of Tropical Medicine and Public Health*, 41(5), 1192.
- Kim, K. M., Kim, M. A., Chung, Y. S., & Kim, N. C. (2001). Knowledge and performance of the universal precautions by nursing and medical students in Korea. *American Journal of Infection Control*, 29(5), 295-300. <https://doi.org/10.1067/mic.2001.114837>
- Labrague, L. J., Rosales, R. A., & Tizon, M. M. (2012). Knowledge of and compliance with standard precautions among student nurses. *International Journal of Advanced Nursing Studies*, 1(2), 84-97. <https://doi.org/10.14419/ijans.v1i2.132>
- Laerd Statistics (2018). *Spearman's Rank Order Correlation using SPSS Statistics*. <https://statistics.laerd.com/spss-tutorials/spearman-rank-order-correlation-using-spss-statistics.php>
- Lam, S. C., Fung, E. S. S., Hon, L. K. Y., Ip, M. P. Y., & Chan, J. H. T. (2010). Nursing students' compliance with universal precautions in Hong Kong. *Journal of Clinical Nursing*, 19(21-22), 3247-3250. <https://doi.org/10.1111/j.1365-2702.2010.03419.x>
- Lam, S. C. (2014). Validation and cross-cultural pilot testing of compliance with standard precautions scale: self-administered instrument for clinical nurses. *Infect Control Hosp Epidemiol*, 35(5), 547-55. <https://doi.org/10.1086/675835>
- Luo, Y., He, G. P., Zhou, J. W., & Luo, Y. (2010). Factors impacting compliance with standard precautions in nursing, China. *International Journal of Infectious Diseases*, 14(12), e1106-e1114. <https://doi.org/10.1016/j.ijid.2009.03.037>
- Mohd-Nor, N., & Bit-Lian, Y. (2019). Knowledge, Attitude and Practices of Standard Precaution among Nurses in Middle-East Hospital. *SciMedicine Journal*, 1(4), 189-198. <https://doi.org/10.28991/SciMedJ-2019-0104-4>
- Permana, M. A. B., & Hidayah, N. (2017). The influence of health workers' knowledge, attitude and compliance on the implementation of standard precautions in preventions of hospital-acquired infections at PKU Muhammadiyah Bantul Hospital. *Journal of Hospital & Medical Management*, 3(2), 16-21. <https://doi.org/10.4172/2471-9781.100035>
- Pereira, F. M. V., Lam, S. C., Chan, J. H. M., Malaguti-Toffano, S. E., & Gir, E. (2015). Difference in compliance with Standard Precautions by nursing staff in Brazil versus Hong Kong. *American Journal of Infection Control*, 43(7), 769-772. <https://doi.org/10.1016/j.ajic.2015.03.021>

- Sax, H., Perneger, T., Hugonnet, S., Herrault, P., Chraïti, M. N., & Pittet, D. (2005). Knowledge of standard and isolation precautions in a large teaching hospital. *Infection Control and Hospital Epidemiology*, 26(3), 298-304. <https://doi.org/10.1086/502543>
- Talas, M. S. (2009). Occupational exposure to blood and body fluids among Turkish nursing students during clinical practice training: frequency of needlestick/sharp injuries and hepatitis B immunisation. *Journal of Clinical Nursing*, 18(10), 1394–1403. <https://doi.org/10.1111/j.1365-2702.2008.02523>
- Tavolacci, M. P., Ladner, J., Bailly, L., Merle, V., Pitrou, I., & Czernichow, P. (2008). Prevention of nosocomial infection and standard precautions: knowledge and source of information among healthcare students. *Infection Control and Hospital Epidemiology*, 29(7), 642-647. <https://doi.org/10.1086/588683>
- Zeb, A., Muhammad, D., & Khan, A. (2019). Factors Affecting Nurses' Compliance to Standard Precautions in Resource Scarce Settings. *American Journal of Biomedical Science & Research*, 4(5). <https://doi.org/10.34297/AJBSR.2019.04.000840>

COVID-19: Mental Health and Academic Performance Among University Students

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ABSTRACT

Mental health status may contribute differently to academic outcome. Hence, the main objective of this study is to assess the association of mental health with academic performance in online learning. Online learning involves time and space separation between the instructors and the learners, depending fully on the collaboration of digital technologies and online telecommunication system. This research applied a quantitative research method, using a survey-based questionnaire, namely 12-Item General Health Questionnaire (GHQ-12) for mental health status and students' current grade point average (GPA). A total of 140 undergraduates from all faculties who experienced online learning in University Malaysia Sarawak (UNIMAS) were invited and their demographic profiles were analysed through the descriptive and correlational analysis using Spearman correlation tests. Results showed a significant relationship between mental health and undergraduate students' academic performance. Specifically, the loss of confidence factor was the only mental health factor that demonstrated a significantly negative, but weak correlation with their GPA. Hence, according to the findings from this research, it can be concluded that the higher the score for mental health status, the higher the tendency for the students to experience negative mental illness. Consequently, this affects their academic performances.

Keywords: Well-being, academic performance, asynchronous learning, mental health

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INTRODUCTION

Academic performance has been one of the indicators of how well a student learns, takes in, and applies knowledge in their examinations. Since the Movement Control Order (MCO) was first announced on the 18th of March 2020, most of the academic institutes in Malaysia are forced to shut down their campuses and adapt to a full online learning environment, evolving from the traditional learning method. In view of the Covid-19 pandemic, students heavily relied on online resources (i.e., learning materials such as lecture notes, journal articles and related documents) and in doing so, they need excellent network and connectivity. However, a high-speed internet access comes with a price. Most of the rural and remote areas suffer from poor digital coverage as well as impaired network speed. And to subscribe to internet data plans, it requires a substantial amount of income resources, which is difficult for underprivileged students from rural and remote areas whose family members' income is limited (e.g., B40 households whose monthly income is less than RM4800.00). Moreover, ownership of the latest technological device (e.g., smartphones, tablets, computers, or laptops) is beyond their means. Hence, the efficiency of this online learning is unknown and a majority of the students are concerned and worried about its implementation though it was the only available alternative (Nguyen & Pham, 2020).

To better maintain academic grades, students' self-regulation plays a role to manage academic performance (Wandler & Imbriale, 2017). As most of the past studies emphasized on the capability and potential of traditional and blended learning, there is still limited study on the effectiveness of educating and delivering knowledge via online platforms. Some researchers found that students who were involved in blended learning performed better than those who learned under the conventional classroom setting (Keller, Hassell, Webber, & Johnson, 2009; Paul & Jefferson, 2019). McCutcheon, O'Halloran & Lohan (2018) suggested that blended learning is more effective as the participants scored better as compared to those who learned through the online learning approach. Regardless of where the learning process occurs, having a stable emotion contributes greatly to the students' academic results. Past research revealed that a student's mental health status was strongly correlated with their educational performance (Bostani, Nadri, Nasab; 2014; Khanam & Bukhari, 2015; Samouei, Fooladvand, Janghorban, & Khorvash, 2015; Shankar & Park, 2016).

Many researchers have found that students tend to adopt maladaptive or dysfunctional coping mechanisms rather than adaptive traits like seeking social help, mostly caused by embarrassment and the fear of being judged by professionals, and suspicion towards treatment efficacy as well as wariness about the effectiveness of the treatment plan (Benjet, 2020; Hunt & Eisenberg, 2010; Liang, *et al.*, 2020). In accordance with the findings of Kamaludin *et al.* (2020) regarding Malaysian undergraduates' coping mechanism in response to the MCO, they chose to accept and get accustomed to the stressors in their lives, rather than seek psychological assistance from others for the sake of protecting their "self-esteem" and ego since they are pressured by the social stigma that disclosing one's emotions is a sign of weakness or vulnerability.

To date, evidence is lacking as to whether student academic performances will be affected by online learning due to the pandemic as most research focused more on the economic sector as a result of COVID-19 (Chudik, Mohaddes, Pesaran, Raissi, & Rebutti, 2020; Pak *et al.*, 2020). Also, there are limited studies that investigated the relationship between mental health and academic performance among undergraduate students during online learning (Son, Hegde, Smith, Wang, & Sasangohar, 2020). The undergraduate students were not particularly scrutinised, implying that the undergraduates were not the main target group when the researchers aimed to study the link between student academic achievement and their mental health during the pandemic. Researchers in the past also failed to study the students' academic performance in online learning as the traditional classroom setting was the main focus. It is crucial to examine the mental health of the undergraduates whether they are mentally stable attending online learning or if they encounter difficulties in response to the pandemic. Hence, this study hopes to shed light on the association between mental health and academic performance in online learning. Table 1 illustrates the research objectives, hypotheses and statistical analysis test for this study.

Table 1. Summary of research objectives, hypothesis and statistical analysis test

Research Objectives	Hypothesis	Statistical Analysis Test
To assess the association between mental health factors and the undergraduate students' academic performances in GPA	H _{a1} There is a significant relationship between mental health factors and the undergraduate students' academic performances in GPA	Spearman Rank- Order Correlation
To assess the association between mental health status and the undergraduate students' academic performances in GPA	H _{a2} There is a significant relationship between mental health status and the undergraduate students' academic performances in GPA	Spearman Rank- Order Correlation

Furthermore, this study strives to provide further understanding on the relationship between mental health factors (i.e., social dysfunction, anxiety and depression, loss of confidence), mental health status and academic performances of the undergraduates in online learning. The conceptual framework of this study is shown in Figure 1.

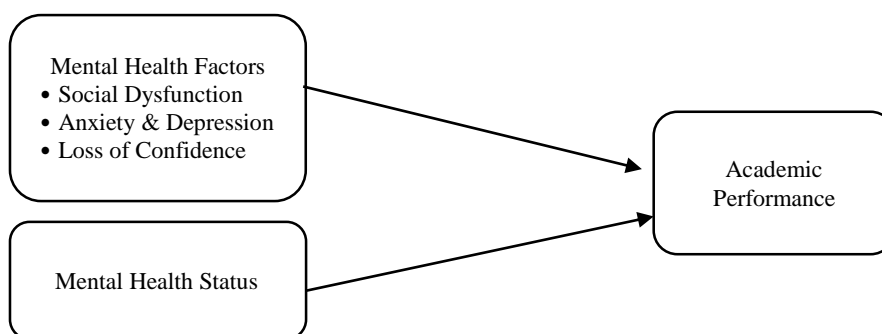


Figure 1. Conceptual framework of the relationship between mental health status, mental health factors and academic performance

MATERIALS & METHODS

This study employed a quantitative method for data gathering and analysis (Aliaga & Gunderson, 2002). The data for the present study was collected at the University of Malaysia Sarawak (UNIMAS) using a random sampling technique regardless of gender, age and geographical location. The sample population consisted of undergraduates from eight (8) different faculties in UNIMAS. A sample of 573 was needed for this study using the method proposed by Krejcie and Morgan (1970). A survey method was implemented using a set of questionnaires which was distributed via Google Form online. The random sampling technique was applied by sending out texts and survey links on social media platforms to ask for the respondents' consent regarding their willingness to participate. The questionnaires were divided into two sections, namely:

Section A: Demographic Factors

This section consists of basic questions regarding respondents' background. The academic performance is measured based on their current GPA for Semester 2, 2020/2021 where full online learning is implemented.

Section B: Health

In this study, health was measured using the General Health Questionnaire-12 (GHQ-12) developed by Goldberg and Williams (1988). This 12-item GHQ contains 3 factors namely social dysfunction, anxiety and depression, and loss of confidence.

a) Social dysfunction. There are six (6) items altogether, and each item was rated on a four-point Likert scale ranging from 0 (Better than usual) to 3 (Much worse than usual). An example of an item is "Have you recently been able to concentrate on whatever you're doing?".

b) Anxiety and depression. For anxiety and depression, all the four (4) items were rated on a four-point Likert scale ranging from 0 (Not at all) to 3 (More than usual). An example of an item is "Have you recently been feeling unhappy or depressed?".

c) Loss of confidence. For loss of confidence, a total of two (2) items were rated on a four-point Likert scale ranging from 0 = Not at all to 3 = More than usual. An example of an item is "Have you recently been losing confidence in yourself?".

In the present study, the total health score ranged from 0 to 36 was used to determine participants' mental health. The higher the score, the poorer the participants' mental health status.

Prior to data collection, a preliminary text message was created regarding the study. The message is linked to the questionnaires which was then disseminated via official WhatsApp group chat to all faculty's representatives. Respondents' consents were obtained, and data collection started from 1st of March 2021 until end of the month. They were also informed that their privacy will be kept confidential at all costs. All collected data is solely for research purposes and will not be disclosed to any parties without granted permission.

Data Analysis

Data were analyzed using *The Statistical Package for the Social Science (SPSS) version 27*. Descriptive statistics and Spearman correlation analysis were done to investigate if students' mental health (status and factors) affected their academic performance.

Validity and Reliability

For the GHQ-12 questionnaire, previous research has found that the questionnaire had high validity and reliability, measuring in terms of the Cronbach's Alpha value. Kashyap and Singh (2017) who applied the same questionnaire in the context of male tannery workers in Kanpur, India found that it yielded a high Cronbach's Alpha value of 0.93. This is consistent with the result by Hankins (2008) who had a similar result, namely 0.90. Other researchers had a similar finding as well whereby the value is around 0.82 to 0.88 though it was not as strong as compared to the previous findings (Golderberg & Williams, 1988; Petkovska, Bojadziev, & Stefanovska, 2015). In the perspective of Zulkefly and Baharudin (2010), the GHQ-12 questionnaire is considered reasonable, valid, and reliable to be applied as the analysis showed a Cronbach's Alpha of 0.70, which is satisfactory. As for validity, the GHQ-12 is valid and appears to be a good proxy for measuring psychological distress in Malaysia context (Noordin & Panatik, 2016; Yusoff, Fuad, & Yaacob, 2009). For this study, the researchers relied on face validity. It involved obtaining an expert's judgment who reviewed and determined the quality of the items (i.e., social

dysfunction, anxiety and depression, and loss of confidence) is reasonable measure (Babbie, 2020) of the chosen variables.

RESULTS

Demographic Information

Despite the required 573 sample size, only 140 students participated due to the difficulty to obtain participants during pandemic. Figure 2 presents the distribution of respondents by faculty. In terms of gender, female respondents ($n=106$) dominated their male ($n=34$) counterparts with a percentage of 75.7% and 24.3% respectively. For the faculty background, the highest participation was the Faculty of Cognitive Sciences and Human Development (FCSHD) with a total number of 69 students (49.3%), followed by Faculty of Economics and Business (FEB), $n=18$ (12.9%); Faculty of Computer Science and Information Technology (FCSIT), $n=12$ (8.6%); Faculty of Social Science and Humanity (FSSH), $n=9$ (6.43%); Faculty of Applied and Creative Arts (FACA) and Faculty of Engineering (FENG) with 8 respondents (5.71%, $n=8$) each, Faculty of Resource Sciences and Technology (FRST), $n=7$ (5%), Faculty of Building and Environment (FBE), and Faculty of Medicine and Health Sciences (FMHS), $n=4$ (2.9%), and Faculty of Language and Communications (FLC), $n=1$ (0.7%), respectively. The distribution of respondents by faculty is shown in Figure 2 below:

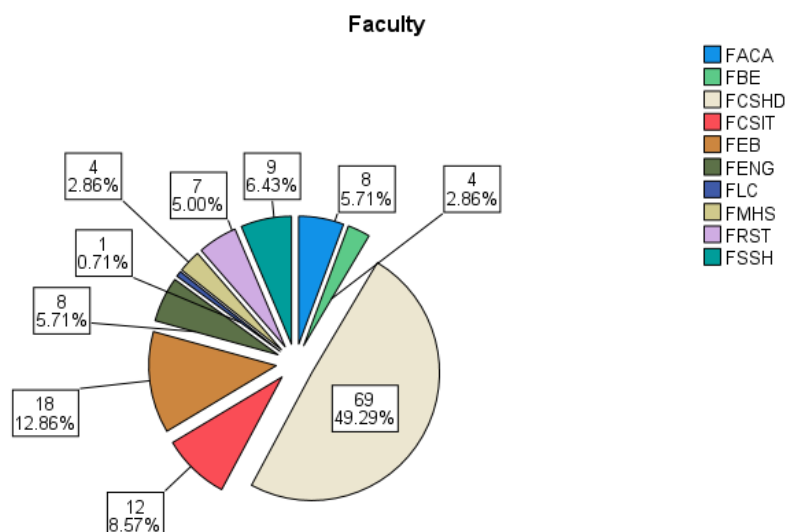


Figure 2. Distribution of respondents by faculty

In relation to the grade point average (GPA), majority of the students scored more than 3.49 ($n=77$, 55%), and only 2 students (1.4%) scored less than 2.00. Meanwhile, 39.3% ($n=55$) and 4.3% ($n=6$) scored in the category of 3.00-3.49 and 2.50-2.99 respectively, as shown in Table 2 below.

Table 2. Academic performance distribution of the respondents (GPA)

GPA	Frequency	Percent (%)
< 2.00	2	1.4
2.50 - 2.99	6	4.3
3.00 - 3.49	55	39.3
> 3.50	77	55.0
Total	140	100.0

Hypothesis Testing

H_{a1}: There is a significant relationship between mental health factors and the undergraduate students' academic performances in GPA

For mental health factors and academic performance, the result shows that only the third factor illustrate a statistically significant relationship with the GPA. Factor of Loss of Confidence (F3) shows a significant value with p -value = 0.005. However, $r = -0.238$ suggests that the relationship is negative and weak. In other words, the respondents' academic performance is expected to decline as their level of loss of confidence increases. For other factors, there are no significant correlational relationship found, as tabulated in Table 3.

Table 3. Spearman correlation between mental health status and mental health factors on academic performance (GPA).

		Correlation	
		<i>p</i>-value	<i>r</i>-value
Mental health status		.031	-.182*
Mental health factors			
(i)	Social dysfunction	.117	-.133
(ii)	Anxiety depression	.209	-.107
(iii)	Loss of confidence	.005	-.238*

*. Correlation is significant at the 0.05 level (2-tailed).

This is consistent with previous findings that suggest that students who experience predominantly negative mental health, particularly loss of confidence, tend to perform poorly in their studies, both at the local and international level (Adeoye, 2015; Afolayan, Donald, Onasoga, Babafemi, & Juan, 2013). Loss of confidence is found to be a significant predictor for lower academic performance, aside from social dysfunction, anxiety and depression factors. The fact that the students' loss of confidence has affected their grades in terms of GPA is supported by previous studies which suggest that self-confidence is an essential component that has a positive contribution to their learning process (Sharma, 2017; Akbari & Sahibzada, 2020). Restricted physical meet-ups prevents students from seeking effective help from friends, lecturers, or families. The universities' sudden shift from blended learning to full online learning has caused them to be anxious and uncertain about everything, including the effectiveness of online learning itself (Selvanathan, Hussin, & Azazi, 2020; Sundarasan *et al.*, 2020). It is reported that some university students worry about the effectiveness and usefulness of online learning as compared to traditional face-to-face learning and this further affects their confidence as to whether they will be satisfied with the provided modules and whether they can perform better (Landrum, 2020; Nguyen & Pham, 2020).

H_{a2}: There is a significant relationship between mental health status and the undergraduate students' academic performances in GPA

Table 3 also shows the Spearman correlation test with p -value of 0.031. This implies that there is a significant relationship between mental health status and undergraduate students' academic performances in GPA. Hence, the alternative hypothesis is accepted. Furthermore, Spearman's correlation coefficient (r -value) equals -0.182, depicting that both variables show a negative and weak correlation. This suggests that students' academic performance will be negatively affected, i.e., as the GHQ-12 scores acquired by the respondents show an increment, their academic performances will decline in terms of their GPA. This finding is in line with the Wang *et al.* (2020) study which reported that nearly 40% of the tertiary-level students are stressed out due to the sudden pandemic, experiencing difficulty in concentrating (90.74%), deteriorating academic performance (87.71%), difficulty in adapting to the distance learning (76.03%), and increase in the amount of workload (34.78%). Moreover, students who lacked confidence in using technology, experience difficulties to assess online materials or were unable to attend online lectures, may experience negative learning outcomes as they do not feel a sense of engagement cognitively and socially (Bower, 2019; Chaturvedi, Vishwakarma, & Singh, 2021).

Summary of the Result of Quantitative Analysis

Table 4 illustrates the summary of the analysis results carried out according to the research objectives and hypotheses.

Table 4. Summary of quantitative analysis results

Research Objectives	Hypothesis	Results
To assess the association between mental health factors and the undergraduate students' academic performances in GPA	H _{a1} There is a significant relationship between mental health factors and undergraduate students' academic performances in GPA	H _{a1} is accepted
To assess the association between mental health status and the undergraduate students' academic performances in GPA	H _{a2} There is a significant relationship between mental health status and undergraduate students' academic performances in GPA	H _{a2} is accepted

IMPLICATIONS

The COVID-19 pandemic has brought about a negative impact on university students psychologically and emotionally. The current findings provide important information for academic authorities in universities (e.g., Student Affairs Division), in that the mental health of undergraduate students has a significant effect on their academic performance during online learning sessions. The study also suggests that loss of confidence was highly correlated with the GPA of undergraduate students. In other words, the students' academic performance declined as there was a decrease in their confidence level. The COVID-19 pandemic had led to many uncertainties, leading many to experience a certain level of stress and anxiety. Also, the imposed social restrictions had forced everyone to minimise their physical contact with one another, and this led to social isolation. Such social disconnection affected tertiary-level students as they lost a sense of realism and human connection.

Hence, it is important to have supportive networks with others, such as friends, the university and families. According to past researchers, one's quality of life tends to elevate or improve when social support is received, and those who live alone are perceived to experience a higher level of anxiety and depression (Bolotov *et al.*, 2021; Elmer, Mepham, & Stadtfeld, 2020; Wei, 2020). In other words, it is important to have a supportive network such as friends and the university (Sundarasan *et al.*, 2020; Stempel, Alemi, Morgan, & Ingram, 2020) and from family (Abdullah, Murad, Teoh, & Mohamad, 2020). This research provides insight to the university management on the importance of students' mental status, as the neglect of it ruins the quality of students' life and their academic performance.

RECOMMENDATIONS AND CONCLUSION

The main findings of this research established that students' mental health should not be neglected. It not only affects their academic performances but also their quality of life. It is recommended that universities should raise student awareness on mental health by sharing informative tips, including how to recognise mental illness symptoms, how to approach peers with similar issues, and where to find support. Furthermore, universities are advised to put in extra effort by offering a full-day online support service so that every student can have access to consultation and therapeutic counselling from university counsellors or psychologists.

For first-year students, their emotional and psychological well-being is important too, considering that they are freshmen with no clear guidance from seniors since they are exposed to online learning for the first time and it is a brand new chapter of life for them. Hence, the Student Representative Council should consider recruiting volunteers to provide a helpline service to first-year students in navigating university life.

Lastly, it is recommended that future research be more comprehensive in the inclusion of more demographic factors such as household conditions, family financial status, geographical factors and private institutions, for a more accurate research outcome.

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First and foremost, I would like to express my deepest gratitude to my parents who have been supporting me emotionally and financially throughout my journey in University Malaysia Sarawak (UNIMAS), assisting me to complete my first Bachelor's degree. In preparing for this paper, I would like to extend special thanks to my supervisor. Her very dedicated guidance have contributed towards a better understanding of the present work, throughout which I have reaped very fruitful benefits, knowledge, and experience.

REFERENCES

- Abdullah, M. F. I. L. B., Murad, N. S., Teoh, S. H., & Mohamad, M. A. (2020). Quality of life of university students during the Covid-19 pandemic: Age, history of medical illness, religious coping, Covid-19 related stressors, psychological factors and social support were predictive of quality of life. *BMJ Open*, *11*(10), 1-12. <https://doi.org/10.21203/rs.3.rs-104496/v1>
- Adeoye, D. (2015). The relationship between anxiety and academic performance of postgraduate international students in a British university: A cross-sectional quantitative design. *Science Journal of Public Health*, *3*(3), 331-338. <https://doi.org/10.11648/j.sjph.20150303.15>
- Afolayan, J., Donald, B., Onasoga, O., Babafemi, A., & Juan, A. (2013). Relationship between anxiety and academic performance of nursing students, Niger Delta University, Bayelsa State, Nigeria. *Advances in Applied Science Research*, *4*(5), 25-33.
- Akbari, O., & Sahibzada, J. (2020). Students' self-confidence and its impacts on their learning process. *American International Journal of Social Science Research*, *5*(1), 1–15. <https://doi.org/10.46281/aijssr.v5i1.462>
- Aliaga, M. & Gunderson, B. (2002). *Interactive statistics*. Sage.
- Babbie, E. R. (2020). *The practice of social research*. Cengage Learning.
- Benjet, C. (2020). Stress management interventions for college students in the context of the Covid-19 pandemic. *Clinical Psychology: Science and Practice*. <https://doi.org/10.1111/cpsp.12353>
- Bolatov, A. K., Seisembekov, T. Z., Askarova, A. Z., Baikanova, R. K., Smailova, D. S., & Fabbro, E. (2021). Online-learning due to Covid-19 improved mental health among medical students. *Medical Science Educator*, *31*(1), 183-192. <https://doi.org/10.1007/s40670-020-01165-y>
- Bostani, M., Nadri, A., & Nasab, A. R. (2014). A study of the relation between mental health and academic performance of students of the Islamic Azad University Ahvaz Branch. *Procedia - Social and Behavioral Sciences*, *116*, 163–165. <https://doi.org/10.1016/j.sbspro.2014.01.186>
- Bower, M. (2019). Technology - mediated learning theory. *British Journal of Educational Technology*, *50*(3), 1035-1048. <https://doi.org/10.1111/bjet.12771>
- Chaturvedi, K., Vishwakarma, D. K., & Singh, N. (2021). Covid-19 and its impact on education, social life and mental health of students: A survey. *Children and Youth Services Review*, *121*, 1-6. <https://doi.org/10.1016/j.childyouth.2020.105866>
- Chudik, A., Mohaddes, K., Pesaran, M. H., Raissi, M., & Rebucci, A. (2020). A Counterfactual Economic Analysis of Covid-19 Using a Threshold Augmented Multi-Country Model. *SSRN Electronic Journal*, 1-38. <https://doi.org/10.2139/ssrn.3695670>
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the Covid-19 crisis in Switzerland. *PLOS ONE*, *15*(7).
- Golderberg, D., & Williams, P. (1988). *A user's guide to the general health questionnaire*. Windsor, UK: NFER-Nelson.
- Hankins, M. (2008). The reliability of the twelve-item general health questionnaire (GHQ-12) under realistic assumptions. *BMC Public Health*, *8*(1). <https://doi.org/10.1186/1471-2458-8-355>
- Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health*, *46*(1), 3-10. <https://doi.org/10.1016/j.jadohealth.2009.08.008>
- Kamaludin, K., Chinna, K., Sundarasan, S., Khoshaim, H. B., Nurunnabi, M., Baloch, G. M., Sukayt, A., & Hossain, S. F. A. (2020). Coping with Covid-19 and movement control order (MCO): Experiences of university students in Malaysia. *Heliyon*, *6*(11), e05339. <https://doi.org/10.1016/j.heliyon.2020.e05339>
- Kashyap, G. C., & Singh, S. K. (2017). Reliability and validity of general health questionnaire (GHQ-12) for male tannery workers: A study carried out in Kanpur, India. *BMC Psychiatry*, *17*(1). <https://doi.org/10.1186/s12888-017-1253-y>
- Keller, J. H., Hassell, J. M., Webber, S. A., & Johnson, J. N. (2009). A comparison of academic performance in traditional and hybrid sections of introductory managerial accounting. *Journal of Accounting Education*, *27*(3), 147-154. <https://doi.org/10.1016/j.jaccedu.2010.03.001>
- Khanam, S. J., & Bukhari, S. R. (2015). Depression as a predictor of academic performance in male and female university students. *Institute of Clinical Psychology*, *12*(2), 15.

- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>
- Landrum, B. (2020). Examining students' confidence to learn online, self-regulation skills and perceptions of satisfaction and usefulness of online classes. *Online Learning*, 24(3), 128-146. <https://doi.org/10.24059/olj.v24i3.2066>
- Liang, S. W., Chen, R. N., Liu, L. L., Li, X. G., Chen, J. B., Tang, S. Y., & Zhao, J. B. (2020). The psychological impact of the Covid-19 epidemic on Guangdong college students: The difference between seeking and not seeking psychological help. *Frontiers in Psychology*, 11, 1-10. <https://doi.org/10.3389/fpsyg.2020.02231>
- McCutcheon, K., O'Halloran, P., & Lohan, M. (2018). Online learning versus blended learning of clinical supervisee skills with pre-registration nursing students: A randomised controlled trial. *International Journal of Nursing Studies*, 82, 30-39. <https://doi.org/10.1016/j.ijnurstu.2018.02.005>
- Nguyen, H. & Pham, T. (2020). University world news. <https://www.universityworldnews.com/post.php?story=20200512154252178>
- Noordin, N.F., & Panatik, S.A. (2016). Psychometric analysis of general health questionnaires-12 in Malaysian banking context. *Sci. Int. (Lahore)*, 28(2), 1763-1768. <http://www.sci-int.com/pdf/636327813798032790.pdf>
- Pak, A., Adegboye, O. A., Adekunle, A. I., Rahman, K. M., McBryde, E. S., & Eisen, D. P. (2020). Economic consequences of the Covid-19 outbreak: The need for epidemic preparedness. *Frontiers in Public Health*, 8, 241. <https://doi.org/10.3389/fpubh.2020.00241>
- Paul, J. & Jefferson, F. (2019). A comparative analysis of student performance in an online vs. face-to-face environmental science course from 2009-2016. *Frontiers in Computer Science*, 1, 7. <https://doi.org/10.3389/fcomp.2019.00007>
- Petkovska, M. S., Bojadziev, M. I., & Stefanovska, V. V. (2015). Reliability, validity and factor structure of the 12-item general health questionnaire among general population. *Macedonian Journal of Medical Sciences*, 3(3), 478-483. <https://doi.org/10.3889/oamjms.2015.075>
- Samouei, R., Fooladvand, M., Janghorban, S., & Khorvash, F. (2015). Predicting the educational performance of Isfahan university students of medical sciences based on their behaviour profile, mental health and demographic characteristic. *Journal of Education and Health Promotion*, 4, 44-53.
- Selvanathan, M., Hussin, N. A. M., & Azazi, N. A. N. (2020). Students learning experiences during Covid-19: Work from home period in Malaysian higher learning institutions. *Teaching Public Administration, December 2020*, 1-10. <https://doi.org/10.1177/0144739420977900>
- Shankar, N. L., & Park, C. L. (2016). Effects of stress on students' physical and mental health and academic success. *International Journal of School & Educational Psychology*, 4(1), 5-9. <https://doi.org/10.1080/21683603.2016.1130532>
- Sharma R.R. (2017). A competency model for management education for sustainability. *Vision*, 21(2), x-xv. <https://doi.org/10.1177/0972262917700970>
- Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of Covid-19 on college students' mental health in the United States: Interview survey study. *Journal of Medical Internet Research*, 22(9), e21279. <https://doi.org/10.2196/21279>
- Stempel, C., Alemi, Q., Morgan, S., & Ingram, S. (2020, August 25). Examining the impact of Covid-19-related disruptions, dislocations and stressors on the academic performance of undergraduates at a diverse public university. <https://doi.org/10.31235/osf.io/8muwz>
- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B., Hossain, S. F. A., & Sukayt, A. (2020). Psychological impact of Covid-19 and lockdown among university students in Malaysia: Implications and policy recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206. <https://doi.org/10.3390/ijerph17176206>
- Wandler, J. B., & Imbriale, W. J. (2017). Promoting undergraduate student self-regulation in online learning environments. *Online Learning*, 21(2). <https://doi.org/10.24059/olj.v21i2.881>
- Wang, X., Hegde, S., Son, C., Keller, B., Smith, A., & Sasangohar, F. (2020). Investigating mental health of US college students during the Covid-19 pandemic: Cross-sectional survey study. *Journal of Medical Internet Research*, 22(9), e22817. <https://doi.org/10.2196/22817>
- Wei, M. (2020). Social distancing and lockdown - An introvert's paradise? An empirical investigation on the association between introversion and the psychological impact of Covid-19-related circumstantial changes. *Frontiers in Psychology*, 11, 561609. <https://doi.org/10.3389/fpsyg.2020.561609>
- Yusoff, M. S. B, Fuad, A. & Yaacob, M. J. (2009). The sensitivity, specificity and reliability of the Malay version 12-items general health questionnaire (ghq-12) in detecting distressed medical students. *ASEAN Journal of Psychiatry*, 11(1), 1-8.

Zulkefly, S. N., & Baharudin, R. (2010). Using the 12-item general health questionnaire (GHQ-12) to assess the psychological health of Malaysian college students. *Global Journal of Health Science*, 2(1).
<https://doi.org/10.5539/gjhs.v2n1p73>

Logos, pathos and ethos in Mahathir Mohamad's speeches during his comeback as prime minister of Malaysia

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ABSTRACT

The study examined rhetorical appeals in Mahathir Mohamad's speeches delivered during his comeback as the seventh prime minister of Malaysia. The specific aspects investigated were: (1) the extent to which the logos, pathos and ethos appeals were used; (2) the use of the active and passive voice in attribution of responsibility; and (3) the use of personal pronouns in the appeals. Six of Mahathir Mohamad's political speeches in Malay language delivered in 2018-2020 with a word-count of 13,000 words were analysed using Aristotle's rhetorical proofs. The results show that Mahathir Mohamad relied on logos (56.17%) and pathos (39.63%) but not ethos (4.20%). Mahathir Mohamad came across as a political leader who relied on argumentation and the positioning of himself as a spokesperson for the ruling coalition and the government, reflected in "*kita*" (we-inclusive) accounting for 50.26% of personal pronouns used. However, in the context of a distressing situation, he resorted to the pathos appeal and the frequent use of "I" to show personal interpretations. The passive voice and circumstantial referents were strategically used in disparaging remarks without identifying the doer. The study indicated that seasoned political leaders have a stable rhetorical style with flexibility to suit situations and audiences.

Keywords: Rhetoric, Aristotle's rhetoric theory, political speech, Mahathir Mohamad

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INTRODUCTION

Communication using rhetorical appeals to persuade frequently take place in advertisements, religious talks, and political speeches. The emotional appeal dominates in advertisements to convince customers to buy advertised products (Ab Rashid et al., 2016; Emanuel et al., 2015; Nair & Ndubisi, 2015; Robberson & Rogers, 1988). Persuasion is also at the core of communication in complaint letters (Al-Momani, 2014), requests (Chakorn, 2006; Ting, 2018), journal articles (Osman & Yusoff, 2019), and argumentative essays (Uysal, 2012). Even newspapers use a variety of rhetorical strategies to influence readers to believe that the government is handling socioeconomic issues well, as shown by Bakar and Hamzah's (2015) analysis of Utusan Malaysia and Sinar Harian. Rhetoric is the art of using language to achieve optimal effectiveness in conveying ideas and feelings, whether in speech or in writing (Abdulhamid, 2015; Dehan & Yaakob, 2015), with the ultimate goal of persuading the audience to change their way of thinking or to take certain desired actions (Enos & Brown, 1993). Rhetorics focuses on persuasion and words that contain hidden meanings (Brummett, 2000).

Many studies on the use of rhetorics in speeches have been based on Aristotle's rhetoric and Enos and Brown's (1993) modern rhetorical theory. Enos and Brown (1993) divide rhetorical strategies into narrative rhetoric, descriptions, disclosure, sequences, submissions, and explanations. Using this framework, Yaakob et al. (2018) analysed six religious talks given by popular Muslim speakers, namely, Ustaz Azhar Idrus, Ustaz Kazim Elias and Ustaz Don Daniyal Don Biyajid in 2012-2013. Their results showed an inclination towards the narrative rhetoric (29%) rather than descriptions, disclosure, sequences, submissions, and explanations. In Ustaz Kazim Elias's religious teachings in the Malay programme, "*Kalau Dah Jodoh Siri I*", Mansor et al. (2018) found that imaginative representatives (55%) were used more than scientific representations (45%), which is understandable as sermon is a religious genre. In another study, Razak et al. (2016) found that Sultan Muhammad V, the sultan of Negeri Sembilan, frequently stated feelings of hope in his speech delivered during the opening of the state assembly in 2010, 2012 and 2014. This is expected as the speech precedes the debate and decisions which, hopefully, would be good for the country. In three speeches delivered with the purpose of educating the public on the blue ocean strategy, Osman et al. (2017) found that persuasion was the most frequently used rhetorical appeal. Using Brooks and Warren's (1970) analysis framework, Osman et al. (2017) found that Dato' Seri Najib Tun Abdul Razak used rhetorical appeals differently from Tan Sri Dr. Ali Hamsa and Dato' Seri Chor Chee Heung.

Dato' Seri Najib Tun Abdul Razak used persuasion in the opening, body and conclusion of his speech, description in the introduction and conclusion, and exposition in the body of his speech. However, the other two politicians used persuasion throughout the speech, but exposition was also found in the body of their speeches.

Aristotle's (383-322 B.C.) rhetoric has been widely used to study political speeches, particularly speeches delivered by the head of the country. The three rhetorical appeals (logos, pathos and ethos) are appeals to logic, emotion and credibility respectively. Research have found that the pathos or emotional appeal works best in advertisements (Ab Rashid et al., 2016; Nair & Ndubisi, 2015) but similar findings are not available on political speeches. Choong (2002) analysed 36 utterances in the speech given by the Brunei king (Sultan Omar Ali Saifuddien III) on the issues of the Brunei constitution and the Malaysian Plan 1959-1963. The Brunei king relied on the logos appeal but used more invention strategies when talking about the constitution and more disposition strategies when talking about the Malaysia Plan. In the French presidential campaigns in 2002 and 2007, Mshvenieradze (2013) revealed that the presidential candidates used the ethos appeal differently. Jacques Chirac constructed himself as a leader who would work with the electorate to solve the problems of the country, reflected in the extensive use of "we". On the other hand, Nikolas Sarkozy presented himself as a capable leader with trustworthy plans for the country, and frequently used "I". Mori (2016) studied the speeches of three Iranian heads of state delivered at the United Nations General Assembly in 2015. Mori's (2016) findings showed that Rouhani relied on the ethos appeal, portraying his moral character and piety, but Netanyahu relied on the logos appeal. Abbas, on the other hand, extensively used the pathos appeal to create sympathy for the bad situation the Palestinians were in. The emotional appeal is useful to reach out to the voters' sensitive side, as revealed by Andronicuc (2016) who analysed the social media posts of a political candidate in Iohannis, Romania.

The Malaysian political leader that is most studied is Mahathir Mohamad. He was the fourth and the seventh prime minister of Malaysia. During his first term as the prime minister of Malaysia (1981-2003), researchers found a strong thread of logical appeal in his speeches (Alkhirbash, 2010; Lee, 2001). For instance, Lee (2001) analysed Mahathir Mohamad's speeches delivered at the United Malay National Organisation (UMNO) General Assembly in 1992, 1994 and 1996 using discourse analysis (Grimes, 1975). Out of the 1,032 sentences analysed, 13 rhetorical strategies were identified, and the most frequently used was information statement (29.5%) in the form of examples, generalisations, hypotheses, old information, and additional information. As the UMNO President, Mahathir Mohamad's main responsibility was to convey new and old information to party members, which makes it understandable why the least used rhetorical strategies were recall and politeness (0.4% each). Alkhirbash (2010) also analysed Mahathir Mohamad's speeches, and concluded that Mahathir Mohamad used the logos and pathos appeals more than the ethos appeal. The logical appeal was in the form of giving examples, statistics, facts, and metaphors, and Mahathir Mohamad came across as a competent and knowledgeable political leader who was aware of current issues. The analysis of the pathos appeal revealed that he showed respect and care for the welfare of people. Alkhirbash's (2010) analysis using Searle's (1969) Speech Theory showed that the assertives used to persuade were giving emphasis (insisting) and claiming while the directives used to get the audience to do something were suggesting and commanding.

However, less is known about Mahathir Mohamad's rhetorical style when he returned to be the seventh prime minister of Malaysia in 2018. This time around, he was leading the opposition coalition, Pakatan Harapan, and won the 14th General Election, breaking the monopoly of a 60-year rule by the Barisan Nasional coalition, which he had previously headed. However, his term was cut short when a political upheaval led to him tendering his resignation as the prime minister. There was a splinter in his political party which caused his coalition government to lose the majority to rule the country. Fatmawati et al. (2020) compared the speeches delivered in 1982, 1995, 1996, 1997, 1998, 1999, 2003, 2018, and 2019 by Mahathir Mohamad and Najib Razak. Fatmawati et al. (2020) concluded that Mahathir Mohamad exuded competence and concern about people's welfare in his speeches on "socio-political issues such as Islam and terrorism, wars, the situation of the Muslim world, domination by the West, and abuse of power" (p. 276). However, Shahrill Ramli and Hasan's (in press) paper was only a conceptual paper. In view of the passing of time and Mahathir Mohamad being on the other side of the partisan politics, it is important to examine his rhetorical style displayed through his speeches delivered in 2018-2020.

The study examined rhetorical appeals in Mahathir Mohamad's speeches delivered in Malay during his term as the seventh prime minister of Malaysia. The specific objectives of the study were to: (1) determine the extent to which the logos, pathos and ethos appeals were used in the speeches; (2) analyse the use of the active and passive voice in attribution of responsibility in the appeals in the speeches; and (3) analyse the use of personal pronouns in self-prominence in the appeals in the speeches.

THEORETICAL FRAMEWORK OF STUDY

The theoretical framework of this study on persuasion was taken from Aristotle's (388-322 B.C.) rhetoric, which consisted of *logos* (logical appeal), *pathos* (emotional appeal), and *ethos* (credibility appeal). Table 1 in the Method section shows the analysis framework based on Aristotle's conception of rhetoric and the definitions employed by researchers who have used his conception of rhetoric.

Logos is a rational appeal that derives its persuasive power from facts and evidence. What is paramount in the rational appeal is the clarity and integrity of arguments (Higgins & Walker, 2012). According to Gagich and Zickel (2018), speakers have to give strong arguments which are not one-sided to make a good logical appeal in speeches.

As for the *pathos* appeal, persuasion rests on appeals to emotions such as safety, love, guilt, greed, pity, and humour (Gabrielsen & Christiansen, 2010), anger, empathy, fear, confusion and insult (Mshvenieradze, 2013). To make an effective appeal to emotions, it is important for the speaker to identify with the "needs, values and desires of the audience" (Higgins & Walker, 2012, p. 198). To connect with the audience, the speaker needs to consider the status, age and other characteristics of the audience (Mshvenieradze (2013). To Al-Momani (2014), expressions of both positive and negative feelings can appeal to the audience such as admitting wrongdoing, expressing regrets, making promises, praising, and expressing gratitude. American Society for the Prevention of Cruelty to Animals (ASPCA) advertisements often show photographs of injured puppies and kittens looking sad to persuade the audience to give donations (Gagich & Zickel, (2018). Stories of a single mother struggling with life are effective in moving the audience to action (Gaiman, 1998).

Finally, the *ethos* appeal appeals to the character of the speaker (Demirdogen, 2010). Higgins and Walker (2012, p. 197) define *ethos* as the "persona, or projected character of a speaker/communicator, including their credibility and trustworthiness". Higgins and Walker (2012) stated that the speaker can build their power by appealing to shared common ground with the audience because this shows their respect for the audience's rights and feelings. Examples of phrases that achieves this effect "with your permission", "in my opinion" and "join me, if you would".

METHOD OF STUDY

The descriptive study involved content analysis of six speeches delivered by Mahathir Mohamad when he ruled Malaysia as the leader of the Pakatan Harapan (Alliance of Hope) coalition who won the 14th General Election on 9 May 2018.

Videos of Mahathir Mohamad's speeches delivered between 9 May 2018 and 27 February 2020 were downloaded from Youtube. The six speeches analysed were:

- 1) Speech delivered to ministers and citizens in Terengganu in his capacity as the chairperson of Parti Politik BERSATU Malaysia (PPBM) on 17 May 2018 (MM1).
- 2) Speech delivered at the General Debate of the 73rd Session of the United Nations General Assembly (UNGA) at New York on 29 September 2018 (MM2).
- 3) Ceramah Mega delivered to ministers and citizens at PD Waterfront, Port Dickson, Negeri Sembilan to help Anwar Ibrahim return after a crisis following the 1988 by-election on 9 October 2018 (MM3).
- 4) Speech delivered at the Annual General Meeting (AGM) of Parti Politik BERSATU Malaysia (PPBM) at Pusat Konvensyen Antarabangsa Putrajaya (PICC) on 29 December 2018 (MM4).
- 5) Special announcement as Interim Prime Minister in the headquarters of Parti Keadilan Rakyat (PKR) delivered to ministers from the PKR party on 26 February 2020 (MM5).
- 6) Announcement of Pakej Ransangan Ekonomi 2020 (Economic Stimulus Package) delivered to ministers and citizens in the capacity of Interim Prime Minister on 27 February 2020 (MM6).

The selection criteria for the speeches were as follows: (1) the speeches were delivered during his rule as the prime minister of Malaysia the second time (9 May 2018-28 February 2020); (2) the speeches were in Malay; and (3) the speeches were national level speeches, and hence speeches given during small gatherings were excluded. The six speeches had a word count of 13,000 words.

The analysis framework for rhetorical appeals were based on Aristotle's modes of persuasion which included *logos*, *pathos* and *ethos*. Table 1 shows the framework for rhetorical appeals in political speeches with definitions from other researchers who used Aristotle's (1954) framework (Al-Momani, 2014; Gagich & Zickel, 2018;

Gaiman, 1998; Higgins & Walker, 2012; Mshvenieradze, 2013; Ting, 2018). The examples are from the dataset in the present study.

Table 1. Framework for rhetorical appeals in political speeches based on Aristotle’s modes of persuasion

Rhetorical appeal and Definition	Indicator	Example
Logos - Appeal to logic, rationale and facts	<ul style="list-style-type: none"> • Uses argumentation, logic, claims and justifications • Presents data, evidence and examples • Questioning and wondering • May use factual language to reason when talking about behaviours or actions • May use linguistic connectors in arguments • Does not present personal interpretation 	<p><i>Buat beberapa abad negara telah perkenal Dasar Ekonomi Baru; dasar yang bertujuan mengurangkan jarak perpisahan antara kaum. Dasar ini telah menambah sedikit kejayaan dan kemajuan Bumiputera.</i></p> <p>For a few decades, our country has introduced the New Economic Policy; a policy that aims to reduce the divide among races. This policy has increased the success and progress of the Bumiputera a little.</p>
Pathos - Appeal to emotion	<ul style="list-style-type: none"> • Mentions feelings, needs, values, and wishes of the speaker or audience • Admits wrongdoing, express regret or requests • Makes promises • Gives praises • Expresses gratitude • Uses emotional words to manipulate the audience’s feelings • May use elements of safety, love, guilt, greed, pity, sympathy, humour, anger, fear, confusion and insult • May use metaphors for effect 	<p><i>Terlebih dahulu, saya mengucapkan terima kasih banyak-banyak kerana kata-kata manis yang ditujukan kepada diri saya. Terima kasihlah. Dulu semasa saya dekat nak berhenti, bila kapal terbang turunnya dia rosak, nampak ramai orang berkumpul di situ</i></p> <p>...</p> <p>First of all, I would like to say a big thank you for your sweet words directed at me. Thank you. Last time when I was about to stop, when the aeroplane was descending, there was a damage, saw a lot of people gathered there ...</p>
Ethos - Appeal to credibility and trust in the speaker or audience	<ul style="list-style-type: none"> • Shows the speaker as capable and close to citizens • Shows the good background of the speaker • Shows the speaker as an expert in a particular field • Shows that the speaker comes from the same group as the audience • Shows respect for rights and feelings of the audience • Appeals to ethics, that is, the character, personality and other characteristics of the speaker • May use phrases such as “in truth”, “in my opinion” 	<p><i>Saya bersyukur kerana dipanjang umur dan masih dapat terus memberi khidmat kepada negara.</i></p> <p>I am grateful because I am given long life and can still serve the country.</p>

The data on Mahathir Mohamad’s speeches were obtained by using the following search words: “Youtube”, “ucapan (speech) Tun Mahathir”, “ucapan Perdana Menteri terkini” (latest Prime Minister speech), and “Pengerusi (President) Pakatan Harapan”. Altogether six videos fulfilling the selection criteria were obtained and they were downloaded and transcribed. The speech transcripts focussed on the text and not non-verbal communication such as clapping, body language, intonation and laughter.

The unit of analysis was chunks of text showing a particular rhetorical appeal. Whether the text was a few words (e.g., “*malu tak*”) or a few sentences (e.g., Excerpt 2), they were coded as one instance. This is based on Feez’s (2003, p. 4) definition of text: “A text is any stretch of language which is held together cohesively through

meaning”. The three types of rhetorical appeals were identified with reference to the framework (Table 1). After the transcripts were coded, the frequencies and percentages of logos, ethos and pathos were computed.

RESULTS

In this section, the six speeches are referred to as MM1 to MM6. Table 2 shows the results on Mahathir Mohamad’s use of rhetorical appeals in his speeches. Altogether 381 instances of rhetorical appeals were identified in the six speeches, and Mahathir Mohamad was found to rely on logos (56.17%). Pathos was also frequently used (39.63%) but there were few ethos appeals (4.20%). Mahathir Mohamad used reasoning more than emotional or ethical appeal.

Table 2. Frequency and percentage of rhetorical appeals in Mahathir Mohamad’s speeches

Speech	Logos		Pathos		Ethos		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
MM1	49	59.04	33	39.76	1	1.20	83	100
MM2	38	67.86	17	30.36	1	1.78	56	100
MM3	26	49.05	23	43.40	4	7.55	53	100
MM4	75	54.75	55	40.15	7	5.10	137	100
MM5	5	27.78	11	61.11	2	11.11	18	100
MM6	21	61.77	12	35.29	1	2.94	34	100
Total	214	56.17	151	39.63	16	4.20	381	

Table 3 shows the results on personal pronouns in Mahathir Mohamad’s speeches. On average, Mahathir Mohamad’s speeches used the most “*kita*” (we-inclusive, 50.26%), followed by “*saya*” (I, 27.69%). This is the pattern for all the speeches, except MM5 where “*saya*” (I) accounted for 97.83% of the personal pronouns in the speech, and this anomaly will be explained in the context of the speeches later in this section. The third person pronoun “*mereka*” (they) was used to some extent (15.13%) but the third parties were mostly specifically referred to, either using name or descriptors like positions. Although using the second person pronoun is a strategy to connect with the audience, Mahathir Mohamad hardly used “you” in his speeches, and when he did, he chose the formal you (“*anda*”). The informal you (“*awak*”) was never used. “*Kami*” (we-exclusive) was hardly used (2.69%), compared to “*kita*” (we-inclusive), indicating mindfulness about not making the audience feel excluded.

Table 3. Frequency and percentage of personal pronouns in Mahathir Mohamad’s speeches

Speech	<i>saya</i> (I)		<i>kami</i> (we-exclusive)		<i>kita</i> (we-inclusive)		<i>anda</i> (you)		<i>mereka</i> (they)		Total
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
MM1	104	43.33	6	2.5	109	45.42	7	2.92	14	5.83	240
MM2	16	17.02	15	15.96	21	22.34	5	5.32	37	39.36	94
MM3	36	17.82	0	0	111	54.95	3	1.49	52	25.74	202
MM4	13	7.07	0	0	144	78.26	13	7.07	14	7.61	184
MM5	45	97.83	0	0	1	2.17	0	0	0	0	46
MM6	2	14.29	0	0	6	42.86	5	35.71	1	7.14	14
Total	216		21		392		33		118		780
Average		27.69		2.69		50.26		4.23		15.13	

Logos appeal

In all the six speeches, Mahathir Mohamad made argumentation using facts. For example, Excerpt 1 shows that in his opening remarks in the speech delivered at the second AGM of his BERSATU party half a year after the historic win of Pakatan Harapan, he said that it was a success in itself to meet at Putrajaya International Convention Centre (PICC) because previously, they could not get close to this (“*Dahulu, kita tidak pun dapat berdekatan di sini*”). PICC is a convention centre used for government events, and opposition parties could not use the facilities. Hence, Mahathir Mohamad brought up seemingly simple privileges like meeting in PICC for the AGM to remind his audience of the many big and small privileges that being in the ruling coalition brought. Through this, he implied the unprecedented success of an opposition party in becoming the ruling government.

Excerpt 1

- 1 ... Parti Pribumi Bersatu Malaysia di Pusat Konvensyen Antarabangsa Putrajaya (PICC) ini.
- 2 Berada di PICC ini pun adalah satu kejayaan. **Dahulu kita tidak pun dapat berdekatan di**
- 3 **sini.**
... Parti Pribumi Bersatu Malaysia in Putrajaya International Convention Centre (PICC). Being
in PICC in itself is a victory. **Previously we could not even get close here.** (MM4, 29
December 2018)

Mahathir Mohamad usually moved towards argumentation in the middle of his speech. Excerpt 2 shows the use of the logos appeal that is pre-empted by an appeal to emotion (“*Ini adalah kemenangan rakyat melawan rasuah*”, meaning This is the people’s victory in fighting against corruption). This pathos statement is not shown in Excerpt 2. This victory speech, titled Ceramah Mega in Youtube, was delivered right after the results of the 14th General Election were announced.

Excerpt 2

- 1 **Setelah kita menang, barulah kita tahu setakat mana buruknya pemerintahan Dato Seri**
- 2 **Najib.** Bukan saja duit dicuri tetapi semua pegawai-pegawai juga dialih fikiran supaya mereka
- 3 rela untuk membantu penyangak ini dan mereka pun ada juga menjadi penyangak juga. **Jadi**
- 4 **bila kita ambil alih, masalah kita adalah untuk memulihkan semula jentera kerajaan.**
- 5 Kerajaan tak boleh bergerak melain kerajaan ada jentera yang cukup kuat yang cukup ramai
- 6 untuk berkhidmat membangunkan negara tetapi apabila kita dapati ramai daripada jentera kita
- 7 sudah dirosakkan oleh Dato Seri Najib. Maka kita terpaksa tukar mereka dengan mengganti
- 8 orang baru ini, tak cekap macam orang lama. Sebab itu, perjalanan kerajaan terpaksa diusaha
- 9 semula. Kita perlu susun balik kerajaan supaya pemerintahan dapat melaksanakan segala dasar-
- 10 dasar tindakan-tindakan yang dibuat oleh pihak kerajaan. Itu adalah masalah jentera kerajaan.
- 11 Pemulihannya amat sukar dilakukan tetapi alhamdulillah.

After we win, only then we knew how bad Dato Seri Najib's government is. Not only was the money stolen but all the officers were also distracted so that they were willing to help this rogue and they also became rogue as well. **So when we took over, our problem is to rehabilitate the government machinery.** The government cannot move unless the government has a strong enough machinery that is large enough to serve the development of the country but when we find many of our machinery has been damaged by Dato Seri Najib. So we have to change them by replacing these new people, [they] are not as efficient as the old people. As a result, the government's journey had to be reworked. We need to restructure the government so that the government can implement all the policies and actions of the government. That is the problem of the government machinery. The recovery is very difficult, but God-willing.

(MM3, 9 May 2018)

Mahathir Mohamad began his argumentation with a premise in lines 1-2 to show a problem: “*Setelah kita menang, barulah kita tahu setakat mana buruknya pemerintahan Dato Seri Najib*” (After we won, only then we knew how bad Dato Seri Najib’s rule was). Here the plural first personal pronoun “we” was used to refer to the Pakatan Harapan coalition that he led. This was followed by claims on stealing money and brainwashing officers to assist in the acts. Passive voice was used, thereby hiding an explicit mention of the parties involved. Attribution of responsibility was made implicitly. Then he moved on to offer a solution to the problem (lines 4-5). His premise was “*Jadi bila kita ambil alih, masalah kita adalah untuk memulihkan semula jentera kerajaan*” (So when we took over, our problem is to revive the government machinery). Again reference was made to the ruling coalition using the plural first person pronoun “we” to contrast the people who could solve the problem and the people who caused the problem to the government machinery. Mahathir Mohamad proceeded to a justification for his premise, that is, the government cannot function without a strong machinery. At this point, he returned to his earlier statement that Najib Razak’s rule was bad and he had damaged a lot of the government machinery. Here Mahathir Mohamad used the active voice to attribute blame to his predecessor for causing the problem. With this, he came to the crux of his argument which he knew might not be well-received because replacement of officers affected people’s livelihoods and ego (lines 8-9). He explained the necessity of the action because their incompetency was an obstacle to implementation of government policies. Mahathir Mohamad concluded his argumentation by restating the premise in lines 12-13: “*Itu adalah masalah jentera kerajaan. Pemulihannya amat sukar dilakukan*

tetapi alhamdulillah” (This is the problem of government machinery. Rehabilitation is very hard but God-willing). The use of premise in argumentation reflects a deductive reasoning in logic.

Mahathir Mohamad also used questioning and wondering in his argumentation when the audience were familiar people. Excerpt 3 shows a question (line 3) that follows a statement halfway through a speech delivered at the General Debate of the 73rd Session of the United Nations General Assembly at New York on 29 September 2018 (MM2). Mahathir Mohamad had been to many such general assemblies in his previous capacity as the fourth prime minister of Malaysia for 23 years (1981-2003). In MM2, he was saying that the war against terrorism would not end as long as the root cause has not been found and eliminated. Then he posed the question, “*Apakah puncanya?*” (what’s the cause). He proceeded to answer his own question with an explanation of the territorial claims of Palestine and Israel. In so doing, he was careful to use the passive voice in describing the Palestinian-Israel conflict so as to avoid pinpointing the doer.

Excerpt 3

- 1 Peperangan menentang pengganas tidak akan berakhir selagi punca di akar umbi tidak ditemui
- 2 dan dihapuskan, manakala hati dan pemikiran dikuasai. **Apakah puncanya?** Pada 1948, tanah
- 3 rakyat Palestin dirampas untuk mewujudkan Israel. Rakyat Palestin dibunuh beramai-ramai dan
- 4 dipaksa meninggalkan kampung halaman. Rumah dan ladang mereka dirampas.

(MM2, 29 September 2018)

The war against terrorism will not end as long as the root causes are not found and eliminated, where hearts and minds are controlled. **What is the cause?** In 1948, Palestinian land was confiscated to create Israel. Palestinians were massacred and forced to leave their hometowns. Their houses and farms were confiscated.

Mahathir Mohamad used questioning in MM1, MM2 and MM4 (9 and 3 and 3 instances respectively). MM1 had nine instances of questioning which was far more than other speeches, probably because he was speaking to members of his own political party BERSATU and the speech was delivered about one week after the election win. The speech was given in Terengganu where a government-owned fund (1Malaysia Development Berhad, 1MDB) was set up for overseas investment under the Terengganu Investment Authority and became the site of a financial scandal. He asked “*Duit lebih itu nak buat apa?*” (The excess money, to do what?) after he described various dubious 1MDB transactions. As an argumentation strategy, questioning reflects the use of inductive reasoning, which starts from specific instances and leads towards a general conclusion. Mahathir Mohamad started from specific instances of the financial transactions and concluded his reasoning with a generalisation expressed as a question. Throughout his speech, he did not mention “1MDB” but his mention of “Jho Low” was sufficient to identify the topic as 1MDB. By using questioning, he avoided alleging fraudulent use of government funds but left the audience to form this answer in their minds. This is important because at the time of the speech, the 1MDB investigation was on-going. In the context of public speaking, the frequent use of questioning characterised MM1 as an interactive speech where Mahathir Mohamad had a dialogue with his audience.

Mahathir Mohamad’s speeches had more deductive reasoning than inductive reasoning. According to Gagich and Zickel (2018), deductive reasoning is an effective way to influence the public. Using a mixture of deductive and inductive reasoning in argumentation is good because from his analysis of speeches delivered by French presidential candidates, Mshvenieradze (2013) concluded that inductive reasoning is good for engaging the audience and getting feedback from them. Overall, the extensive use of the logos appeal in Mahathir Mohamad’s speeches indicates that the audience were being convinced with facts to believe in his premises.

Pathos appeal

Almost 40% of the total instances of rhetorical appeals were pathos or emotional appeals. Excerpt 4 illustrates the use of emotional words to convey desired values as a strategy to manipulate the audience’s feelings. The speech was delivered at the United Nations General Assembly, and Excerpt 4 was the last part of the speech. The audience were the heads of various countries and Mahathir Mohamad had an agenda, which was to remove the veto power of the permanent member. His proposal was for United Nations General Assembly to have the power to support a decision with a simple majority. To lead up to the request, Mahathir Mohamad first praised United Nations’ effort to eliminate poverty, and to promote conservation, peace, prosperity and democracy. To lend weight to his proposal, he told the audience that he was 93 years old and came back as the prime minister the second time around bearing a heavy responsibility. He added praise for Malaysian citizens who made an earth-breaking democratic achievement by voting Pakatan Harapan into power to end a 60-year rule by the Barisan Nasional coalition (lines 3-5). He continued by expressing the people’s mounting hope for peace, development and prosperity (“*mempunyai harapan menggunung untuk melihat keamanan, kemajuan dan kemakmuran di*

seluruh dunia”). These values resonated with the goals of the United Nations and he had interjected these values at different junctures in his speech. The adjective “mounting” was used to accentuate the high hopes of the Malaysians (“*harapan menggunung*”). He closed with an appeal to United Nations to consider their request for more democracy in United Nations decisions.

Interestingly, throughout MM5, Mahathir Mohamad relied on the active voice to attribute responsibility to himself as the new prime minister and the people of Malaysia for voting him and his coalition component parties into power. In concluding his speech, he made a direct request when he said, “*Kami berharap PBB akan mendengar permintaan kami*” (We hope United Nations will listen to our request). “We” and “our request” made the doer prominent, and the object of the request was PBB (United Nations). The attribution of responsibility to UN to consider a more democratic process in UNGA decisions could not be clearer.

Excerpt 4

1 Puan Presiden. **Selepas 15 tahun dan pada usia 93 tahun, saya kembali ke podium ini**
2 **dengan memikul tanggungjawab berat membawa suara dan harapan Malaysia baharu**
3 **ke pentas dunia. Rakyat Malaysia bangga dengan pencapaian demokratik mereka baru-**
4 **baru ini mempunyai harapan menggunung untuk melihat keamanan, kemajuan dan**
5 **kemakmuran di seluruh dunia.** Kami berharap PBB akan mendengar permintaan kami.
6 Terima kasih, Puan Presiden.” kata Tun Mahathir.

(MM5, 26 February 2020)

Madam President. After 15 years and at the age of 93, I return to this podium with the heavy responsibility of bringing the new Malaysian voice and hope to the world stage. Malaysians proud of their recent democratic achievements have mounting hopes of seeing peace, progress and prosperity around the world. We hope the UN will listen to our request. Thank you, Madam President,” said Tun Mahathir.

Besides the usual use of the pathos appeal to persuade the audience, emotional appeal is used when political leaders admit wrongdoing or express regrets. Excerpt 5 shows the second last speech made by Mahathir Mohamad as the seventh prime minister of Malaysia. It was delivered at a special press conference held by Pakatan Harapan at the Parti Keadilan Rakyat (PKR) headquarters in Petaling Jaya, Selangor on 26 February 2020. In MM5, Mahathir Mohamad apologised for the chaotic political situation in the country (lines 1-4): “*Terlebih dahulu, izinkan saya memohon maaf kepada semua rakyat Malaysia kerana keadaan politik Negara yang agak kucar-kacir*” (First of all, allow me to apologise to all Malaysian citizens because the political situation of the country is quite chaotic). Mahathir Mohamad showed his awareness of the disturbed feelings of the audience: “*menimbulkan keresahan di kalangan tuan-tuan dan puan-puan*” (caused unrest among you, ladies and gentlemen). He objectivised the political situation by describing it as a chaotic situation but did not attribute blame at the outset of his speech. He went on to say that he had tendered his resignation to the King (Duli Yang Maha Mulia Seri Paduka Baginda Yang di-Pertuan Agong), but the factual details showing the use of the logos appeal have been left out of the excerpt because it is very long. The second part of Excerpt 5 shows Mahathir Mohamad addressing the accusation that he was power-crazy (“*gila kuasa*”) and wanted to hang on although his political party BERSATU had left the Pakatan Harapan coalition, resulting in a loss of majority to form the ruling government. In the rest of the speech, Mahathir Mohamad explained the political developments, alternating between pathos and logos appeals. This is when the perpetrators of the political chaos were mentioned, mostly political parties rather than individuals.

Excerpt 5

1 Tuan-tuan dan puan-puan yang dihormati. Terlebih dahulu, izinkan saya **memohon maaf**
2 **kepada semua rakyat Malaysia kerana keadaan politik Negara yang agak kucar-kacir**
3 dan mungkin **menimbulkan keresahan** di kalangan tuan-tuan dan puan-puan. ...
4 Selain itu, terdapat juga tuduhan bahawa saya tidak berniat untuk melepaskan jawatan dan **gila**
5 **kuasa.** Maka saya letak jawatan kerana saya tidak melihat kuasa dan jawatan itu sebagai “be
6 all and end all” adalah matlamat saya. Bagi saya kuasa dan kedudukan itu adalah “a means to
7 an end” ataupun satu alat untuk mencapai objektif dan **objektif kita semua tentulah untuk**
8 **kebaikan negara.**

(MM5, 26 February 2020)

Dear ladies and gentlemen. First of all, allow me to **apologize to all Malaysians for the political situation in the country which is quite chaotic** and may **cause unrest** among ladies and gentlemen. ...

Besides that, there were also allegations that I had no intention of resigning and am power-crazy. So I resigned because I do not see the power and the position as "be all and end all" as

my goal. For me, power and position is "a means to an end" or a tool to achieve our objectives, and **our objective is certainly for the good of the country.**

MM5 was an emotional speech and Table 2 shows that this is the only speech where the pathos appeal (61.11%) was used more than the logos appeal (27.78%) and the ethos appeal (11.11%). Incidentally, this is also the only speech where the ethos appeal exceeded 10% but this will be addressed in the next section of results. In MM5, Mahathir Mohamad broke away from his rational persona to offer personal interpretations of the unprecedented event of a prime minister resigning. In this speech, he frequently used the first personal pronoun "I" to reveal his feelings, needs, values and wishes. As Mahathir Mohamad focussed on his personal interpretations and describing how he felt, many of the verbs used were intransitive verbs such as "*saya tidak berniat*" (I do not intend), "*saya letak jawatan*" (I resigned), and "*saya tidak melihat kuasa dan jawatan itu*" (I do not see power and position). The active voice was dominant in this speech, placing the speaker at the centre of the unfolding events. Towards the end of his speech, Mahathir Mohamad said, "*Saya hanyalah membuat sesuatu saya anggap baik bagi negara*" (I am only doing something I consider to be best for the country). The focus of MM5 was Mahathir Mohamad himself, evident in the use of the first personal pronoun "I" and the active voice. The absence of the plural personal pronoun "we" is obvious because he was no longer speaking on behalf of his party, the ruling coalition or the government. The only instance of "we" was a generalised usage in "*objektif kita semua tentulah untuk kebaikan negara*" (our objective is certainly for the good of the country), as shown in Excerpt 5. With this statement, he appealed to the audience to understand that his drastic decision was not for selfish personal reasons but a sensible decision with the interests of the nation in view.

Speeches involving negative emotions such as regrets and admitting possible wrongdoing are more challenging than speeches involving positive emotions such as appealing to love and security needs for persuasion. In speeches involving negative emotions, engaging the emotions of the audience probably works better than engaging their rational minds as shown in Mahathir Mohamad's speech, MM5. Higgins and Walker (2012) believe that use of adjectives and emotional words manipulates the feelings and thinking of the audience. It is in MM5 that adjectives, personal interpretations and appeal to similarities were dominant but seldom used in the other speeches.

Ethos appeal

On average, 4.20% of 381 instances of rhetorical appeals was the ethos appeal (Table 2). In this study, the greetings which include honorifics (Excerpt 6) demonstrates respect for members of the audience who are considered Very Important Persons (VIPs). Excerpt 6 was taken from Mahathir Mohamad's speech delivered during the announcement of Pakej Ransangan Ekonomi 2020 (Economic Stimulus Package) in the capacity of Interim Prime Minister on 27 February 2020 (MM6). On 1 March 2020, the helm of leadership in the country was taken over by Muhyiddin Yasin. Using honorifics in greetings for VIPs was found in all the speeches, as this is protocol.

Excerpt 6

- 1 Bismillah Hirahmanirrahim. Assalamualaikum Warahmatullahiwabarakatuh dan salam
- 2 sejahtera. **Yang Berbahagia Lembaga Suria Juruacara, Yang Amat Berhormat Dato Seri**
- 3 **Wan Azizah Wan Ismail, Timbalan Perdana Menteri, Yang Berhormat Menteri**
- 4 **Pertahanan, Yang Berhormat Menteri-menteri, Yang Berhormat Lim Guan Eng,**
- 5 **Menteri Kewangan yang penting, Tuan-tuan, puan-puan, Hadirin sekali.**

(MM3, 9 October 2018)

Bismillah Hirahmanirrahim. Assalamualaikum Warahmatullahiwabarakatuh and peace be upon you. Blessed are the Solar Board Hosts. **The Right Honorable Dato Seri Wan Azizah Wan Ismail, Deputy Prime Minister, the Honorable Minister of Defence, Honorable Ministers, the Honorable Lim Guan Eng, the Minister of Finance, gentlemen and ladies.**

More interestingly, the ethos appeal in the form of establishing similar ground with the audience was quite frequently found in Mahathir Mohamad's speeches. An example is shown in Excerpt 7. This is a speech delivered to ministers and citizens at Port Dickson on 9 October 2018 (MM3), Mahathir Mohamad said, "*Tetapi tuan-tuan dan puan-puan, kita semua tahu*" (But gentlemen and ladies, we all know). He was reminding the audience of the shared information they had about the night when the 14th General Election votes were being counted. According to Mahathir Mohamad, the results showing that Pakatan Harapan had won was known as early as 8.30 p.m. on 9 May 2018 but the announcement was delayed till 2 a.m. because Barisan Nasional was unwilling to admit defeat. The audience was reminded of the shared information almost in a conspirational tone. By highlighting the shared information, Mahathir Mohamad was placing himself on the same level as the audience to be close to them. However, right after this, he projected his own credibility as a political leader: "*Saya dulu adalah pemimpin BN,*

Presiden UMNO, Pengerusi BN dan saya telah memimpin lima pilihan raya” (Previously, I was the BN leader, UMNO President, BN chairman and I have led five elections). His political background made him unrivalled as a political leader. Mahathir Mohamad’s confidence in winning was evident in his subsequent statement: “*Setiap kali saya menghadapi pilihan raya, saya sedar saya akan menang tak mungkin parti lawan menang*” (Every time I face an election, I am aware that I will win, [and it is] not possible that the opposition will win). Later on in his speech, Mahathir Mohamad also talked about how he had brought down a kleptocratic government. These examples are a good illustration of how politicians project their capability to earn the trust of the audience.

Excerpt 7

1 Tetapi tuan-tuan dan puan-puan, **kita semua tahu**. Pakatan Harapan telah menang waktu lapan
2 setengah malam pada 9 hari bulan tetapi pihak BN takut nak bagi tahu rakyat. Maka mereka
3 tangguh perisytiharan itu sehingga pukul 2 pagi. Tetapi akhirnya, mereka terpaksa mengakui
4 bahawa tak boleh dikalahkan itu sudah pun kalah. Kita harus bertanya kepada diri kita dan BN
5 pun harus bertanya kepada diri mereka. Kenapakah mereka kalah? **Saya dulu adalah**
6 **pemimpin BN, Presiden UMNO, Pengerusi BN dan saya telah memimpin lima pilihan**
7 **raya. Setiap kali saya menghadapi pilihan raya, saya sedar saya akan menang tak**
8 **mungkin parti lawan menang.**

(MM3, 9 October 2018)

But ladies and gentlemen, **we all know**. Pakatan Harapan won at eight-thirty on the 9th but BN is afraid to let the people know. So they postponed the declaration until 2 o'clock in the morning. But in the end, they had to admit that the invincible had lost. We have to ask ourselves and BN must also ask themselves. Why did they lose? **Previously, I was the BN leader, UMNO President, BN Chairman and I have led five elections. Every time I face an election, I am aware that I will win, not possible that the opposition will win.**

Finally, an example of ethos is extracted from Mahathir Mohamad’s speech where he apologised for the political chaos and his resignation as the prime minister of Malaysia. This speech was delivered in the last few days of his term. MM5 was the only speech among the six speeches where there was greater presence of the emotional and ethical appeal. Even in the midst of the political shake-up when he lost the majority to be the ruling government, Mahathir Mohamad was able to project himself as having the support of the people, as shown in Excerpt 8: “*cukuplah saya katakan bahawa saya merasa kononnya mendapat sokongan dari semua pihak*” (it’s enough for me to say that I feel, apparently, [I have] the support from all parties). The single first person pronoun “I” was repeatedly used to show personal ownership over the views expressed, and not opinions expressed as a spokesperson for his political coalition or for the government. However, note that hedging was used (“*kononnya*” meaning apparently) for the statement that he had the support from all parties. The hedging is important because the truth of the statement might be contested.

Excerpt 8

1 Ada banyak sebab mengapa saya meletak jawatan tetapi **cukuplah saya katakan bahawa saya**
2 **merasa kononnya mendapat sokongan dari semua pihak** sehingga saya tidak dapat memilih
3 pihak mana yang saya pilih.

(MM5, 26 February 2020)

There are many reasons why I resigned but **suffice it to say that I felt supposedly getting support from all parties** so I couldn’t choose which party I chose.

Towards the end of MM5, Mahathir Mohamad reiterated his apology for tendering resignation on the basis that as an ordinary human being, he was not free from making mistakes. This premise was a pathos appeal and it was followed by an ethos appeal (Excerpt 9). Mahathir Mohamad implied that the King still had confidence in him to appoint him as the interim prime minister while the political situation was sorted out (lines 1-2). He repeated his point that he had the support of some (line 3). However, earlier he had said that he was supported by all parties (Excerpt 8), and modified this to the adjective “some” towards the end of his speech. He concluded with some form of damage control on his reputation for creating the political chaos, that is, he said that his action was in the interests of the nation, “*Saya hanyalah membuat sesuatu saya anggap baik bagi negara*” (I’m just doing something I think is good for the country).

Excerpt 9

- 1 **Yang di-Pertuan Agong bertitah supaya saya dilantik sebagai Perdana Menteri**
- 2 **sementara.** Saya sedar apa juga yang dilakukan oleh saya sekarang akan ditentang dan ditolak
- 3 oleh ramai, **tetapi mungkin ada yang menyokong.** Saya tidak cari untuk disukai ramai. **Saya**
- 4 **hanyalah membuat sesuatu saya anggap baik bagi negara.**

(MM5, 26 February 2020)

The Yang di-Pertuan Agong said that I should be appointed as the caretaker Prime Minister. I realise whatever I do now will be opposed and rejected by many, but there may be some who support it. I'm not looking to be liked by many. I'm just doing something I think is good for the country.

These excerpts on the ethos appeal in Mahathir Mohamad's speeches showed that he was good at projecting his credibility and dynamism as a political leader to earn the trust of the Malaysian citizens. In MM4, he reminded the audience that he had been a politician for 70 years, showing his experience in politics. He certainly capitalised on his return to the helm of the government a second time, showing his political prowess to end a 60-year monopoly, and to bring about a government led by a coalition of opposition parties. However, overall the speeches given by Mahathir Mohamad made less use of the ethos appeal than the logos and pathos appeals. The public knew of his political background, and there was little need for him to remind them of this in their face, with the exception of one instance in MM3 when he announced the economic stimulus package as the interim prime minister on 27 February 2020.

DISCUSSION AND CONCLUSION

The study on rhetorical appeals in Mahathir Mohamad's speeches during his term as the seventh prime minister of Malaysia showed that he used a dominant logos or logical appeal in his speeches, supplemented by the pathos or emotional appeal but the ethos appeal to credibility was minimal. Mahathir Mohamad strategically used the plural first person pronoun "we" to refer to the ruling coalition along with the use of the active voice to show the rehabilitative actions taken by the new government to remedy the broken government machinery left by his predecessor. He used the passive voice and circumstantial referents in disparaging remarks without identifying the doer, and this was a safe approach in making speeches.

Compared to previous findings on Mahathir Mohamad's speeches delivered during his first term as the fourth prime minister of Malaysia, it is clear that he had retained his rational style of speeches. The results supported Choong's (2002) finding on the reliance on the logos appeal. According to Lee (2001), Mahathir Mohamad had frequently included logical statements and facts in his speeches. Similarly, Alkhirbash (2010) had also identified the predominance of cause-and effect, statistics, examples and facts in Mahathir Mohamad's speeches. The present study discovered that the preponderance of these argumentation strategies found by other researchers was due to Mahathir Mohamad using more deductive reasoning than inductive reasoning in his speeches. An argumentation strategy that had not been identified in previous analyses of Mahathir Mohamad's speeches is questioning and wondering, which he was inclined to use with a familiar audience to engage their rational minds.

Our findings concurred with other studies on the minimal use of the ethos appeal in Mahathir Mohamad's speeches. Mua'ti (2007) reasoned that the ethos appeal was hardly used because Mahathir Mohamad is a capable leader, and his competence and character are reflected in his actions. Because of this, he need not assert his credibility in his speeches to convince the audience of his trustworthiness. "Mahathir's ethical proof was not stated explicitly but was embedded in his logical and emotional evidence" (Fatmawati et al., 2020, p. 277).

The only speech where Mahathir Mohamad broke away from his usual rhetorical style was in MM5 when he made a special announcement as Interim Prime Minister in the headquarters of Parti Keadilan Rakyat after he had tendered resignation as the prime minister of Malaysia. In this speech, the pathos and ethos appeals were unusually more than the logos appeal as it was a speech of apology and defence in the face of accusations. This was when he moved away from using "we" to "I" to show his personal interpretation of events because this was a speech about him and not about his political party or the government. Previous studies on Mahathir Mohamad's speeches presented the cumulative results on the rhetorical appeals but did not dwell on the context of the speeches (e.g., Alkhirbash, 2010; Fatmawati et al., 2020). In the present study, we found it necessary to contextualise the speeches to understand the use of the persuasive appeals and how the active and passive voice as well as the use of personal pronouns were used to achieve the goals of persuasion.

As an endeavour to understand the rhetorical style of an enigmatic political leader who returned as prime minister at 93 years old, this study has indicated that his appeal is in his clear-headedness and his connection to the concerns of the audience. It seems that seasoned political leaders have a stable rhetorical style but makes strategic use of language to suit the situation and needs and values of the audience. Future research on rhetorical appeals in political speeches should investigate audience reaction to identify the appealing parts of the speeches, and language and content analysis can be conducted to determine how the persuasive appeal is achieved. In this way, the understanding of persuasion in political speeches would not be based on only the researcher's perspectives but, more importantly, on the audience's perspective.

REFERENCES

- Ab Rashid, R., Jamal, S. N., Ibrahim, N. S. N., Yunus, K., Azmi, N. J., Anas, M. & Mohamed, S. B. (2016). Rhetoric and health: How fitness trainers persuade public on social networking site. *Man In India*, 96(11), 4673-4679.
- Abdulhamid, A. (2015). *Retorik: Yang indah itu bahasa*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Alkhirbash, A. (2010). *Persuasive language in selected speeches of Tun Mahathir Mohamad*. (Disertasi doctor falsafah yang tidak diterbitkan). Serdang: Universiti Putra Malaysia.
- Al-Momani, K. R. (2014). Strategies of persuasion in letter of complaint in academic context: The case of Jordanian University students' complaint. *Discourse Studies*, 16(6), 705-728. <https://doi.org/10.1177/1461445614546257>
- Androniciuc, A.I. (2016). Using social media in political campaigns. Evidence from Romania. *SEA: Practical Application of Science*, 4(1), 51-57. https://seaopenresearch.eu/Journals/articles/SPAS_10_7.pdf
- Bakar, M. M. A., & Hamzah, Z. A. Z. (2015). Retorik pembangunan sosioekonomi masyarakat dalam laporan media. *Jurnal Linguistik*, 20(2), 10-25.
- Brooks, C., & Warren, R. P. (1970). *Modern rhetoric* (3rd ed.). Harcourt, Brace & World.
- Brummett, B. (2000). *Reading rhetorical theory*. Orlando, FL: Harcourt College Publishers.
- Chakorn, O. O. (2006). Persuasive and politeness strategies in cross-cultural letters of request in the Thai business context. *Journal of Asian Pacific Communication*, 16(1), 103-146. <https://doi.org/10.1075/japc.16.1.06cha>
- Choong, K. F. (2002). *Analisis strategi retorik Sultan Omar Ali Saifuddin III tentang isu-isu perlembagaan Negeri Brunei dan Rancangan Malaysia 1959-1963*. [PhD Dissertation]. Kuala Lumpur: Universiti Malaya.
- Dehan, A. A. M., & Yaakob, H. N. A. (2015). Teknik retorik dalam novel Salina karya A. Samad Said. *International Journal of Language Education and Applied Linguistik*, 2(4), 49-59.
- Demirdogen, U. D. (2010). The root of research in political persuasion: Ethos, pathos, logos and the yale studies of persuasive communications. *International Journal of Social Inquiry*, 3(1), 189-201.
- Emanuel, B., Rodrigues, C., & Martins, M. (2015). Rhetoric of interaction: Analysis of pathos. In A. Marcus (Ed.), *Design, user experience, and usability: Design discourse* (pp. 417-427). Springer, Cham. https://doi.org/10.1007/978-3-319-20886-2_39
- Enos, T., & Brown, S. C. (1993). *Defining the new rhetoric*. New York: Sage Publications.
- Fatmawati, N., Amin, M., & Nawawi, N. (2020, August). Spoken discourse analysis verbal rhetoric and leadership style: A comparative study of Tun Dr. Mahathir bin Mohamad and Dato' Sri Mohd Najib Tun Abdul Razak. *Proceedings of 1st Annual Conference on Education and Social Sciences (ACCESS 2019)* (pp. 274-278). Atlantis Press. <https://doi.org/10.2991/assehr.k.200827.069>
- Feez, S. (1998). *Text-based syllabus design*. Sydney, Australia: Macquarie University.
- Gabrielsen, J., & Christiansen, T. J. (2010). *The power of speech*. Denmark: Glydendal.
- Gagich, M., & Zickel, E. (2018). *A guide to rhetoric, genre and success in first year writing*. Cleveland, US: MSL Academic Endeavors.
- Gaiman, N. (1998). *Nowhere*. New York, US: Avon.
- Grimes, J. (1975). *The thread of discourse*. The Hague: Mouton. <https://doi.org/10.1515/9783110886474>
- Higgins, C., & Walker, R. (2012). Ethos, logos, pathos: Strategies of persuasion in social/environmental reports. *Accounting Forum*, 36(1), 194-208. <https://doi.org/10.1016/j.accfor.2012.02.003>
- Lee, A. C. (2001). *Analisis teks ucapan politik bahasa Melayu dari segi retorik: Satu kajian kes terhadap ucapan Dr. Mahathir Mohamad*. (Sarjana tesis). Universiti Malaya, Malaysia.
- Mansor, H. H., Yaakob, N. A., & Hamzah, Z. A. Z. (2018). Retorik pamerian dalam ceramah agama. *International Journal of the Malay World and Civilisation*, 6(2), 29-38.
- Mori, K. (2016, November 14-15). Analysis of the discourse of diplomatic conflict at the UN: Application of ethos, pathos, logos. *Proceedings of 12th International Conference on Humanities & Social Sciences 2016 (IC-HUSO 2016)*, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand.
- Mshvenieradze, T. (2013). Logos, ethos dan pathos in political discourse. *Theory and Practice in Language Studies*, 3(11), 19-39. <https://doi.org/10.1016/j.accfor.2012.02.003>

- Mua'ti, A. (2007). *Pemikiran Tun Dr. Mahathir bin Mohamad*. Penerbit Universiti Malaya.
- Nair, S. R. & Ndubisi, N. O. (2013). Entrepreneurial values, environmental marketing and customer satisfaction: Conceptualization and propositions. In N. O. Ndubisi & S. Nwankwo (Eds.), *Enterprise Development in SMEs and Entrepreneurial Firms: Dynamic Processes* (pp. 257-269). IGI Global. <https://doi.org/10.4018/978-1-4666-2952-3.ch013>
- Osman, Z., & Yusoff, N. (2019). Retorik penulisan ilmiah: Penilaian berdasarkan prinsip kerjasama Grice. *International Journal of Language Education and Applied Linguistik*, 9(1), 69-83. <https://doi.org/10.15282/ijleal.v9.1196>
- Osman, Z., Ismail, S. F. S., & Yusoff, N. (2017). Retorik dalam pengucapan Strategik Lautan Biru. *Journal on Leadership and Policy*, 2(1), 108-125.
- Razak, N. A., Salleh, C. I., & Musa, H. (2016). Titah ucapan pembukaan Dewan Undangan Negeri Kelantan oleh Sultan Muhammad V: Satu analisis retorik. *Journal Pertanika*, 3(1), 85-93.
- Robberson, M. R. & Rogers, R. W. (1988). Beyond fear appeals: Negative and positive persuasive appeals to health and self-esteem. *Journal of Applied Social Psychology*, 18(3), 277-287. <https://doi.org/10.1111/j.1559-1816.1988.tb00017.x>
- Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language* (Vol. 626). Cambridge University Press. <https://doi.org/10.1017/CBO9781139173438>
- Shahrill Ramli, A. M. A., & Hasan, H. A. (in press). Conceptual paper on the rhetorical analysis of Tun Mahathir's speeches. *Human Communication*, 2(2), 58-70.
- Ting, S. H. (2018). Ethos, logos and pathos in university students' informal request. *GEMA Online Journal of Language Studies*, 18(1), 234-251. <http://doi.org/10.17576/gema-2018-1801-14>
- Uysal, H. H. (2012). Argumentation across L1 and L2 writing: Exploring cultural influences and transfer issues. *Vigo International Journal of Applied Linguistics (VIAL)*, 9, 133-159.
- Yaakob, N. A., Hamzah, Z. A. Z., Zain, N. M., & Adullah, S. N. (2018). Penerapan retorik dalam penyampaian ceramah agama. *Jurnal Linguistik*, 22(2), 54-67.

Kesedaran Ibu Bapa Tentang Kepentingan Pengambilan Awal Vaksin Terhadap Bayi dan Kanak-kanak. Kajian Kes: Kampung Tanjung Apong, Asajaya, Sarawak

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ABSTRAK

Tujuan kajian ini adalah untuk mengetahui Kesedaran Ibu Bapa Tentang Pengambilan Awal Vaksin Terhadap Bayi dan Kanak-kanak di Kampung Tanjung Apong, Asajaya, Sarawak. Terdapat tiga objektif kajian iaitu untuk mengenalpasti faktor ibu bapa mengambil suntikan awal vaksin terhadap bayi mereka, untuk mengetahui kesan pengambilan suntikan awal vaksin terhadap bayi dan untuk mengetahui pandangan ibu bapa terhadap golongan anti-vaksin. Kajian yang berbentuk kualitatif ini menggunakan kaedah temubual dengan mengambil lima orang penduduk kampung sebagai sampel. Sampel dipilih secara rawak di kalangan ibu bapa yang mempunyai anak dalam kategori bayi atau kanak-kanak. Kaedah analisis deskriptif digunakan untuk menghuraikan dapatan kajian. Hasil kajian mendapati, ibu bapa bersetuju dengan pengambilan suntikan awal vaksin kepada anak mereka. Ini dapat meningkatkan tahap kesihatan dan imunisasi anak mereka serta tiada sebarang caj tambahan. Tahap kesihatan anak juga menunjukkan kesan positif seperti kurang mengalami demam dan terhindar daripada penyakit mudah berjangkit. Ibu bapa berpendapat bahawa penolakan vaksin dari segelintir individu adalah kerana lebih mempercayai info luar berbanding bertanya sendiri kepada pakar kesihatan di klinik atau hospital. Kesimpulannya, kepentingan pengambilan suntikan vaksin yang dikatakan boleh meningkatkan kesihatan anak telah membuatkan ibu bapa bersetuju dengan pengambilan vaksin sekaligus mempercayai bahawa suntikan vaksin membantu anak membesar dengan sihat dan sempurna.

Kata Kunci: Vaksin, bayi, kanak-kanak, anti-vaksin, kesihatan, kesedaran.

ABSTRACT

The purpose of this study is to know parents' awareness on early vaccination of infants and children in Kampung Tanjung Apong, Asajaya, Sarawak. There are three objectives of the study, namely, to identify the factors indicating parents' intention for early vaccination among infants; explore the effect of early vaccination towards infant; and, examine the parents' view on the anti-vaccine group. This qualitative study uses the interview method by taking five villagers as sample. Random sampling was adopted to choose those parents with children. Simple descriptive analysis explains this study. The results of the study found that parents agreed on the early vaccination of their children to improve their health and immunization. Parents were also receptive to the idea since it was cost-free. Parents also revealed that vaccination showed positive effects towards the child's health such as less fever, and have avoided infectious diseases. Parents argue that some individuals refuse to enrol in a vaccination program for their infants and because they trust outsiders more even those without medical background, rather than refer to a health professional at a clinic or hospital. In conclusion, the importance of vaccination which is said to improve the child's health has made parents agree with the vaccine while believing that vaccine injection helps children grow up adequately healthy.

Keywords: Vaccine, infant, children, anti-vaccine, health, awareness

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PENGENALAN

Masalah kesihatan yang melanda tanpa mengira lapisan umur menjadikan kesihatan rakyat keutamaan kepada polisi kerajaan. Selaras dengan itu, pelbagai usaha telah pihak kerajaan laksanakan dalam memastikan tahap kesihatan rakyat berada dalam tahap yang baik. Sebagai contoh, pelaksanaan program vaksinasi secara besaran, iaitu suntikan vaksin yang khususnya untuk meningkatkan sistem imunisasi rakyat terutamanya kepada kanak-kanak (Ramli et al., 2019). Menurut Ramli et al., (2019) mengatakan bahawa pengambilan vaksinasi merupakan suatu keperluan yang perlu diambil secara serius oleh kesemua pihak demi kemaslahatan bersama berdasarkan kepada autoriti kerajaan dari perspektif hukum Islam. Dalam hal ini, pemerintah sememangnya mempunyai kuasa untuk menetapkan sesuatu perkara ke atas rakyat di bawah pemerintahannya. Azzahra dan Ramli (2017) mengatakan bahawa isu golongan ibu bapa yang menolak vaksin sangat membimbangkan sejak akhir-akhir ini. Hal ini menyebabkan peningkatan jumlah kes penyakit cegahan vaksin di Malaysia kian meningkat. Malah, kebimbangan terhadap isu ini menjadikan serta mendorong pelbagai pihak untuk mencari langkah yang efektif dalam menyelesaikannya. Pengambilan suntikan awal vaksin terhadap bayi bukanlah satu paksaan kepada ibu bapa dan penjaga. Menurut Alonso et al., (2001) pengambilan vaksin tidak wajib kepada masyarakat namun disarankan dalam usaha mengurangkan kadar jangkitan penyakit berjangkit. Tetapi, sekiranya mereka tidak membenarkan anak-anak mereka mengambil suntikan awal vaksin, pihak kesihatan tidak akan melakukan sebarang suntikan tanpa meminta kebenaran mereka terlebih dahulu. Golongan sebegini di panggil sebagai golongan yang menolak vaksin, berkemungkinan mereka mempunyai alasan tersendiri mengapa memutuskan untuk menolak pengambilan suntikan. Oleh itu, kajian ini bertujuan untuk memenuhi tiga objektif kajian iaitu untuk mengetahui faktor pengambilan suntikan awal vaksin terhadap bayi, kesan pengambilan suntikan awal vaksin kepada bayi dan pandangan ibu bapa terhadap golongan anti-vaksin. Dapatan daripada kajian ini di harap dapat memberi kesedaran betapa pentingnya suntikan awal vaksin kepada bayi selain membuka mata golongan anti-vaksin.

KAJIAN LEPAS

Kesedaran tentang pengambilan suntikan vaksin

Pengambilan suntikan vaksin begitu disarankan kepada semua lapisan masyarakat tanpa mengira peringkat umur di mana golongan bayi dan kanak-kanak sangat ditekankan untuk mengambil suntikan awal vaksin tersebut. Berdasarkan kepada kajian Azzahra dan Ramli (2017) suntikan vaksin yang masuk ke dalam badan manusia akan membentuk antibodi yang membolehkan satu memori terhadap imunisasi sesuatu penyakit tercetus. Maka, sekiranya penyakit berjangkit menyerang, sistem ketahanan badan dapat merangsangkan memori yang sedia ada untuk melawan penyakit daripada memudaratkan tubuh badan manusia. Menurut Hamid (2018) faedah daripada vaksinasi ini dapat mengelakkan kanak-kanak dijangkiti daripada pelbagai penyakit berjangkit yang serius seperti *Tuberculosis*, *Polio*, campak dan sebagainya. Penyakit berjangkit ini boleh mengakibatkan kecacatan dan juga kematian sekiranya tidak menerima suntikan vaksin dengan kadar segera. Seeni (2018) menyatakan bahawa pemberian vaksin adalah bertujuan untuk mencapai *herd immunity* atau imuniti berkelompok. Imuniti berkelompok bermaksud menghalang virus daripada memasuki kelompok masyarakat seluruh tempat. Memetik kajian daripada Azzahra dan Ramli (2017) tentang keberkesanan pengambilan vaksin telah terbukti menyelamatkan ribuan nyawa daripada penyakit-penyakit cegahan vaksin yang menyebabkan penyakit yang serius. Hal ini menjadikan vaksinasi sebagai salah salah langkah pencegahan yang berjaya dalam mengurangkan kadar jangkitan dalam sesebuah komuniti.

Peningkatan daripada kes kematian yang disebabkan oleh penolakan suntikan vaksin menjadikan faktor pentingnya pengambilan suntikan awal vaksin berkenaan. Dalam kajian Azzahra dan Ramli (2017), faktor pengambilan vaksin bukan sahaja satu kewajipan tetapi mendatangkan banyak kebaikan namun kebaikan daripada suntikan vaksin ini akan menerima beberapa keburukan dalam jangka masa yang lama sekiranya pihak berkuasa tidak mentadbir secara baik. Pengambilan suntikan vaksin ini turut membantu menguatkan sistem imunisasi badan bayi sekali gus dapat merangsangkan sel pertahanan mereka. Menurut Ramli et al., (2019) mengatakan bahawa jika tersilap langkah dalam mengawasi sistem kewajipan vaksinasi, pihak kerajaan boleh terdedah kepada reaksi dan kecaman yang agak keras daripada kelompok masyarakat yang menolak program vaksinasi suntikan vaksin. Hamid (2018) menyarankan pihak kerajaan memberikan pencerahan secara berterusan berkaitan dengan suntikan vaksin kepada masyarakat supaya masyarakat lebih prihatin tentang pencegahan penyakit bagi meningkatkan tahap kesihatan anak mereka. Oleh itu, suntikan vaksin sangat digalakkan untuk kanak-kanak supaya diberikan imunisasi seawal mungkin yang sejajar dengan jadual imunisasi yang telah di tetapkan (Yeong, 2015). Selain itu, selaras dengan konsep vaksin itu sendiri dapat mengurangkan risiko daripada terkena penyakit cegahan vaksin (Azzahra dan Ramli, 2017).

Melalui kajian Hamid (2018), maklumat yang palsu mengenai vaksin telah memberikan kesan yang memudaratkan kepada pelbagai lapisan masyarakat kerana mereka bimbang pengambilan suntikan vaksin akan memberi kesan buruk. Menurut Kementerian Kesihatan Malaysia dan Jabatan Kemajuan Islam Malaysia (2015) suntikan vaksin mengandungi kesan sampingan yang memberikan kesan kesakitan dan kemerahan pada tempat suntikan atau demam tetapi kesan tersebut hanyalah kesan yang ringan dan akan sembuh dengan kadar segera. Kedua-dua pihak berkenaan turut mengatakan bahawa kesan suntikan vaksin turut mengalami kesan yang serius namun jarang berlaku. Selain itu, kesan pengambilan suntikan vaksin turut mempunyai kesan buruknya. Hal ini kerana vaksin mengandungi pelbagai bahan kimia yang mengandungi merkuri, formaldehid dan nanobakteria di mana telah menjadi penyebab berlakunya komplikasi kepada penyakit lain yang membimbangkan, seperti autisme, leukemia, kanser, sindrom bayi kematian mengejut, ekzema dan banyak lagi (Kata, 2010).

Pandangan ibu bapa terhadap golongan anti-vaksin

Terdapat sebahagian daripada golongan ibu bapa yang masih memandang remeh suntikan vaksin terhadap anak mereka, seolah-olah tanpa vaksin anak mereka sama seperti kanak-kanak yang mengambil suntikan tersebut (Azzahra dan Ramli, 2017). Ketakutan yang melampau yang di sebabkan oleh terpengaruh dengan berita palsu turut menjadi penyebab golongan anti-vaksin ini bertegas untuk tidak mengambil suntikan vaksin. World Health Organization (WHO) mengatakan bahawa golongan anti-vaksin ini merupakan ancaman kepada kesihatan global bagi tahun ini (Zaitie, 2020). Malah, Azzahra dan Ramli (2017) menyatakan isu golongan ibu bapa yang menolak vaksin sangat membimbangkan sejak akhir-akhir ini. Kebimbangan terhadap isu ini menjadikan dan mendorong pelbagai pihak untuk mencari langkah yang efektif dalam menyelesaikan isu ini.

METODOLOGI

Kajian ini menggunakan kaedah penyelidikan kualitatif. Kaedah pengumpulan data adalah melalui temu bual bersama responden. Kaedah penyelidikan kualitatif ini adalah memfokuskan kepada kajian kes di Kampung Tanjung Apong yang terletak di Asajaya, Sarawak. Majoriti penduduk yang tinggal di sini adalah daripada etnik Melayu. Malah, semua responden yang ditemubual adalah Melayu. Pengkaji menemubual melalui panggilan telefon atau *Whatsapp Videocall* memandangkan semasa kajian dijalankan jumlah kes COVID adalah tinggi di kebanyakan kawasan. 5 orang responden yang tinggal di kampung berkenaan telah dipilih secara rawak di kalangan ibu bapa yang mempunyai anak dalam kategori bayi atau kanak-kanak. Pengkaji menggunakan kaedah data analisis deskriptif untuk menghuraikan data terkumpul.

Untuk etika dalam penyelidikan, pengkaji menyebarkan pautan *Google Form* kepada penduduk Kampung Tanjung Apong yang mempunyai bayi dan kanak-kanak melalui aplikasi *WhatsApp*. Di dalam pautan *Google Form* berkenaan mengandungi latar belakang demografi responden dan turut disertakan dengan persetujuan daripada ibu bapa untuk persetujuan menghadiri sesi temu bual secara atas talian. Selain itu, pengkaji juga telah mendapatkan kebenaran daripada responden untuk merakam perbualan.

DAPATAN KAJIAN

Responden yang terlibat dalam kajian ini adalah 5 orang yang merupakan penduduk tetap di Kampung Tanjung Apong, Asajaya, Sarawak. Responden terdiri daripada pelbagai latar belakang iaitu umur sekitar 20-an, 30-an dan 40-an. Kepelbagaian juga dari segi status pekerjaan dan bilangan anak. Butiran demografi responden yang lebih terperinci boleh dirujuk di Jadual 1.

Jadual 1: Demografi Responden

Responden	Umur (Tahun)	Jantina	Status Pekerjaan	Bilangan Anak (Bayi/Kanak)
1	46	Lelaki	Bekerja	3 (Kanak-Kanak)
2	46	Perempuan	Bekerja	1 (Kanak-Kanak)
3	36	Perempuan	Tidak Bekerja	1 (Kanak-Kanak)
4	38	Perempuan	Bekerja	1 (Kanak-Kanak)
5	25	Perempuan	Tidak Bekerja	1 (Bayi)

Pengetahuan ibu bapa terhadap suntikan awal vaksin

Pengkaji bertanyakan kepada responden mengenai suntikan vaksin dan responden mengatakan bahawa suntikan vaksin telah meningkatkan daya tahan badan atau sistem imunisasi anak mereka. Malah, ia turut memberi kesan yang positif kepada anak mereka. Responden 1 mengatakan bahawa terdapat pelbagai jenis vaksin yang telah diterima anaknya semasa kecil. Merujuk kepada petikan di bawah senarai suntikan vaksin yang telah diterima oleh anak kepada Responden 1.

“Bila di tengok pada vaksin berkenaan, kita ketahui banyak jenis vaksin seperti vaksin polio, vaksin BCG dan sebagainya kan.”

(Responden 1)

Responden 1 turut mengatakan bahawa kesan daripada suntikan berkenaan telah menyebabkan demam campak tidak lagi menjangkiti anaknya. Suntikan vaksin seakan-akan telah membuktikan keberkesannya maka sebagai seorang bapa beliau telah mengambil keputusan untuk bersetuju memvaksin anak kedua dan ketiga demi kesejahteraan hidup mereka juga. Merujuk kepada Responden 2, suntikan vaksin ini merupakan satu langkah untuk mencegah penyakit cegahan vaksin. Hal ini kerana daya tahan badan anaknya kian meningkatkan serta mengurangkan kebimbangannya terhadap kesihatan anaknya di masa hadapan.

“vaksin ini merupakan satu cara untuk mencegah penyakit dan yang kedua bagi saya boleh meningkatkan daya tahan badan anak saya di mana membolehkan kanak-kanak melangsungkan kehidupan mereka juga nanti.”

(Responden 2)

Keberkesanan daripada pengambilan suntikan vaksin menyebabkan responden 5 sangat menggalakkan ibu bapa di luar sana untuk bersetuju menerima suntikan tanpa perlu meragui dan mengendahkan kebaikan pengambilan vaksin tersebut.

“Hal ini telah meyakinkan diri saya untuk menggalakkan ibu bapa di luar sana untuk tidak mengendahkan pengambilan suntikan vaksin kepada anak mereka semasa masih kecil.”

(Responden 5)

Seterusnya, semua responden bersetuju sekiranya suntikan vaksin ini diwajibkan kepada semua bayi dan kanak-kanak. Seperti yang diketahui, setiap pengambilan suntikan vaksin adalah percuma namun, ia bukan alasan untuk golongan ibu bapa menolak vaksin jika hanya mendengar dari segelintir golongan yang memilih untuk menolak vaksin. Pengkaji turut berkesempatan untuk bertanya tentang nasib anak yang tidak diberi suntikan vaksin. Menurut Responden 5, anak yang tidak disuntik vaksin adalah berisiko tinggi didatangi penyakit serta mudah dijangkiti oleh virus dan penyakit berbahaya. Hal ini kerana sistem imunisasi badan bayi dan kanak-kanak tidak dapat melawan penyakit yang menyerang mereka.

“nasib anak yang tidak menerima suntikan vaksin ini dari mereka masih kecil, berkemungkinan berisiko tinggi dijangkiti penyakit yang berbahaya.”

(Responden 5)

Responden 4 mengatakan beliau tidak begitu yakin akan kemudatan yang bakal anak tersebut hadapi namun, berkemungkinan anak tersebut akan diserang penyakit pada usia yang muda seperti mengalami cirit birit, mudah selesema dan mudah demam. Petikan daripada Responden 4 mengenai kesan yang diterima oleh anak yang tidak di suntik dengan suntikan vaksin seperti di bawah.

“Saya kurang pasti bagaimana nasib anak yang tidak menerima suntikan vaksin namun saya percaya ibu bapa mereka mungkin mempunyai cara tersendiri untuk memastikan anak. mereka membesar seperti kanak-kanak yang lain”.

(Responden 4)

Responden 1 menyatakan bahawa golongan ibu bapa yang dipercayai tidak mengambil suntikan vaksin akan dipanggil hadir ke klinik untuk disoal tentang ketidakhadiran mereka semasa temu janji suntikan vaksin. Hal ini kerana pihak klinik mahukan yang terbaik untuk setiap individu. Sekiranya individu tidak mematuhi arahan atau

sengaja tidak mahu mengikut jadual temu janji di klinik, individu berkenaan akan dipanggil untuk mendapatkan kepastian daripadanya. Berikut merupakan petikan temu bual Responden 1.

“Bagi saya untuk ibu bapa yang menolak vaksin ini atau ibu bapa yang tidak menghadirkan diri selepas 2 bulan anak dilahirkan ke klinik, saya rasakan tindakan mereka begitu merugikan di mana vaksin berkenaan adalah percuma sahaja betul?.”

(Responden 1)

Oleh itu, pentingnya untuk mendapatkan nasihat dari pakar serta mendapatkan maklumat mengenai vaksin yang diambil sebelum memutuskan untuk menolak dan sebaliknya. Berjumpa dengan pihak kesihatan adalah yang terbaik sekiranya masih ragu serta kurang mengetahui kepentingan pengambilan suntikan vaksin terhadap bayi dan kanak-kanak.

Pandangan ibu bapa mengenai kesan pengambilan suntikan awal vaksin

Suntikan vaksin terbukti keberkesannya malah begitu digalakkan untuk mengambil suntikan awal vaksin terhadap bayi dan kanak-kanak. Pengkaji bertanyakan kepada responden kesan yang terhadap anak mereka setelah disuntik serta perbezaannya sebelum disuntik. Kesemua responden yang ditemubual bersetuju bahawa pengambilan suntikan vaksin ini memberi kesan yang positif malah turut memberi kebaikan terhadap kesihatan anak mereka. Suntikan vaksin yang diberikan kepada bayi dan kanak-kanak terbukti berkesan untuk mengurangkan kadar jangkitan serta membantu meningkatkan tahap kesihatan anak dari semasa ke semasa. Berikut merupakan petikan jawapan daripada Responden 1, 3 dan 4.

“Perubahan yang saya nampak pada anak saya ialah mungkin tidak sama seperti yang isteri saya nampak disebabkan isteri saya sentiasa bersama dengan mereka. Saya boleh katakan di sini suntikan vaksin sangat membantu menghalang penyakit berjangkit pada anak saya.”

(Responden 1)

“Pada pandangan saya, saya dapati terdapat perubahan sedikit pada anak saya. Anak saya ada mengalami demam biasa selepas suntikan berkenaan dan turut terdapat kesan lebam. Namun, kesan tersebut tidaklah lama hanya dalam tempoh seminggu sahaja. Selepas itu, kesan lebam mahu pun demam mula beransur hilang.”

(Responden 3)

“Selepas anak saya menerima suntikan vaksin, anak saya kurang mengalami demam yang teruk. Sebagai contoh, batuk atau selesema. Itulah kesan yang terdapat pada anak saya selepas menerima suntikan vaksin berbanding dengan sebelumnya.”

(Responden 4)

Melihat kepada perkembangan dan kesihatan anak sendiri, salah seorang responden bersyukur kerana kesemua anaknya telah diberikan suntikan awal vaksin. Pernyataan berikut adalah dari seorang bapa Responden 1 seperti di bawah.

“Setakat ini suntikan vaksin terbukti berkesan dan memberikan sesuatu yang positif kepada anak-anak saya terutamanya terhadap aspek kesihatan mereka. Sebagai bapa kepada 3 anak lelaki saya bersyukur kerana membuat keputusan untuk menerima suntikan vaksin berkenaan.”

(Responden 1)

Pandangan ibu bapa mengenai golongan yang menolak suntikan awal vaksin

Suntikan vaksin untuk bayi dan kanak-kanak diberikan secara percuma oleh Kementerian Kesihatan Malaysia (KKM). Golongan yang memutuskan untuk menolak suntikan vaksin kepada anak berkemungkinan disebabkan mereka mempunyai alasan tersendiri seperti hak untuk menolak. Berikut adalah pandangan daripada Responden 3, 4 dan 5 mengenai isu berkenaan.

“Tidak dinafikan juga mereka terpengaruh dengan anasir-anasir negatif daripada pandangan masyarakat yang menolak vaksin.”

(Responden 3)

“Saya berasa sedih golongan sebegini seakan-akan bakal memberi kesan kepada pertumbuhan anak mereka nanti.”

(Responden 4)

“Sukar bagi saya untuk mengatakan mengapa golongan sebegini memutuskan untuk menolak kerana kita mempunyai perbezaan pendapat dan sebagainya. Saya hanya kluatir nasib yang menimpa anak namun kita perlu menghormati keputusan pihak lain.”

(Responden 5)

Keberkesanan daripada suntikan vaksin ini masih belum mampu untuk membuat golongan yang menolak vaksin menyedari tentang kebaikan suntikan awal vaksin untuk anak mereka.

PERBINCANGAN

Pada bahagian ini pengkaji membincangkan tiga objektif kajian iaitu faktor pengambilan suntikan awal vaksin terhadap bayi dan kanak-kanak, kesan pengambilan suntikan awal vaksin terhadap bayi dan kanak-kanak dan pandangan ibu bapa terhadap golongan anti-vaksin.

Faktor ibu bapa mengambil suntikan awal vaksin terhadap bayi dan kanak-kanak

Faktor pengambilan suntikan vaksin terhadap bayi dan kanak-kanak adalah disebabkan oleh keberkesanan yang terdapat dalam vaksin seperti meningkatkan tahap kesihatan dan sistem imunisasi anak serta memberikan perlindungan daripada dijangkiti penyakit berjangkit. Berdasarkan kepada kajian Yeong (2015) golongan kanak-kanak merupakan golongan yang mudah dijangkiti penyakit cegah vaksin. Yeong (2015) juga turut mengatakan sistem imunisasi kanak-kanak lebih lemah berbanding orang dewasa. Pengambilan suntikan awal vaksin dapat membantu menguatkan sistem imun mereka sekali gus dapat merangsangkan sel pertahanan badan anak mereka. Vaksin juga dapat memberikan perlindungan sekiranya berlaku komplikasi yang mengancam nyawa. Oleh itu, suntikan vaksin sangat digalakkan untuk kanak-kanak supaya diberikan imunisasi seawal mungkin sejajar dengan jadual imunisasi yang telah ditetapkan. (Yeong, 2015)

Suntikan vaksin yang diberikan secara percuma kepada lapisan masyarakat tanpa dikenakan sebarang caj tambahan di antara faktor utama pengambilan suntikan vaksin dalam kalangan ibu bapa. Mewajibkan pengambilan suntikan vaksin membantu mengurangkan kadar jangkitan penyakit berjangkit seperti penyakit yang dibawa oleh golongan anti-vaksin. Hal ini sama seperti yang terdapat pada kajian Azzahra dan Ramli (2017) yang berlandaskan kepada perspektif Islam, kebenaran pemerintah dalam menetapkan keperluan vaksinasi merupakan suatu kewajipan kepada seluruh anggota masyarakat selaras dengan prinsip masalah. Keperluan suntikan vaksin selaras dengan konsep vaksin itu sendiri yang boleh mengurangkan risiko daripada dijangkiti penyakit cegah vaksin (Azzahra dan Ramli, 2017).

Kesan pengambilan suntikan awal vaksin terhadap bayi dan kanak-kanak

Bagi objektif ini ada di antara ibu bapa mengatakan selepas suntikan awal vaksin diberikan, terdapat kesan lebam dan kemerahan pada anaknya namun tidak sehingga membahayakan kesihatan bayi mahupun kanak-kanak. Malah, tahap kesihatan anak menunjukkan peningkatan positif seperti kurang mengalami demam dan terhindar daripada penyakit mudah berjangkit. Kenyataan ini berhubungkait dengan maklumat yang disampaikan oleh Kementerian Kesihatan Malaysia dan Jabatan Kemajuan Islam Malaysia (2015) bahawa suntikan vaksin mengandungi kesan sampingan yang memberikan kesan kesakitan dan kemerahan pada tempat suntikan atau mengalami demam tetapi kesan tersebut hanyalah kesan yang ringan dan akan sembuh dengan kadar segera. Malah, Kementerian Kesihatan Malaysia dan Jabatan Islam Malaysia (2015) turut mengatakan bahawa kesan suntikan vaksin turut memberi kesan yang serius namun ia jarang berlaku.

Penerima vaksin akan mendapat kesan yang positif berbanding kesan yang boleh memudaratkan kesihatan bayi dan kanak-kanak. Kesihatan bayi dan kanak-kanak akan terjejas sehingga memudaratkan diri sekiranya ibu bapa memilih untuk tidak mengambil suntikan awal vaksin kepada anak-anak mereka. Hal ini kerana golongan bayi dan kanak-kanak mudah diserang penyakit kerana tiada sistem tahanan badan yang boleh membunuh virus atau kuman yang merebak. Terdapat hubungkait di antara kenyataan di atas dengan kajian yang telah dijalankan oleh Kimmel et al., (2003) mengenai kesan penolakan vaksin terhadap kanak-kanak di mana mereka lebih cenderung untuk mendapat penyakit berjangkit seperti demam campak berbanding golongan kanak-kanak yang menerima suntikan vaksin. Lantaran turut menunjukkan bahawa sebanyak 22 kali ganda penerima suntikan vaksin berbanding mereka yang menolak menurut kajian Kimmel et al., (2003).

Pandangan ibu bapa terhadap golongan anti-vaksin

Golongan ibu bapa mengatakan isu penolakan vaksin merupakan keputusan peribadi namun ia boleh menandatangani keburukan kepada anak memandangkan suntikan vaksin berjaya membuktikan keberkesannya.

Tidak dinafikan golongan anti-vaksin mudah terpengaruh kepada berita yang tidak sahih sehingga mendatangkan kesan negatif yang menjurus kepada peningkatan jumlah anti-vaksin. Hal ini boleh dirujuk kepada kajian Azzahra dan Ramli (2017) yang mengatakan bahawa isu golongan ibu bapa yang menolak vaksin sangat membimbangkan sejak akhir-akhir ini. Hal ini menyebabkan peningkatan jumlah kes penyakit cegahan vaksin di Malaysia kian meningkat. Malah, kebimbangan terhadap isu ini menjadikan dan mendorong pelbagai pihak untuk mencari langkah yang efektif dalam menyelesaikan isu ini (Azzahra dan Ramli, 2017).

Penolakan vaksin yang di sebabkan oleh segelintir ibu bapa percaya bahawa terdapat kaedah lain dalam meningkatkan tahap kesihatan anak mereka serta lebih mempercayai info luar berbanding bertanya sendiri kepada pakar kesihatan di klinik atau hospital. Tidak dinafikan setiap ibu bapa inginkan yang terbaik dan tahu apa yang mereka lakukan termasuklah memutuskan untuk tidak mengambil suntikan vaksin walaupun telah disarankan oleh pihak klinik dan hospital. Golongan anti-vaksin ini membebankan pihak tertentu dalam membasmi penyakit berjangkit yang boleh membawa maut. Dalam kajian Zaitie (2020) penularan maklumat palsu mengenai vaksin menimbulkan kebimbangan pihak KKM serta turut mewujudkan golongan yang terang-terangan mempengaruhi orang awam untuk menolak vaksin. Penolakan untuk mengambil suntikan vaksin menyebabkan usaha Kementerian dalam menangani kadar penyakit berjangkit menjadi sukar memandangkan golongan anti-vaksin ini semakin meningkat. Malah, World Health Organization (WHO) mengatakan bahawa golongan anti-vaksin ini merupakan ancaman kepada kesihatan global. (Zaitie, 2020)

Golongan anti-vaksin seperti yang ibu bapa katakan mempunyai hak sendiri dalam memutuskan apa yang terbaik kepada anak mereka terutamanya dalam aspek kesihatan. Namun begitu, kesan yang memudaratkan tidak dinafikan boleh terjadi kepada anak yang tidak diberi suntikan vaksin malah turut memberi kesan yang buruk kepada masyarakat sekeliling. Merujuk kepada Jawatankuasa Penasihat Vaksin Negara (2015) mengatakan bahawa pengambilan vaksinasi sangat penting dan mestilah tepat pada masanya. Kanak-kanak yang tidak diberi vaksinasi berkemungkinan merupakan satu pilihan di mana menanggung atau menolak menerima vaksin seperti vaksinasi untuk demam campak. Penolakan ini menyebabkan masyarakat juga terdedah kepada jangkitan. Ibu bapa atau penjaga haruslah memainkan peranan sewajarnya supaya anak tidak menanggung akibat di sebabkan oleh sikap mereka.

KESIMPULAN

Kajian ini memperlihatkan bahawa pentingnya untuk mempunyai maklumat yang betul dan kesedaran mengenai kesihatan bayi dan kanak-kanak. Pengambilan suntikan vaksin merupakan salah satu langkah yang efektif untuk mencegah penyakit cegahan vaksin sekali gus meningkatkan sistem imunisasi manusia tanpa mengira umur terutamanya kepada bayi dan kanak-kanak. Sehubungan dengan itu, setiap suntikan yang diterima oleh bayi dan kanak-kanak adalah percuma tanpa perlu mengeluarkan sebarang wang ringgit, tetapi hanya mendapatkan persetujuan daripada ibu bapa atau penjaga. Namun, golongan yang menolak suntikan vaksin kepada bayi dan kanak-kanak atau lebih di kenali sebagai golongan anti-vaksin ini sememangnya akan menyukarkan pihak yang berkaitan untuk terus memperkasakan program vaksinasi setiap tahun. Kesimpulannya, kepentingan pengambilan suntikan vaksin yang dikatakan boleh meningkatkan kesihatan anak telah membuatkan ibu bapa bersetuju dengan pengambilan vaksin sekaligus mempercayai bahawa suntikan vaksin membantu anak membesar dengan sihat dan sempurna.

RUJUKAN

- Alonso, J. A. N., González, P. J. B., & Carbonell, J. C. N. (2001). Analysis of factors influencing vaccine uptake: perspective from Spain. *Vaccine*, 20, S13-S15. [https://doi.org/10.1016/S0264-410X\(01\)00300-0](https://doi.org/10.1016/S0264-410X(01)00300-0)
- Azzahra, T. F & Ramli, M. A. (2017). Penetapan keperluan vaksinasi terhadap kanak-kanak oleh pemerintah menurut perspektif Syarak. *The International Seminar on Islamic Jurisprudence in Contemporary Society*. https://www.researchgate.net/publication/314443680_Penetapan_Keperluan_Vaksinasi_Terhadap_Kanak-kanak_Oleh_Pemerintah_Menurut_Perspektif_Syarak
- Hamid, S. A (2018). Anti Vaksin: Apakah Natijahnya Kepada Masyarakat. *e-Prosiding Persidangan Antarabangsa Sains Sosial dan Kemanusiaan 2018*. Kolej Universiti Islam Antarabangsa Selangor. PASAK3_1119.pdf (kuis.edu.my).
- Jawatankuasa Penasihat Vaksin Negara (2015). Menilai Keadaan Kepercayaan Vaksin di Amerika Syarikat: Cadangan dari Jawatankuasa Penasihat Vaksin Nasional. Laporan Kesihatan Awam (1974-), 130(6), 573-595. <http://www.jstor.org/stable/43776224>

- Kata, A. (2010). A postmodern Pandora's box: Anti-vaccination misinformation on the internet. *Vaccine* 28 (7), 1709-1716. <https://immunize.ca/sites/default/files/resources/1700e.pdf>
- Kementerian Kesihatan Malaysia (KKM) & Jabatan Kemajuan Islam Malaysia. (2015). Soalan Lazim Mengenai Vaksin dan Imunisasi. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjmm7qNsvvyAhWGxDgGHWcAAQMqFnoECAUQAQ&url=https%3A%2F%2Fwww.moh.gov.my%2Findex.php%2Ffile_manager%2Fdl_item%2F554756755a584a69615852686269394859584a70637942515957356b645746754c31426c626d6431636e567a595734675330567a615768686447467549435967613246335957786862694277655774706443395462324673595735666247463661573166596d5679613246706447467558315a6861334e70626c394a6258567561584e6863326c664d4449774e7a49774d5455756347526d&usg=AOvVaw0zERTY1vC3AdGBzMmBZH6m
- Kementerian Kesihatan Malaysia. (2015). Bahagian Pembangunan Kesihatan Keluarga. <http://fh.moh.gov.my/v3/index.php/52-sektor-kesihatan-sekolah>
- Kimmel, S. R., Burns, I. T., Wolfe, R. M., & Zimmerman, R. K. (2007). Addressing immunization barriers, benefits, and risks. *Journal of Family Practice*, 56(2), S61-S61.
- Ramli, M. A., Tengku Md Fauzi, T. F. A., & Mohd Razif, N. F. (2019). Autoriti Kerajaan Dalam Mewajibkan Vaksinasi Kanak-kanak: Kajian Menurut Perspektif Hukum Islam (Authority of the Government to Enforce Child Vaccination: A Study from the Islamic Ruling Perspective). *UMRAN - International Journal of Islamic and Civilizational Studies*, 6(2), 21–35. <https://doi.org/10.11113/umran2019.6n2.243>
- Seeni, S. (2018). Apakah Kepentingan Vaksin, Adakah Vaksin Perlu Diwajibkan?. <https://www.doctoroncall.com.my/kepentingan-vaksin#show>
- Yeong, M. L. (2015). Imunisasi: Fakta dan Kemusykilan. Portal Rasmi MyHealth Kementerian Kesihatan Malaysia. <http://www.myhealth.gov.my/imunisasi-fakta-dan-kemusykilan/>
- Zaitie, S. (2020, December 11). Tolak Vaksin Ancam Kesihatan Global. *Harian Metro*. <http://www.hmetro.com.my/sihat/2019/02/42051/tolak-ancam-kesihatan-global>

Pilihan Raya Negeri Sabah Ke-16: Sokongan Terhadap Parti STAR Dan Perspektif Politik Etnik Kadazandusun

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ABSTRAK

Artikel ini bertujuan untuk menganalisa faktor-faktor yang mendorong kepada sokongan terhadap Parti Solidariti Tanah Airku (STAR) dan pengaruh politik etnik Kadazandusun terhadap populariti STAR semasa Pilihan Raya Negeri Sabah Ke-16 (PRN16). Dengan menggunakan pendekatan primordialisme dan instrumentalis, artikel ini menjelaskan bahawa faktor politik etnik Kadazandusun memainkan peranan yang agak signifikan terhadap sokongan kepada STAR. Selain daripada faktor politik etnik, populariti STAR juga didorong oleh kepimpinan dan personaliti pemimpin, pengaruh sokongan terhadap kerajaan persekutuan di bawah Perikatan Nasional (PN), isu berkaitan pendatang tanpa izin (PTI), dan Perjanjian Malaysia (MA63). Isu-isu ini berjaya dimainkan oleh pemimpin STAR dan sedikit sebanyak membantu melemahkan sokongan masyarakat Kadazandusun terhadap Pakatan Harapan (PH) terutamanya Warisan dan UPKO (*United Progressive Kinabalu Organisation/Pertubuhan Kinabalu Progresif Bersatu*).

Kata kunci: Pilihanraya Negeri Sabah Ke-16, STAR, politik etnik, Kadazandusun

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PENGENALAN

Pilihan raya merupakan sistem yang terpakai bagi negara-negara yang mengamalkan sistem demokrasi. Malaysia adalah sebuah negara yang mengamalkan demokrasi berparlimen dimana parti yang mempunyai jumlah kerusi terbanyak akan membentuk kerajaan dengan majoriti mudah manakala kemenangan di sesebuah kawasan pilihan raya adalah ditentukan melalui calon yang mendapat undi terbanyak. Sejarah pilihan raya di negara ini memperlihatkan Barisan Nasional (BN) mendominasi pilihanraya lebih daripada 60 tahun. Namun begitu, untuk pertama kalinya BN telah tewas kepada Pakatan Harapan (PH) pada Pilihan Raya Umum Ke-14 (PRU14). Dalam konteks Sabah, Pilihan Raya Negeri Ke-16 (PRN16) ditumpukan kepada Parti Solidariti Tanah Airku (Homeland Solidarity Party or STAR) yang memenangi 6 daripada 8 kerusi yang ditandingi. Pada awalnya, STAR menuntut supaya diberikan sekurang-kurangnya 15 hingga 18 kerusi dan mengancam untuk keluar daripada komponen Perikatan Nasional (PN) sekiranya hasrat tersebut tidak dipenuhi (Sabah Gazette, 2020). Namun begitu, disebabkan oleh jumlah kerusi yang terbatas dan hakikat bahawa parti ini berada dalam satu komponen yang besar maka STAR terpaksa akur dengan 8 kerusi yang diberikan (Sinar Harian, 2020). Tujuan STAR ingin mendapatkan lebih banyak kerusi dapat difahami kerana sentimen diperingkat akar umbi di kawasan Kadazandusun yang menginginkan STAR untuk bertanding disamping untuk mendapatkan suara yang lebih besar di dalam Dewan Undangan Negeri (DUN) dan di peringkat kerajaan negeri dalam melaksanakan hak-hak rakyat Sabah. Hal ini demikian kerana Presiden STAR Jeffrey Kitingan memang sudah cukup dikenali sebagai “pejuang” Perjanjian Malaysia (MA63) sejak sekian lama (Borneo Today, 2020). STAR ingin bertanding lebih banyak kerusi kerana dengan kerusi yang dimenangi, STAR berharap akan mampu membawa perubahan dalam pentadbiran negeri disamping dapat menuntut lebih banyak hak-hak Sabah kepada kerajaan persekutuan. Jika dilihat secara menyeluruh, kemenangan STAR pada PRN16 adalah kerana ia bersandarkan kepada personaliti Jeffrey itu sendiri yang dilihat sebagai seorang pemimpin yang “konsisten” dalam memperjuangkan hak rakyat negeri ini termasuklah berhubung isu MA63 (Astro Awani, 2020).

PRN16 menyaksikan sebanyak 20 parti telah bertanding di 73 kerusi DUN di Sabah. Parti-parti ini termasuklah Parti Cinta Sabah (PCS), Parti Warisan Sabah (WARISAN), Pertubuhan Kebangsaan Sabah Bersatu (USNO), Parti Liberal Demokratik (LDP), Pertubuhan Kebangsaan Melayu Bersatu (UMNO), Parti Pribumi Bersatu Sabah (BERSATU), Parti Gagasan Rakyat Sabah (GAGASAN), Parti Perpaduan Rakyat Sabah (PPRS), Parti Bersatu Sabah (PBS), Pertubuhan Kinabalu Progresif Bersatu (UPKO), Parti Keadilan Rakyat (PKR), Parti

Harapan Rakyat Sabah (HARAPAN RAKYAT), Parti Kerjasama Anak Negeri (ANAK NEGERI), Parti Kebangsaan Sabah (PKS), Parti Solidariti Tanah Airku (STAR), Parti Progresif Sabah (SAPP), Parti Bersatu Rakyat Sabah (PBRS), Persatuan Cina Malaysia (MCA), Parti Tindakan Demokratik (DAP), dan juga calon-calon bebas.

Pilihan raya kali ini juga memperlihatkan pertarungan sengit antara tiga fraksi politik Sabah iaitu PH-Warisan, PCS dan BN-PN-PBS. Warisan mempunyai sokongan kuat di Pantai Timur Sabah walaupun sokongan masyarakat Kadazandusun dan Murut serta masyarakat Bumiputera Islam di kawasan lain agak kurang memberangsangkan. Hal ini demikian kerana masyarakat Kadazandusun dan Murut terutamanya masih kekal memilih untuk menyokong PBS dan STAR manakala BN dan juga BERSATU masing-masing mempunyai sokongan kuat di Bahagian Pantai Barat dan Utara Sabah (Malaysiakini, 2020). Untuk rekod, PRN16 telah dicetuskan oleh bekas Ketua Menteri Sabah iaitu Musa Aman. Beliau mendakwa mempunyai sokongan 33 Ahli DUN untuk membentuk kerajaan dan mendakwa Ketua Menteri Sabah Ke-15 dan juga Presiden Warisan Shafie Apdal tidak lagi memiliki sokongan majoriti (Malaysiakini, 2020 & Harian Metro, 2020). Beliau juga mendesak supaya DUN Sabah tidak dibubarkan ekoran pandemik Covid-19 yang masih aktif di Sabah. Walau bagaimanapun, Shafie bertindak membubarkan DUN setelah mendapat persetujuan Yang di-Pertuan Negeri sekaligus menamatkan pemerintahan parti Warisan selama 22 bulan di Sabah. Pada pilihan raya lepas, STAR kurang mendapat sokongan daripada pengundi dan hanya mampu memenangi 2 kerusi sahaja di Tambunan dan Bingkor (Free Malaysia Today, 2020). Walau bagaimanapun, usaha STAR untuk terus memperkasakan dan menggerakkan parti tersebut tidak sia-sia apabila pada PRN16, STAR bangkit dengan mendapat 6 kemenangan dari 8 kerusi yang ditandingi (Sinar Harian, 2020). Ini menunjukkan sokongan masyarakat terhadap STAR semakin meningkat terutama dalam kalangan kaum Kadazandusun.

Artikel ini bertujuan untuk menganalisa faktor-faktor kemenangan STAR semasa PRN16. Sejak Pilihan Raya Umum Ke-13 (PRU13), parti yang berteraskan kepada etnik sudah mulai bertambah. Parti-parti tempatan yang berteraskan kepada etnik Kadazandusun termasuklah PBS, UPKO, STAR dan juga PBRS. Di Sabah terdapat 73 kerusi DUN yang dipertandingkan semasa PRN16 berbanding 60 kerusi pada Pilihanraya Negeri Sabah pada tahun 2018 (PRN15). Dalam pada itu, sebanyak 14 kerusi yang dimenangi oleh parti-parti berteraskan etnik Kadazandusun secara keseluruhannya. Daripada 14 kerusi tersebut, 6 kerusi telah dimenangi STAR. PBS pula mendapat 7 kerusi dan 1 lagi kerusi dimenangi oleh UPKO. Artikel ini juga bertujuan untuk menganalisa sejauhmana sokongan masyarakat Kadazandusun terhadap STAR telah membantu parti tersebut untuk meningkatkan kerusi yang diperolehi dan strategi-strategi STAR untuk mendapatkan sokongan daripada pengundi Kadazandusun.

Pendekatan Teoretikal

Kajian ini menggunakan dua pendekatan teoritikal primordialis dan juga instrumentalis. Dari segi primordialisme, politik berasaskan etnisiti pada asasnya berpunca daripada perbezaan identiti etnik (Vanhanen, 1999). Sebagai etnik yang berkongsi darah yang sama atau '*common blood*', pendekatan primordialis menjangkakan keramahan dan kerjasama di antara anggota kumpulan dan permusuhan terhadap kumpulan etnik yang lain (Horowitz, 1985). Hal ini demikian kerana perbezaan etnik di bawah primordialis adalah tidak dapat diselesaikan kerana konflik pasti timbul akibat dari 'kebencian kuno' antara satu kumpulan etnik dengan kumpulan etnik yang lain (Geertz, 1963). Di bawah pendekatan instrumentalis, politik etnik tidak muncul secara langsung dari perbezaan identiti etnik tetapi hanya timbul apabila identiti etnik dipolitikkan atau dimanipulasi untuk menjana kelebihan politik dan sosio-ekonomi bagi kumpulan etnik tertentu (Posen, 1993). Dengan kata lain, teori primordialisme melihat bangsa atau identiti etnik sebagai tetap, semula jadi dan kuno. Hujah ini bersandarkan kepada konsep kekeluargaan, dimana anggota kumpulan etnik merasakan mereka mempunyai ciri, asal usul dan persamaan darah manakala teori instrumentalisme digunakan untuk memahami etnik sebagai alat yang digunakan oleh individu atau kumpulan untuk menyatakan, mengatur dan menggerakkan populasi untuk mencapai tujuan yang lebih besar. Memandangkan politik etnik yang bersifat multi-dimensi, tidak ada satu teori yang cukup kuat untuk menjelaskan asal usul dan dinamika politik etnik dan walaupun setiap teori ini mempunyai sumbangan yang signifikan untuk memahami fenomena tersebut.

Pada asasnya, politik etnik tidak hanya terkait dengan masalah atau konflik etnik semata-mata tetapi juga masalah politik, ekonomi dan juga sosio-ekonomi sesebuah etnik. Dalam konteks di Sabah, politik etnik masih lagi agak tebal terutamanya di kawasan pedalaman. Hal ini demikian kerana jurang ekonomi dan infrastruktur sangat ketara antara kawasan luar bandar dan juga bandar. Setiap penyokong atau pengundi mempunyai tujuan dan matlamat yang berbeza. Mengambil contoh etnik Kadazandusun di kawasan luar bandar dan etnik Cina kawasan bandar. Etnik Kadazandusun lebih cenderung untuk menyokong parti seperti STAR kerana parti tersebut dipimpin oleh pemimpin Kadazandusun yang seringkali memainkan sentimen Kadazandusun dan kenegerian untuk meraih sokongan. Ini berbeza dengan masyarakat Cina di kawasan bandar yang lebih

cenderung untuk menyokong parti-parti yang tidak semestinya berasaskan perkauman tetapi lebih memfokus kepada isu-isu pembangunan di bandar atau isu-isu berkaitan governans. Selain itu juga, sokongan sesebuah etnik terhadap calon atau pemimpin parti politik adalah ditentukan persamaan darah, kekeluargaan dan juga berkongsi asal usul yang sama. Prestasi STAR meningkat apabila mereka berjaya meyakinkan dan menjuarai isu dan masalah di kawasan pengundi terutamanya etnik Kadazandusun di peringkat negeri dan juga nasional apabila pelbagai isu seperti Perjanjian Malaysia 1963 (MA63), royalti minyak dan isu kemunduran Sabah terus dibangkitkan oleh pemimpin-pemimpin STAR seperti Jeffrey yang disifatkan sebagai “pemimpin tersohor” masyarakat Kadazandusun. Oleh sebab itulah tren sokongan Kadazandusun pada PRN16 terhadap STAR Sabah meningkat.

TEMPAT DAN METODOLOGI KAJIAN

Lokasi Kajian: Sabah

Dalam melaksanakan kajian ini, pengkaji telah memilih negeri Sabah sebagai kawasan untuk melakukan penelitian. Negeri Sabah yang juga dikenali sebagai *Land Below the Wind* merupakan salah satu daripada 13 negeri yang membentuk Malaysia pada tahun 1963. Ibu kota Sabah terletak di Kota Kinabalu yang dahulunya dikenali sebagai Jesselton. Sabah merupakan negeri yang terkenal dengan keunikan dan kepelbagaian etnik. Menurut statistik yang dikeluarkan oleh Jabatan Perangkaan Malaysia (DOSM) jumlah penduduk Sabah pada tahun 2017 adalah seramai 3.9 juta dan dijangka meningkat kepada 4 juta pada tahun 2020. Masyarakat Kadazandusun dianggarkan berjumlah 555,647 orang atau 17.82 peratus daripada jumlah keseluruhan penduduk Sabah. Jumlah penduduk Kadazandusun yang terbesar adalah di Ranau (80,192) diikuti oleh Kota Kinabalu (69,993) dan Keningau (68,627). Fokus kajian ini adalah di kawasan-kawasan majoriti Kadazandusun. Data yang diperolehi adalah dari laman web Suruhanjaya Pilihan Raya Malaysia. Data yang diperolehi dianalisa berdasarkan undi majoriti dan undi popular yang diperolehi oleh parti-parti berasaskan Kadazandusun. Perbandingan juga dibuat dengan keputusan yang diperolehi oleh parti-parti berasaskan Kadazandusun serta pemimpin Kadazandusun pada pilihan raya umum dan pilihan raya negeri yang lepas. Temubual juga dijalankan dengan beberapa individu terpilih termasuklah beberapa pemimpin STAR sendiri.

DAPATAN KAJIAN

Latar Belakang Masyarakat Kadazandusun

Negeri Sabah adalah salah satu negeri yang mempunyai lebih daripada 40 kumpulan etnik, 50 kumpulan bahasa yang mana lebih daripada 20 bahasa itu dimiliki oleh Kadazandusun. Kaum Kadazandusun merupakan kaum yang terbesar di Sabah. Pada mulanya Ketua Menteri Sabah yang pertama Fuad Stephens yang dikenali sebagai “Huguan Siou” (Pemimpin Agung) dalam masyarakat Kadazandusun telah mencadangkan supaya nama “Kadazan” digunakan untuk menyatukan 14 suku kaum yang berkongsi kumpulan bahasa bagi memberikan mereka suara yang lebih besar (Ismaily, 1988). Istilah Kadazan diketengahkan oleh Stephens kerana beliau percaya ia dapat menyatukan peribumi bukan Islam berbanding perkataan ‘Dusun’ yang dianggap mempunyai konotasi negatif (Puyok & Bagang, 2011).

Secara literalnya, Dusun merujuk kepada kebun dan oleh itu ia dikaitkan dengan kehidupan di kampung yang menggambarkan kemunduran, kehidupan primitif, jauh ketinggalan malah pemikiran yang sempit dan tidak dinamik. Berbeza dengan perkataan Kadazan yang dikaitkan dengan kehidupan yang lebih moden dan progresif di bandar. Hal ini demikian kerana Kadazan terutamanya di Penampang dan Papar sudah maju dan mempunyai pendidikan yang jauh lebih baik berbanding dengan Dusun. Walau bagaimanapun, kaum Dusun tidak bersetuju dengan cadangan tersebut disebabkan bimbang akan kedudukan mereka akan didominasi dari aspek pendidikan dan ekonomi yang kurang maju oleh Kadazan yang jauh lebih maju dalam aspek ekonomi dan pendidikan (Osman, 2008). Oleh itu, istilah “Kadazan” dan “Dusun” telah dipersatukan pada tahun 1989 menjadi “Kadazandusun” untuk memupuk dan menyatupadukan semangat kesatuan dalam kalangan masyarakat ini. Jelas menunjukkan bahawa pengenalan perkataan Kadazan itu adalah merupakan kesilapan yang diakui oleh Stephens sendiri (Kinabalu Sunday Times, 19 Februari 1967, dipetik dalam Puyok dan Bagang, 2011). Herman Luping, seorang pemimpin Kadazandusun yang terkenal setuju dengan Stephens: "Kesalahan yang kami buat pada tahun 1961 adalah memanggil semua orang Kadazan - itu adalah kesilapan. Apa yang harus kita lakukan adalah mempunyai label Kadazan di atas dan kemudian di bawah Kadazan ini, kita mempunyai Dusun, kita mempunyai Kuijau. Walaupun kita memiliki Kadazan, kita seharusnya juga mengizinkan Dusun dimasa yang sama. Sebaliknya, kami cuba menelan kebanggaan sebilangan orang ini yang mahu digelar Dusun" (Daily Express, 22 Mac 2009, dipetik dalam Puyok dan Bagang, 2011). Hal ini demikian kerana, keengganan etnik Dusun menerima istilah ‘Kadazan’ telah menyebabkan kontroversi dalam kalangan pribumi Kadazan dan Dusun yang berlarutan lebih kurang 30 tahun (Suraya, 2003). Kegiatan sosioekonomi masyarakat Kadazandusun adalah lebih tertumpu kepada pertanian seperti penanaman padi yang dijadikan sebagai makanan asas dan

sumber ekonomi serta faktor yang mempengaruhi pembentukan identiti Kadazandusun (Hussin, 2007). Akan tetapi dengan perkembangan sosio-ekonomi yang dicapai oleh Malaysia sekarang, masyarakat Kadazandusun beransur-ansur beralih ke bidang perkhidmatan, perniagaan dan juga pertanian moden (Jabatan Perangkaan Malaysia, 2019).

Masyarakat Kadazandusun sememangnya sudah sinonim dan menjadi deskripsi umum identiti negeri ini meskipun terdapat etnik-etnik lain seperti Rungus, Kadayan dan banyak lagi. Selain itu juga, walaupun masyarakat Kadazandusun adalah etnik terbesar di Sabah, mereka tidak mempunyai pengaruh politik yang kuat dan kebanyakannya masih lagi bergelut dengan isu-isu pembangunan. Sebahagian besar masalah yang dihadapi oleh masyarakat Kadazandusun ialah perpecahan politik di kalangan golongan elit Kadazandusun dan ketiadaan pemimpin yang mempunyai visi yang jelas untuk membangunkan komuniti mereka (Puyok dan Bagang, 2011).

Pemimpin-pemimpin politik yang telah membantu mencorakkan perjalanan politik kaum Kadazandusun adalah seperti Joseph Pairin Kitingan, Jeffrey Kitingan, Joseph Kurup, Wilfred Bumburing, Bernard Dompok, Madius Tangau dan Maximus Ongkili. Pada masa ini, terdapat tiga parti utama yang berteraskan kepada etnik Kadazandusun seperti PBS, STAR, UPKO dan PBRs. Setiap pihak mempunyai perjuangan dan strategi tersendiri untuk mendapatkan sokongan Kadazandusun. PBS nampaknya mendapat sokongan terbanyak, diikuti oleh STAR, UPKO dan PBRs (Chin, 1994; Puyok, 2007). STAR yang bermula dengan satu kerusi parlimen dan dua kerusi DUN pada PRU14 berjaya menambah kerusi mereka kepada enam pada PRN16. Kerusi-kerusi yang dimenangi ini adalah Paginatan, Tambunan, Bingkor, Liawan, Tulid dan Sook. Kemenangan ini banyak didorong oleh beberapa faktor iaitu termasuklah isu PTI (pendatang tanpa izin) dan juga pengaruh kerajaan persekutuan pimpinan PN. Kerajaan negeri yang dipimpin oleh Warisan mencadangkan supaya pendatang yang bekerja di Sabah diberikan Pas Sementara Sabah (PSS) bagi menggantikan dokumen sedia ada iaitu IMM13, Kad Burung-Burung dan Sijil Banci (Malaysiakini, 2020). Cadangan ini mendapat tentangan hebat daripada STAR yang menyifatkan pemberian PSS itu akan memburukkan lagi masalah pendatang asing di Sabah serta menggalakkan warga asing terutamanya dari Selatan Filipina memasuki negara ini secara haram (Harian Metro, 2020). Tentangan tersebut akhirnya telah menyebabkan pengundi terutamanya Kadazandusun melihat STAR sebagai parti yang boleh menyelesaikan masalah PTI di Sabah. Pengenalan Kad Pengenalan Sabah yang dilaung-laungkan oleh STAR juga memberi kesan kepada pengundi Kadazandusun yang mana Orang Asal Sabah (OAS) menginginkan supaya kad pengenalan diri yang dikeluarkan oleh kerajaan Sabah sendiri dapat direalisasikan. Seterusnya, pengaruh kerajaan persekutuan pimpinan PN dan populariti Perdana Menteri iaitu Muhyiddin Yassin telah digunakan sebaik mungkin oleh STAR untuk mendapatkan sokongan pengundi. Hal ini demikian kerana kejayaan Muhyiddin dalam menangani krisis Covid-19 dan memberikan banyak bantuan kebajikan menjadi titik tolak kepada kemenangan Gabungan Rakyat Sabah (GRS) semasa PRN16 (Berita Harian, 2020). Faktor-faktor ini merupakan antara faktor yang telah membawa kepada kebangkitan STAR Sabah semasa PRN16 dan sokongan pengundi kepada STAR telah diterjemahkan melalui kemenangan besar parti ini semasa PRN tersebut.

Analisis Pengundian

Rajah 2: Analisis Pengundian Berdasarkan Kerusi Kadazandusun Pada PRN 16

Kerusi	Jumlah Pengundi Kadazandusun (%)	Penyandang	Parti Menang	Jumlah Undi	Majoriti
Bengkoka	6,925 (60.00%)	Harun Durabi	BN (UMNO)	2538	1337
Matunggong	16,900 (73.78%)	Julita Mojungki	PBS	4369	1510
Bandau	13,723 (95.03%)	Wetrom Bahanda	PN (BERSATU)	5863	3303
Tandek	15,482 (64.24%)	Hendrus Anding	PBS	3796	1432
Kadamaian	14,662 (81.54%)	Ewon Benedick	UPKO	6823	3459
Tamparuli	11,531 (61.22%)	Jahid Jahim	PBS	6843	3517
Kiulu	10,788 (83.29%)	Joniston Bongkuai	PBS	4007	1221
Moyog	16,216 (83.35%)	Darell Leiking	WARISAN "PLUS"	8437	5935
Limbahau	11,735 (85.38%)	Juil Nuatim	WARISAN "PLUS"	5194	2523
Kundasang	8,833 (59.43%)	Joachim Gunsalam	PBS	4332	1422
Karanaan	11,075 (82.50%)	Masidi Manjun	PN (BERSATU)	6696	4814
Paginatan	9,659 (63.03%)	Abidin Madingkir	PN (STAR)	3783	1422
Tambunan	13,774 (84.74%)	Jeffrey Kitingan	PN (STAR)	8691	6792
Bingkor	11,089 (62.44%)	Robert Tawik	PN (STAR)	7891	5070
Melalap	7,490 (53.52%)	Peter Anthony	WARISAN "PLUS"	5245	1719
Kemabong	10,400 (68.49%)	Rubin Balang	BEBAS	4214	1012
Tulid	8,464 (95%)	Flovia Ng	PN (STAR)	2267	544
Sook	13,732 (71.82%)	Ellron Angin	PN (STAR)	3554	1232
Telupid	4,813 (61.22)	Jonnybone Kurum	PBS	2266	685

Sumber: Suruhanjaya Pilihan Raya Malaysia

Rajah 2 menunjukkan analisis pengundian berdasarkan kerusi Kadazandusun bagi PRN16. Sesuatu kerusi itu dikira sebagai kerusi Kadazandusun jika pengundi Kadazandusun adalah lebih daripada 50%. Oleh itu, sekurang-kurangnya terdapat 19 kerusi Kadazandusun yang dipertandingkan pada PRN16. Dalam jadual ini, analisis menunjukkan Tambunan yang dimenangi oleh STAR mendapat jumlah undi yang paling tinggi iaitu sebanyak 8691 undi dengan majoriti sebanyak 6792. Manakala kerusi yang mendapat undi yang paling rendah adalah Tulid iaitu hanya 2267 jumlah undi dengan majoriti yang diperolehi adalah 544 sahaja. Kemenangan besar STAR di Tambunan adalah hasil daripada kerjasama antara PBS dan STAR yang mana dua calon PBS telah menarik diri daripada bertanding di kerusi tersebut (Sinar Harian, 2020). Kejayaan PN mengurus Covid-19 serta pemberian peruntukan yang besar kepada Sabah untuk menghadapi krisis Covid-19 telah membuka hati pengundi bahawa PN merupakan parti yang membela nasib rakyat di Sabah. Muhyiddin yang turut berkempen untuk membantu calon GRS telah mengukuhkan lagi sokongan pengundi yang akhirnya membawa kepada kemenangan kepada parti-parti komponen GRS semasa PRN16. Pengaruh PN dapat dibuktikan melalui kemenangan STAR di Tulid dimana rakyat telah memberikan sokongan kepada STAR. Namun begitu, kemenangan Jeffrey di Tambunan tidak sepenuhnya dipengaruhi oleh sokongan PN. Hal ini demikian kerana beliau mempunyai pengaruh dan penyokong di kawasan luar bandar terutamanya dalam kalangan pengundi Kadazandusun. Tambahan pula, Jeffrey yang memegang gelaran "Huguan Siou Lundu Mirongod" atau "Pemikir Agung" merupakan salah satu faktor penarik yang telah membentuk perpaduan dalam kalangan masyarakat Kadazandusun untuk menyokong STAR. Faktor etnik tidak dinafikan menjadi kriteria yang telah menentukan kemenangan Jeffrey di Tambunan dan Flovia di Tulid. Manakala kerusi Tulid yang mendapat undi terendah di antara kesemua kerusi Kadazandusun dapat difahami kerana kerusi tersebut baru dipertandingkan pada PRN16 dan mempunyai jumlah pengundi yang sedikit iaitu hanya 8910 orang pengundi sahaja. Selain daripada itu juga, jumlah mengundi yang keluar juga rendah iaitu hanya 6776 daripada 8910 jumlah keseluruhan ekoran pandemik Covid-19 (Suruhanjaya Pilihanraya, 2020).

Rajah 3: Analisis Jumlah Perbandingan Kerusi Yang Dimenangi Oleh Parti Kadazandusun

Parti	Perbandingan Kerusi Yang Dimenangi Oleh Parti Kadazandusun		
	PRN15	PRN16	Perbezaan
PBS	6	7	+1
PBRS	1	0	-1
UPKO	5	1	-4
STAR	2	6	+4

Sumber: Suruhanjaya Pilihan Raya Malaysia

Rajah 3 menunjukkan jumlah kerusi yang dimenangi oleh parti Kadazandusun pada PRN15 dan juga PRN16. Bagi PBS, parti ini telah mendapat 6 kerusi pada PRN15 dan meningkat kepada 7 kerusi pada PRN16 menjadikan kerusi keseluruhan PBS sebanyak 7 kerusi. STAR yang hanya mendapat dua kerusi pada PRN15 berjaya memenangi 6 kerusi pada PRN16 iaitu pertambahan sebanyak 4 kerusi. Sementara itu, UPKO yang memenangi lima kerusi pada PRN15 hanya berjaya mempertahankan 1 kerusi iaitu Kadamaian. PBRS yang mempunyai satu kerusi di Sook pada PRN15 tidak berjaya memenangi sebarang kerusi pada PRN16.

Rajah 4: Perbandingan Undi Popular Parti Bertanding Di Kerusi Kadazandusun

Kerusi	Parti	Perbandingan Undi Popular (%)		
		PRN15	PRN16	Perbezaan majoriti
Matunggong	PBS	30.3%	25.5%	-4.8
Tandek	PBS	36.8%	23.8%	-13
Kadamaian	UPKO	38.2%	38.0%	-2
Tamparuli	PBS	36.2%	41.2%	+5
Kiulu	PBS	33.5%	36.8%	+3.3
Lumadan	PBS	Tiada bertanding	24.2%	-
Kundasang	PBS	26.7%	29.0%	+2.3
Paginatan	STAR	12.2%	24.5%	+12.3
Tambunan	STAR	37.7%	52.6%	+14.9
Bingkor	STAR	25.6%	44.2%	+18.6
Liawan	STAR	Tiada bertanding	26.5%	-
Tulid	STAR	Kerusi baru	25.4%	-
Sook	STAR	17.8%	34.2%	+16.4
Telupid	PBS	Kerusi baru	28.82%	-

Sumber: Suruhanjaya Pilihan Raya Malaysia

Rajah 4 menunjukkan analisis perbandingan undi popular parti bertanding di 14 kerusi Kadazandusun. Dalam analisis ini, kerusi Bingkor yang dimenangi oleh STAR telah mendapat 25.6 peratus jumlah undi popular pada PRN15 dan terus meningkat kepada 44.2 peratus jumlah undi popular pada PRN16 iaitu peningkatan sebanyak 18.6 peratus. Kerusi yang menunjukkan peningkatan terendah ialah Kundasang yang dimenangi oleh PBS pada PRN15 iaitu dengan peningkatan sebanyak 2.3 peratus sahaja berbanding peningkatan undi popular yang diperolehi oleh STAR.

PERBINCANGAN

Analisis Pengundian

Dalam Rajah 2, analisis menunjukkan Tambunan yang dimenangi oleh STAR mendapat jumlah undi yang paling tinggi iaitu sebanyak 8691 undi dengan majoriti sebanyak 6792. Manakala kerusi yang mendapat undi yang paling rendah adalah kerusi Tulid iaitu hanya 2267 jumlah undi dengan majoriti yang diperolehi adalah 544 sahaja. Terdapat dua faktor yang boleh disimpulkan menerusi kemenangan calon STAR iaitu Jeffrey Kitingan. Faktor pertama adalah hasil daripada kerjasama antara PBS dan STAR yang mana dua calon PBS telah menarik diri bertanding di Tambunan serta sokongan STAR kepada PN. Bukan itu sahaja, kerja keras beliau semasa berkempen untuk menyantuni masyarakat di Tambunan tidak sia-sia apabila kerusi tersebut berjaya dirampas daripada PBS walaupun ketika itu beliau masih dalam pembangkang (Utusan Borneo, 2021). Ini membuktikan bahawa kerja keras dan isu yang ditimbulkan oleh Jeffrey memberikan impak dan kesedaran kepada pengundi Kadazandusun khususnya di Tambunan. Faktor kedua adalah kerana sokongan STAR kepada PN. Melalui sokongan tersebut, perpecahan undi dapat dielakkan dengan calon-calon lain dan seterusnya

memberikan ruang kepada calon STAR untuk mempertahankan kerusi tersebut. Manakala kerusi Tulid yang mendapat undi terendah di antara kesemua kerusi Kadazandusun dapat difahami kerana kerusi tersebut baru dipertandingkan pada PRN16 dan mempunyai jumlah pengundi yang sedikit iaitu hanya 8910 orang pengundi sahaja. Selain daripada itu juga, jumlah mengundi yang keluar juga rendah iaitu hanya 6776 daripada 8910 jumlah pengundi keseluruhan kerana terdapat pengundi yang takut keluar mengundi ekoran keadaan pandemik Covid-19 yang sedang melanda negara pada ketika ini.

Secara keseluruhannya, daripada empat parti Kadazandusun, hanya dua sahaja parti iaitu PBS dan STAR yang menunjukkan peningkatan dan prestasi yang memberangsangkan manakala dua lagi parti iaitu UPKO dan PBRS menunjukkan penurunan secara drastik. Untuk PBS, parti ini telah mendapat 6 kerusi pada PRN15. Namun begitu, pada PRN16, PBS berjaya mendapat satu lagi tambahan kerusi menerusi kerusi yang baru diwujudkan iaitu Telupid namun gagal mempertahankan kerusi Labuk yang dimenangi semasa PRN15. Kemenangan PBS di kawasan ini adalah kerana kerusi-kerusi yang dipertandingan pada PRN16 kebanyakannya adalah kerusi yang dimenangi pada PRN15. STAR yang hanya mendapat dua kerusi di Tambunan dan Bingkor pada PRN15 berjaya menambah sebanyak empat kerusi pada PRN16. Empat kerusi tersebut adalah Paginatan, Liawan dan Tulid yang juga salah satu daripada 13 kerusi yang diwujudkan serta Sook. Terdapat beberapa faktor yang lain yang mendorong kepada kemenangan STAR pada PRN16 yang lalu. Pertama sekali, kemenangan STAR di Paginatan adalah hasil daripada tindakan penyandang dan juga pemimpin UPKO Adibin Madingkir untuk keluar daripada UPKO dan menyertai STAR semasa PRN16. Hal ini demikian kerana pengundi Sabah cenderung memilih calon berbanding parti (Astro Awani, 2020). Oleh Sebab itulah, walaupun Abidin keluar daripada UPKO, tindakan itu tidak menjejaskan sokongan beliau di Paginatan. Begitu juga dengan Sook yang mana penyandang kerusi tersebut Ellron Angin bertindak keluar daripada PBRS dan menyertai STAR sekaligus mempertahankan kerusi yang dimenangnya pada PRN15. Liawan yang dimenangi oleh Warisan pada PRN15 berjaya di rampas oleh calon STAR iaitu Annuar Ayub. Kemenangan parti ini banyak dipengaruhi oleh faktor sokongan STAR kepada PN dan rasa tidak puas hati penyokong UPKO terhadap parti tersebut yang menyokong Warisan untuk membentuk kerajaan pada tahun 2018. UPKO yang memenangi lima kerusi pada PRN15 hanya berjaya mempertahankan kerusi Kadamaian melalui calonnya iaitu Ewon Benedick manakala kerusi lain masing-masing dirampas oleh Star, calon bebas dan juga Bersatu. Kekalahan teruk ini menyaksikan UPKO telah hilang pengaruh di kawasan-kawasan lain. Selain itu, faktor terbesar yang menyebabkan UPKO kalah di kebanyakan kerusi Kadazandusun adalah disebabkan oleh tindakan parti ini keluar daripada BN dan menyokong Warisan sehingga menyebabkan kerajaan pada ketika itu hanya bertahan selama 48 jam selepas Shafie mengangkat sumpah sebagai Ketua Menteri Sabah yang baharu. Rentetan daripada itu, rakyat yang marah dengan UPKO telah mengalihkan sokongan mereka kepada PBS dan STAR. PBRS yang mempunyai satu kerusi di Sook tidak berjaya mendapatkan sebarang kerusi pada PRN16. Hal ini demikian kerana penyandang yang memenangi kerusi Sook pada PRN15 telah menyertai Star.

Kerusi-kerusi Kadazandusun yang menunjukkan peningkatan majoriti yang diperolehi adalah Tamparuli, Kiulu, Kundasang, Paginatan, Tambunan, Bingkor dan Sook. Manakala kerusi-kerusi yang menunjukkan penurunan majoriti adalah Matunggong, Tandek dan Kadamaian. Untuk melihat dengan lebih spesifik lagi, pada PRN15, kerusi Matunggong yang dimenangi oleh PBS telah mendapat 30.3 peratus undi popular. Namun begitu, undi popular PBS di kerusi tersebut telah menurun kepada 25.5 peratus pada PRN16 iaitu perbezaan sebanyak 4.8 peratus. Terdapat beberapa faktor yang dapat dikaitkan dengan penurunan undi popular PBS di kawasan ini iaitu peratus keluar mengundi yang rendah yang juga disebabkan oleh keadaan pandemik yang dialami oleh negara pada masa ini selain daripada persaingan lapan penjur. Kerusi Tandek yang juga dimenangi oleh PBS hanya mendapat 23.8 peratus undi popular pada PRN16 berbanding 36.8 peratus pada PRN15 iaitu penurunan sebanyak 13 peratus. Hal ini demikian kerana ahli PBS Bahagian Tandek telah mengumumkan keluar daripada PBS dan menyerahkan borang keahlian mereka kepada Jeffrey. Tindakan ini telah menyebabkan Bahagian PBS di Tandek telah terbubar. Pembubaran tersebut telah memberi kesan kepada undi populariti PBS di Tandek (Malaysiakini, 2020). Satu lagi kerusi yang menunjukkan penurunan undi popular ialah Kadamaian. Undi popular yang dimenangi oleh UPKO ini ialah 38.2 peratus pada PRN15 tetapi menurun kepada 38.0 peratus pada PRN16.

Seterusnya, kerusi Bingkor yang dimenangi oleh STAR telah mendapat 25.6 peratus jumlah undi popular pada PRN15. Jumlah tersebut terus meningkat kepada 44.2 peratus pada PRN16. Walaupun terdapat peningkatan undi popular STAR di kerusi Bingkor, ia masih lagi tidak mencapai 50 peratus disebabkan oleh persaingan sengit dengan calon PBS dan DAP yang menyebabkan kepada perpecahan undi. Umum diketahui bahawa PBS juga mempunyai sokongan yang kuat di Bingkor. Persaingan antara ketiga-tiga calon ini begitu sengit memandangkan setiap calon mempunyai kekuatan yang tersendiri untuk menarik pengundi. Seterusnya, kerusi lain yang mempunyai peningkatan ialah Kundasang yang mana dapat dilihat pada PRN15 kerusi ini hanya memperoleh 26.7 peratus jumlah undi popular tetapi pada PRN16 undi popular kerusi ini telah meningkat

kepada 29 peratus. Lima lagi kerusi iaitu Tamparuli, Kiulu, Paginatan, Tambunan dan Sook masing-masing merekodkan peningkatan sebanyak 5 peratus, 3.3 peratus, 12.3 peratus, 14.9 peratus dan 16.4 peratus. Sebanyak 2 kerusi yang masing-masing disandang oleh PBS dan STAR iaitu di kerusi Lumadan dan Liawan tidak meletakkan calon pada PRN15. Namun begitu, PBS yang meletakkan Ruslan Muharram sebagai calon di Lumadan pada PRN16 telah menang dengan majoriti tipis sebanyak 364 jumlah undi berbanding pencabar terdekat daripada Warisan. Undi popular yang diperoleh oleh PBS menerusi kerusi tersebut ialah 24.2 peratus manakala STAR yang meletakkan Annuar Ayub di Liawan berjaya merampas kerusi tersebut daripada Warisan pada PRN16 dengan undi popular sebanyak 26.5 peratus. Akhir sekali, sebanyak dua kerusi yang baru diwujudkan pada PRN16 iaitu Tulid dan Telupid masing-masing dimenangi oleh STAR (25.4%) dan juga PBS (28.82%). STAR berjaya merampas kerusi Liawan dari tangan Warisan kerana disebabkan oleh faktor calon. Annuar Ayub yang juga calon untuk kerusi Liawan dilihat mampu mempengaruhi pemimpin-pemimpin yang berpengaruh di kawasan tersebut. Selain daripada itu juga, sokongan PN dan BN kepada calon STAR dilihat sebagai faktor yang mempengaruhi kemenangan STAR di Liawan. Mantan penyandang Liawan yang turut berkempen untuk menyokong calon STAR telah menyebabkan penyandang Warisan pada PRN15 telah kalah. Kerusi Telupid yang baru diwujudkan tidak disia-siakan oleh PBS apabila berjaya memenangi kerusi tersebut dengan undi popular sebanyak 28.82 peratus.

Faktor-Faktor Yang Mempengaruhi Sokongan Masyarakat Kadazandusun Terhadap STAR Semasa PRN16

Faktor Personaliti Dan Kepimpinan

Berdasarkan kepada temubual yang dijalankan, faktor personaliti dan kepimpinan Jeffrey mempengaruhi sokongan masyarakat Kadazandusun terhadap STAR semasa PRN16. Hal ini demikian kerana Jeffrey dikatakan sebagai pemimpin yang sentiasa menyuarakan hak-hak Sabah, berpendirian tegas dan konsisten dengan perjuangan beliau. Kelantangan Jeffrey dalam menyuarakan hak-hak Sabah dan ketidakpuashatian beliau terhadap kerajaan persekutuan telah membawa kepada penahanan Jeffrey di bawah Akta Keselamatan Dalam Negeri (ISA) pada 10 Mei 1991 (dipetik dalam Daily Express, 25 September 2011). Selain itu juga, menurut seorang responden, Jeffrey dikatakan sebagai wakil rakyat yang prihatin dengan masalah-masalah yang dialami oleh masyarakat Kadazandusun di Sabah (Andrew Ross, komunikasi peribadi, Mei 15, 2021). Menurut Jeniri Amir yang juga Felo Kanan Majlis Profesor Negara: “walaupun berlaku pertembungan, pengundi Sabah akan berbalik kepada dua perkara iaitu personaliti dan keduanya ialah parti.” (Sinar Harian, 2020). Jeffrey juga merupakan salah seorang pemimpin agung dalam institusi kepimpinan tradisional Kadazandusun iaitu Institusi Huguang Siou (Bagang, Puyok & Mersat, 2021).

Faktor Etnik

Seterusnya, faktor etnik. Pada asasnya, sokongan masyarakat Kadazandusun kepada STAR adalah kerana percaya bahawa hanya parti tempatan yang boleh membawa perubahan dari segi politik, ekonomi dan juga sosio-ekonomi kepada masyarakat ini (Mastupang Somoi, komunikasi peribadi, Jun 14, 2021). Oleh itu, semasa PRN16, tren pengundian untuk STAR meningkat dengan drastik. Selain daripada itu juga, Jeffrey yang pada ketika ini memegang gelaran sebagai “Huguang Siou Lundu Mirongod” (Pemikir Agung) merupakan salah satu “faktor penarik” yang telah membentuk perpaduan dalam kalangan masyarakat Kadazandusun untuk menyokong STAR. Kedudukan beliau amat dihormati dan disanjung oleh masyarakat Kadazandusun khususnya di kawasan pedalaman (Bagang, Puyok & Mersat, 2021). Selain itu juga, isu etnik berjaya dimainkan oleh parti-parti berasaskan Kadazandusun seperti STAR dan PBS yang mendominasi kawasan-kawasan majoriti Kadazandusun.

Faktor Sokongan STAR Kepada PN Dan Populariti Perdana Menteri

Peningkatan sokongan masyarakat Kadazandusun terhadap STAR banyak dipengaruhi oleh sokongan STAR kepada PN dan juga populariti perdana menteri. Keputusan STAR menyokong Muhyiddin adalah langkah yang tepat dan bijak serta bertepatan dengan aspirasi rakyat di negeri yang menginginkan pemimpin yang memahami masalah rakyat. Peningkatan populariti Muhyiddin telah menyebabkan peningkatan keyakinan rakyat terhadap kepimpinan beliau (Mustakin Onsud, komunikasi peribadi, Mei 11, 2021). Populariti Muhyiddin ini telah digunakan sebaiknya oleh STAR untuk menarik sokongan pengundi Kadazandusun. Usaha Muhyiddin dan kerajaan pimpinan PN dalam menangani kes jangkitan Covid-19 dan penambahan jumlah bantuan terutamanya kepada golongan B40 telah membantu meningkatkan keyakinan pengundi kepada kepimpinan perdana menteri.

Tony Paridi Bagang dalam *Free Malaysia Today* menyatakan bahawa faktor perdana menteri telah memberi kesan kepada undi masyarakat Kadazandusun: “Kebanyakan pengundi Kadazandusun di luar bandar terjejas akibat Covid-19 dan bantuan yang disalurkan oleh PN lebih besar berbanding dengan kerajaan Warisan sebelum ini” (dipetik dalam Sabah Gazette, 1 Oktober 2020). Walau bagaimanapun, kemenangan STAR semasa PRN16

tidak sepenuhnya dipengaruhi oleh populariti perdana menteri kerana STAR sememangnya sudah agak popular di kebanyakan kawasan Kadazandusun. Menurut penganalisis politik Anantha Raman Govindasamy, setiap parti yang berasaskan kaum sudah tentu ingin bangkit sebagai pejuang kepada kumpulan etnik yang diwakili: “Setiap tokoh dan personaliti politik contohnya Jeffrey Kitingan daripada STAR tentunya mahu membuktikan mereka pejuang utama masyarakat Kadazandusun” (Sinar Harian, 2020).

Isu Pendatang Tanpa Izin (PTI)

Isu PTI adalah isu yang sentiasa menjadi topik hangat setiap kali pilihan raya diadakan di Sabah. Tuduhan STAR kepada Warisan bahawa kononnya Warisan adalah sebuah parti yang “mesra PTI” telah sedikit sebanyak menjejaskan sokongan masyarakat Kadazandusun kepada Warisan. Seorang responden berkata: “PTI adalah ancaman kepada Orang Asal Sabah (OAS). Apabila masalah PTI tidak dapat diselesaikan hari ini, maka jumlah mereka akan terus bertambah dan akhirnya mereka akan menganggap Orang Asal Sabah sebagai warga kelas kedua di Sabah.” (Jovilis Majami, komunikasi peribadi, April 25, 2021). Jovilis yang juga merupakan Setiausaha Penyelaras Parlimen Kota Marudu bagi STAR menambah bahawa sokongan masyarakat Kadazandusun kepada STAR adalah kerana mereka mahu melihat cadangan Jeffrey untuk mewujudkan Kad Pengenalan Sabah dapat dicapai supaya masalah kebanjiran PTI dapat diselesaikan jika GRS memerintah kerajaan negeri. Jeffrey berkata Kad Pengenalan Sabah akan memberi manfaat kepada Orang Asal Sabah. Jelas beliau lagi, Kad Pengenalan Sabah yang diwujudkan akan menjadi pengenalan rakyat Sabah yang tulen selain dapat digunakan untuk mendapat geran tanah, biasiswa, pendaftaran lesen perniagaan dan faedah-faedah lain seperti hak mengundi di Sabah untuk menentukan kerajaan sendiri. Kad Pengenalan Sabah ini juga akan dapat menghalang penyalahgunaan dalam sistem sekarang dimana MyKad palsu boleh dimasukkan ke dalam kad pengenalan yang sudah ada (Jeffrey, 2018, dipetik dalam Daily Express, 13 Mac, 2021). Selain daripada itu, isu PSS yang dimainkan oleh pihak pembangkang di Sabah juga mempengaruhi sokongan terhadap Warisan kerana pengundi risau Sabah akan dibanjiri oleh PTI jika pemberian pas itu benar-benar berlaku.

Isu Tuduhan Sabah Dianaktirikan Oleh Persekutuan Dalam Aspek Pembangunan

Seterusnya isu pembangunan yang tidak setara di antara Sabah dengan negeri-negeri di Semenanjung. Walaupun selepas hampir 57 tahun membentuk Malaysia bersama Sarawak tapi hakikatnya Sabah masih jauh ketinggalan berbanding dengan Semenanjung. Menurut Jeffrey, Sabah ketinggalan dalam aspek pembangunan akibat diskriminasi dan penindasan yang dilakukan oleh kerajaan persekutuan terutamanya semasa era Mahathir Mohamad yang bertindak menyekat dana pembangunan kepada Sabah ketika itu kerana Sabah ditadbir oleh parti pembangkang di bawah PBS (Berita Harian, 2018). Isu ini seringkali diketengahkan semasa berkempen dan agak popular dalam kalangan masyarakat Kadazandusun yang menganggap bahawa tindakan kerajaan persekutuan ini secara tidak langsung telah menyebabkan kemunduran di kawasan pedalaman Sabah.

Isu Perjanjian Malaysia 1963 (MA63)

Jeffrey berkata bahawa banyak perkara yang terkandung dalam MA63 tidak ditunaikan oleh kerajaan persekutuan sehingga pada hari ini. Menurut Chin dan Puyok (2010, pp. 219-235), hak autonomi yang dituntut di bawah MA63 termasuklah hak imigresen, bahasa, Borneonisasi, pendidikan dan juga hak ke atas sumber semula jadi seperti gas dan petrol. Masih ramai dalam kalangan masyarakat Kadazandusun yang menganggap bahawa Jeffrey dan STAR mampu menyelesaikan isu MA63 jika mereka memerintah kelak. Isu MA63 berjaya dimainkan oleh STAR kerana sekali lagi ia dikaitkan dengan kemunduran masyarakat di pedalaman terutamanya di kawasan Kadazandusun. Bagi sebilangan besar masyarakat Kadazandusun, tidak ada pemimpin lagi yang lebih lantang dan konsisten dalam memperjuangkan MA63 kecuali Jeffrey.

KESIMPULAN

Artikel ini adalah berdasarkan kajian untuk melihat faktor-faktor yang mendorong kepada kemenangan STAR pada PRN16 dan menjelaskan mengapa parti tersebut terus disokong oleh masyarakat Kadazandusun berbanding parti-parti lain seperti UPKO dan PBRIS. Faktor-faktor lain yang mempengaruhi sokongan masyarakat Kadazandusun terhadap STAR merangkumi kepimpinan dan personaliti pemimpin, etnisiti, pengaruh sokongan terhadap kerajaan persekutuan pimpinan PN, PTI, hubungan persekutuan-negeri dan MA63. Faktor-faktor ini telah menyumbang kepada kemenangan STAR semasa PRN16. Faktor kepimpinan Jeffrey yang dikaitkan dengan perjuangan lalu beliau serta kelantangannya dalam menyuarakan isu-isu berkaitan kaum Kadazandusun dan MA63 telah sedikit sebanyak menawan hati masyarakat Kadazandusun di kawasan pedalaman. Selain itu juga, faktor etnik turut menyumbang kepada kepada kemenangan STAR. Gelaran yang diberikan oleh masyarakat Kadazandusun kepada Jeffrey iaitu “Huguan Siou Lundu Mirongod” (Pemikir Agung) telah memberikan beliau kedudukan yang istimewa dikalangan masyarakat Kadazandusun. Penampilan Jeffrey dalam beberapa upacara kebudayaan masyarakat Kadazandusun dan pengaruhnya dalam Persatuan Kebudayaan Kadazandusun (KDCA atau *Kadazandusun Cultural Association*) juga turut meningkatkan

populariti beliau di kawasan Kadazandusun. Dengan menyokong kerajaan persekutuan pimpinan PN, STAR mampu meyakinkan pengundi bahawa STAR mempunyai akses dan kapasiti dalam memenuhi keperluan masyarakat pedalaman. Jeffrey yang lantang bersuara mengenai isu PTI berjaya menarik sokongan pengundi yang menganggap Warisan sebagai sebuah parti “mesra-PTI” apatah lagi apabila Warisan cuba untuk memperkenalkan PSS. Isu PSS ini digunakan sepenuhnya oleh STAR untuk menyerang Warisan. Isu pembangunan tidak seimbang di antara Sabah dan Semenanjung dan MA63 juga berjaya dimainkan oleh STAR. Oleh kerana perjuangan lampau beliau dan kelantangan beliau dalam menyuarakan isu-isu berkaitan dengan hak-hak Sabah, segelintir pengundi yakin bahawa Jeffrey mampu untuk menyelesaikan isu-isu ini apabila STAR memerintah kelak. Pendekatan teoretikal primordialisme and instrumentalis menunjukkan bagaimana parti berasaskan etnik seperti STAR berjaya mempromosikan sentimen Kadazandusun dan kenegerian untuk meraih sokongan terutamanya dikalangan masyarakat Kadazandusun di luar bandar.

PENGHARGAAN

Artikel ini tidak akan dapat dihasilkan tanpa bimbingan dan bantuan serta sokongan daripada semua pihak dan responden yang terlibat dalam kajian ini sama ada secara langsung mahupun tidak langsung. Penghargaan juga ditujukan kepada Tony Paridi Bagang yang banyak memberi komen dan cadangan sehingga artikel ini dapat dihasilkan.

RUJUKAN

- Astro Awani. (2020, September). *PRN Sabah: Pengundi Sabah lebih menilai calon berbanding parti-Penganalisis*. <https://www.astroawani.com/berita-politik/prn-sabah-pengundi-sabah-lebih-menilai-calon-berbanding-parti-penganalisis-260097>
- Bagang, T., Puyok, A. and Mersat, N. I. (2021) “The 16th Sabah State Election: Kadazandusun Politics and the Huguan Siou Factor”, *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 6(10), pp. 404 - 412. <https://doi.org/10.47405/mjssh.v6i10.1122>
- Berita Harian. (2018, April). *Pemimpin pembangkang Sabah bidas Dr M*. <https://www.bharian.com.my/berita/nasional/2018/04/408410/pemimpin-pembangkang-sabah-bidas-dr-m>
- Berita Harian. (2020, Jun 10). *Muhyiddin Perdana Menteri pragmatik*. <https://www.bharian.com.my/berita/nasional/2020/06/698520/muhyiddin-perdana-menteri-pragmatik>
- Borneo Today. (2020). *MA63: Anifah, Jeffrey cakap besar tapi gagal tunai*. <https://www.borneotoday.net/ma63-anifah-jeffrey-cakap-besar-tapi-gagal-tunai/>
- Chin, J. (1994). The Sabah State election of 1994: end of Kadazan unity. *Asian Survey*, 34(10), 904-915. <https://doi.org/10.2307/2644969>
- Chin, J., Puyok, A. (2010). Going Against the Tide: Sabah and the 2008 Malaysian General Election. *Asian Politics and Policy*, 2(2), 219-235. <https://doi.org/10.1111/j.1943-0787.2010.01185.x>
- Daily Express. (2011, September). *Jeffrey's experience of the ISA*. <http://www.dailyexpress.com.my/news.cfm?NewsID=79293>
- Daily Express. (2021, Mac). *Sabah IC akan dilaksanakan, kata Jeffrey*. <http://www.dailyexpress.com.my/news/167797/proposed-sabah-ic-will-be-implemented-says-jeffrey/>
- Free Malaysia Today. (2020). *Kerusi Kadazandusun Murut jadi rebutan dalam pilihan raya Sabah, kata penganalisis*. <https://www.freemalaysiatoday.com/category/bahasa/2020/08/08/kerusi-kadazandusun-murut-jadi-rebutan-dalam-pilihan-raya-sabah-kata-penganalisis/>
- Geertz, C. (1963). The Integrative Revolution: Primordial Sentiments and Politics in the New States’. In Clifford Geertz, ed. *Old Societies and New States: The Quest for Modernity in Asia and Africa*. London: London Free Press, 255–310.
- Harian Metro. (2020, Januari 7). *PSS ibarat ‘permaidani merah’ untuk PATI- UMNO*. <https://www.hmetro.com.my/mutakhir/2020/01/532921/pss-ibarat-permaidani-merah-untuk-pati-umno>
- Harian Metro. (2020, Julai). *Saya ada majoriti, tak perlu bubar DUN Sabah – Musa*. <https://www.hmetro.com.my/utama/2020/07/605451/saya-ada-majoriti-tak-perlu-bubar-dun-sabah-musa>
- Horowitz, D. (1985). *Ethnic Groups in Conflict*. California: University of California Press.
- Hussin, H. (2007). Ritual, Identity and Changes in the West Coast of Sabah: The Experience of the Kadazan Penampang Community. *JATI-Journal of Southeast Asian Studies*, 12, 189-210.
- Ismaily, B. (1988). *Beberapa Alat Muzik Sabah*. Kementerian Kebudayaan, Belia dan Sukan Negeri Sabah.
- Jabatan Perangkaan Malaysia. (2017). *Laporan Sosioekonomi Negeri 2017*. <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=d21BMHxZFB1cFICNExYUQ1cE92Zz09>

- Jabatan Perangkaan Statistik Malaysia. (2019). LAPORAN SOSIOEKONOMI NEGERI SABAH. https://tsknd.sabah.gov.my/images/archive/20200902_DOSM_Laporan_Sosioekonomi_Negeri_Sabah_2019.pdf
- Malaysiakini. (2020). *Apa itu PSS, kenapa ia penting untuk PRK Kimanis?*. <https://www.malaysiakini.com/news/506595>
- Malaysiakini. (2020). *ULASAN 'Menang PN untung, menang BN rugi'*. <https://www.malaysiakini.com/news/544428>
- Malaysiakini. (2020, Julai). *Musa Aman umum cukup majoriti bentuk kerajaan baru Sabah*. <https://www.malaysiakini.com/news/536653>
- Malaysiakini. (2020, September). *Calon bebas lawan BN, PBS di Tandek mohon sertai Star*. <https://www.malaysiakini.com/news/543970>
- Osman, S. (2008). *Pembangunan politik Sabah: satu penelusuran sejarah*.
- Posen, B. (1993). The Security Dilemma and Ethnic Conflict, *Survival* 35(1), 27–47. <https://doi.org/10.1080/00396339308442672>
- Puyok, A. (2007). The dynamics of democracy: The rise of Joseph Pairin Kitingan and the formation of Parti Bersatu Sabah (PBS) in 1985, In Proceedings on Sabah: 50 Years After Independence, 289–310. Sabah: Pusat Penerbitan Universiti, Universiti Teknologi MARA Cawangan Sabah.
- Puyok, A., & Bagang, T. P. (2011). Ethnicity, Culture and Indigenous Leadership in Modern Politics: The Case of the Kadazandusun in Sabah, East Malaysia. *Kajian Malaysia: Journal of Malaysian Studies*, 29(1), 177–197.
- Sabah Gazette. (2020, Oktober). *Kenapa KDM tolak Warisan Plus? Ini jawabannya*. <https://www.sabahgazette.com/kenapa-kdm-tolak-warisan-plus-ini-jawapannya/>
- Sabah Gazette. (2020, September). *STAR keluar PN jika tak diberi 15 kerusi- Jeffrey Kitingan*. <https://www.sabahgazette.com/star-keluar-pn-jika-tak-diberi-15-kerusi-jeffrey-kitingan/>
- Sinar Harian. (2020, September 25). *GRS mungkin 'gigit jari' di 15 kerusi*. <https://www.sinarharian.com.my/article/102515/ANALISIS-SEMASA/GRS-mungkin-gigit-jari-di-15-kerusi>
- Sinar Harian. (2020, September). *[TIDAK RASMI] PN, BN menang PRN Sabah, kini telah menang 37 kerusi*. [https://www.sinarharian.com.my/article/102769/Pilihan-Raya/PRN-Sabah/\[TIDAK-RASMI\]-PN-BN-menang-PRN-Sabah-kini-telah-menang-37-kerusi](https://www.sinarharian.com.my/article/102769/Pilihan-Raya/PRN-Sabah/[TIDAK-RASMI]-PN-BN-menang-PRN-Sabah-kini-telah-menang-37-kerusi)
- Sinar Harian. (2020, September). *Dua calon PBS sokong STAR, dua calon Bebas sokong PBS*. <https://www.sinarharian.com.my/article/102166/Pilihan-Raya/PRN-Sabah/Dua-calon-PBS-sokong-STAR-dua-calon-Bebas-sokong-PBS>
- Sinar Harian. (2020, September). *STAR akur dapat hanya 8 kerusi, kekal bersama PN*. <https://www.malaysiakini.com/news/542109>
- Suraya, S. (2003). Penganutan Agama Islam dan Kristian dalam Kalangan Masyarakat Kadazan Dusun di Sabah. *Jurnal Usuluddin*, 18, 59-80.
- Suruhanjaya Pilihanraya Malaysia. (2020, September). *Kedudukan Kerusi bagi DUN: N.44 TULID- Dashboard SPR*. <https://dashboard.spr.gov.my/#!/dun/12/N.44>
- Utusan Borneo. (2021, April). *STAR menangi Keningau, Tambunan darin PBS ketika pembangkang*. <https://www.utusanborneo.com.my/2021/04/27/star-menangi-keningau-tambunan-dari-pbs-ketika-pembangkang>
- Vanhanen, T. (1999). Domestic Ethnic Conflict and Ethnic Nepotism: A Comparative Analysis, *Journal of Peace Research*, 36(1), 55–73. <https://doi.org/10.1177/0022343399036001004>