Risk Perception, Risk Communication & Psychological Distress Of Covid-19 Among Medical Students In A Medical University In Malaysia

Nurul Asyiqin Binti Mohd Nasir, Tan Yong Qi, Muhammad Syahmi Bin Lockman and Rafidah Bahari*

Faculty of Medicine, University of Cyberjaya, Malaysia.
Corresponding author: rafidah@cyberjaya.edu.my

ABSTRACT

Introduction: During the Covid-19 pandemic, a detailed knowledge of how medical students are informed about the danger and how they perceive the risk is critical for emergency preparedness and crisis management. Therefore, the objective of this research is to determine the association between risk perception, risk communication and psychological distress on covid-19 among the medical students in a medical school in Malaysia.

Methods: A cross sectional study was conducted among 537 medical students from a medical school in Malaysia in the period from October 2020 to February 2022. The sample selection was done by stratified random sampling and voluntary participation. The self-administered questionnaire was distributed online.

Result: The majority of respondents (51%) perceive that it is likely or very likely for them to be infected with SARS-CoV2 virus. However, respondents generally perceive the risk of getting COVID-19 as low or none. In terms of communication of the risk of getting COVID-19 and the danger it poses, almost all of the respondents felt that the information they received were at least adequate (91.8%). 66.1% of the respondents experienced at least mild psychological distress due to the pandemic COVID-19. The prevalence of psychological distress was higher in the clinical group (75.4%) as compared to the preclinical group (61.3%) (p<0.05).

Conclusion:

The majority of medical students in this study were aware of the high risk of getting COVID-19, and most of them received adequate information about the condition. Social media channels were the main source of information in this population, and hence is a good way to ensure appropriate risk communication. Other than that, it is undeniable that the pandemic COVID-19 has an impact on a person's mental health, with 66.1% of respondents in this study suffering from at least mild psychological distress. Hence, it is important that institutions for higher education provide a mechanism to identify and give intervention for those at risk. However, further studies are needed to address these issues to better prepare institutions for higher education in the case of similar situations in the future.

Keywords: COVID-19, risk perception, risk communication, psychological distress

INTRODUCTION

According to the World Health Organization, Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. (World Health Organization, 2021). It was first identified as an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China, initially it was reported to the WHO on December 31, 2019. On January 30, 2020, the WHO declared the COVID-19 outbreak as a global health emergency. On March 11, 2020, the WHO declared COVID-19 a global pandemic. Presentations of COVID-19 have ranged from mild to moderate respiratory illness and the most common symptoms are lethargy, cough, congestion or shortness of breath, loss of taste or smell, headache, muscle aches and so on. (David J Cennimo, 2021). The COVID-19 virus spreads primarily through saliva droplets or respiratory droplets carrying infectious viruses. As a result, various actions should be taken to avoid the transmission of disease. For example: avoid social events or big gatherings, practice social distancing, use personal protective equipment and so on.

For Malaysia, the government had implemented the MCO to break the chain of transmission and avoid a sudden exponential spike in COVID-19 cases in the country. Apart from that, Malaysia Ministry of Health (MOH) has taken some actions to combat this pandemic by recruiting more medical personnel from various backgrounds, adding more supply of equipment and collaborating with various agencies in conducting health education and updating information through all media resources. So, during this pandemic, the public should be well-informed regarding the disease, risk factors and preventive measures that can be taken. Other than that, lockdowns or quarantines are necessary as protective measures for physical health, but the prolonged lockdown can be detrimental to mental health as well. During the MCO, people's mental health should be well concerned as many people might easily get anxious due to separation from family and friends, loss of independence, doubts about the lockdown length, monotonous lifestyle, lack of accurate information regarding the COVID-19 virus, monetary loss, and stigma.

With the number of COVID-19 deaths continuing to rise, the main issue remains as the mitigation of COVID-19 transmission. Hence, a clear understanding of how medical students are being communicated with about the risk and how they perceive the risk is essential for emergency preparedness and crisis management. Moreover, during the COVID-19 pandemic, people's mental health should be well concerned as many people might easily get anxious and stressed due to the prolonged lockdown. If the psychological distress is not well managed, then it will do more harm than the pandemic themselves. Therefore, the objective of this research is to determine the association between risk perception, risk communication and psychological distress on covid-19 among the medical students in University of Cyberjaya (UOC).

MATERIALS AND METHODS

A cross sectional study was conducted in University of Cyberjaya from October 2020 to February 2022. The target group was the total population of medical students in the University of Cyberjaya (UoC). The sample was chosen from a total of 537 medical students in UoC. The sample selection was done by stratified random sampling. Participation is voluntary. With margin of error 0.7, p- value 0.5 and Z score 1.96, the minimum number of samples calculated was 196 medical students.

Data collection was conducted online. The questionnaire consisted of four parts:

Part 1: The socio-demographic characteristics

Part 2: The risk perception among medical students

Part 3: The risk communication among medical students

Part 4: The psychological distress among medical students. Kessler 10 score was used to measure respondent's psychological distress and the severity.

A pre-test of the questionnaire using the same method was carried out to 10 medical students from UoC who were randomly selected that fulfills the respondent criteria. This pilot test was carried out to ensure the survey is reliable and valid.

The data was collected using the questionnaire and analyzed using Jeffrey's Amazing Statistic Programme (JASP) version 0.16.1. Prevalence was analysed by determining the frequency and cross tabulation among the categorical data. Association between categorical data was determined by a Chi square test. Findings are considered statistically significant if p value is less than 0.05 with confidence interval of 95%.

RESULTS

A total of 206 students participated in the study. The response rate was 95%. Majority of the respondents were female (67.0%), Year 3 medical students (23.8%) and Malay race (80.1%). Table 1 below shows the sociodemographic spread of the respondents.

Table 1: Socio-demographic description of participants.

Sociodemographic factors		Frequency (n)	Percentage (%)
Gender	Male	68	33.0
	Female	138	67.0
Year of study	Year 1	35	17.0
	Year 2	34	16.5
	Year 3	49	23.8
	Year 4	42	20.4
	Year 5	46	22.3
Race	Malay	165	80.1
	Chinese	13	6.3
	Indian	20	9.7
	Others	8	3.9

Risk Perception

The majority of respondents (51%) perceive that it is likely or very likely for them to be infected with SARS-CoV2 virus and most (58.3%) perceive that they are likely or very likely to suffer from symptoms of COVID-19 if infected with SARS-CoV2 virus. At the start of the outbreak, respondents generally perceive the risk of getting COVID-19 as low or no risk (60.7%).

However, the risk is perceived to be higher at the time when WHO classified it as a pandemic on the 12th of March 2020, with 51% respondents perceiving the risk as either low or none. Nevertheless, when the lockdown or Movement Control Order (MCO) came into effect on the 18th of March 2020, confidence rose again. At this time, the majority of respondents (57.3%) perceive that they have low or no risk of getting COVID-19.

Table 2: Prevalence of perception of COVID-19 as a risk of infection.

Questions	Perception	Frequency (n)	Percentage (%)
How likely do you feel that you will be infected with SARS-CoV2 virus?	Very likely	14	6.8
	Likely	91	44.2
	Not likely	87	42.2
	Very unlikely	14	6.8
How likely do you feel that you will suffer from symptoms of COVID-19 if infected by SARS-CoV2 virus?	Very likely	15	7.3
	Likely	105	51
	Not likely	72	35
	Very unlikely	14	6.8
What was your perception of your individual risk at the start of COVID-19 outbreak?	High risk	23	11.2
	Moderate risk	58	28.2
	Low risk	103	50
	No risk	22	10.7
What was your perception of your individual risk when WHO classified COVID-19 as a pandemic on 12/03/2020?	High risk	28	13.6
	Moderate risk	73	35.4
	Low risk	90	43.7
	No risk	15	7.3
What was your perception of your individual risk since MCO came into effect on 18/03/2020?	High risk	22	10.7
	Moderate risk	66	32
	Low risk	99	48.1
	No risk	19	9.2

Risk communication

In terms of communication of the risk of getting COVID-19 and the danger it poses, almost all of

the respondents felt that the information they received were at least adequate (91.8%). Table 3 shows that there is no significant association between year of study and information received

(p > 0.05). Prevalence of adequateness of information received on COVID-19 and its risk in the clinical and the preclinical groups are both extremely high (92.0% and 91.3% respectively).

Table 3: Association between year of study and adequateness of information received on Covid19 and its risk

Year of study	Information received		Total	P-value
	Adequate	Inadequate		
Pre-clinical	63 (91.3%)	6 (8.7%)	69	0.870
Clinical	126 (92.0%)	11 (8.0%)	137	

The most common source of information for issues relating COVID-19 is their social network (78.2%), followed by the Malaysian Ministry of Health website (68.9%) and television (46.1%). 31.1% of respondents cited medical professionals as their main source of information while 22.3% referred to academics. The least common sources of information were call centres (1.5%) and the Prime Minister's Office website (6.8%). Other sources of information included the radio (11.2%) and newspapers (13.6%).

When deciding to trust the information, respondents would first look at the credibility of the messenger relaying the information. This is largely influenced by the competence and expertise of the messenger (48.1%) and least by their empathic and caring attitude (7.3%). Table 4 below shows the factors used to determine the credibility of messengers and hence trustworthiness of the information.

Table 4: Factor that most influence trust and credibility of the messenger (individual/organization) communicating information on COVID-19

Factors that influence the decision	Frequency, (n)	Percentage, (%)
Empathy and caring	15	7.3
Honesty and openness	66	32.0
Dedication and commitment	26	12.6

Competence and expertise	99	48.1
Total	**206**	**100**

Psychological Stress

66.1% of the respondents experienced at least mild psychological distress due to the pandemic COVID-19. This can be broken down to 20.9% experiencing mild, 14.1% moderate and 31.1% severe distress. Further analysis reveals that there is a significant association between year of study and psychological distress. Table 5 shows that the prevalence of psychological distress was higher in the clinical group (75.4%) as compared to the preclinical group (61.3%) (p<0.05).

Table 5 Association between Year of Study and Psychological Distress during the COVID-19 pandemic.

Year of Study	Psychological Distress		Total	P - value
	No	**Yes**		
Preclinical	27 (38.7)	42 (61.3)	69 (100)	0.045
Clinical	34 (24.6)	103 (75.4)	137 (100)	

The main cause of distress for respondents in this study regarding the COVID-19 pandemic was the fear of them or their family members getting infected. This was voiced by 23.8% of the respondents. This concern was followed closely by the uncertainly brought on by the pandemic (21.8%). Other concerns include increasing number of confirmed cases (18.8%) and total number of deaths (17.1%), total number of confirmed cases (10.2%). Interestingly, the respondent in this study were least concerned about the economic loss due to the pandemic to themselves or their family (8.3%).

DISCUSSION

Risk perception

Risk perception is defined as beliefs about potential harm or the possibility of a loss. It is a subjective judgment that people make about the characteristics and severity of a risk. The COVID-19 pandemic has caused health problems, high levels of anxiety and serious psychological problems for many. Hence, perception towards risk, severity, and susceptibility plays an important role in determining an individual's preventive behaviours (Ismail A et al., 2021).

According to our study, the majority of UOC medical students (44.2%) perceive that it is likely

for them to be infected with SARS-CoV2 virus. This corresponds to a study done on 1461 college students from various provinces of China which shows that 92.5% of college students thought they were more likely to be infected by COVID-19 (Ding Y et al., 2020). Our study also showed that the majority of medical students (51%) perceive that they will likely suffer symptoms of COVID-19 if infected with SARS-CoV2 virus. This was supported by a study done by Ismail A et al., (2021) among dental students in Malaysia where 33% of them perceived of getting symptoms of COVID-19 if infected with COVID-19. The results show that most college students have a higher risk perception of COVID-19 as a risk of infection as underestimation of this risk characteristic may lead to risk behaviors and neglect of early symptoms of COVID-19 (Ding Y et al., 2020).

Our findings revealed that the majority of students perceived that they have low risk of getting COVID-19 at the start of the outbreak and when WHO classified COVID-19 as a pandemic. This could be due to the lack of awareness to the public regarding the symptoms and severity of the disease during the early phase of outbreak hence the low level of perceived threats among the students (Birhanu Z et al., 2021).

Risk communication

Risk communication is a key component of public health interventions during an outbreak. The World Health Organization (WHO), at the forefront in the development of risk communication strategies, has introduced a range of activities with the purpose of enabling the public to avail verified and timely information on COVID-19 prevention behaviours (Varghese et al., 2021). Medical students in this study reported to have very adequate or adequate information demonstrating that those efforts were somewhat successful. Our findings also indicated that most study participants with adequate information have good understanding about COVID-19. This corresponded to a study done among 1032 medical students in Aceh Province, Indonesia (Oktar, Detiro & Rahman, 2021). In that study, the majority of medical students had good knowledge (54.1%) and attitudes (73.1%) towards COVID-19. An enhanced information, knowledge and awareness will increase preventive behaviours that will be helpful in controlling the disease.

Other than that, in our study, it shows that social network is the most common (78.2%) source of information that is preferentially being used to find out about the pandemic and the MCO among medical students. This is in accordance with a similar study which was done among medical students from all the six medical schools in Jordan where social media was a major information source for learning about the COVID-19. 35.0% of students used common online search engines such as Google to look for more information regarding COVID-19 (Khasawneh et al., 2020). This should alert policy makers to the importance of social media in disseminating information to the public especially in cases of pandemics.

Moreover, according to our study, it shows that competence and expertise are the most common factors (48.1%) that influence the decision in determining trust and credibility of the messenger communicating information on covid-19. The strategies for achieving maximum credibility during a pandemic response include leveraging trusted, authoritative intermediaries such as medical and public-health experts to communicate key messages. Trust in healthcare professionals, scientists, and expert medical organizations has generally remained high despite the public's confidence in governments being low (Funk and Kennedy, 2019). Policymakers and communicators must be seen to

be referring to the best available knowledge and evidence, and where possible, expert consensus (Lewandowsky et al., 2013). Engagement will be optimal when involving those who have relevant training, expertise, and trust within their networks. Greater credibility can also motivate people to consult authoritative sources, including government health websites, for information and guidance.

Psychological Distress

The COVID-19 pandemic has not only resulted in physical conditions, but psychological consequences are also being observed globally. The disruption of normal daily life causes people to experience psychological issues, such as fear of infection, uncertainty, stress, anxiety disorders, sleep problems, mood disorders, and suicidality (Quadros et al., 2021). According to our study, 66.1% of the respondents have at least mild psychological distress with severe psychological distress turned out to have the highest prevalence (31.1%). This corresponds to a study in a university in the United Arab Emirates where Saravanan et al., (2020) found out that the number of students who experienced psychological distress is higher than those who are well.

Our study also showed that the majority of students who had psychological distress due to COVID 19 were from the clinical group (75.4%) with significant association between study years and psychological distress (p < 0.05). In line with our findings, Abdulghani et al., (2020) conducted a cross sectional study among undergraduate medical students in King Saud University where they had also reported highest prevalence of psychological distress due to COVID 19 was from clinical students (67.8%). Clinical students tend to be more worried about the impact of their studies that was affected due to the pandemic such as the level of their clinical skills as they are unable to do clinical attachment in the hospital or

the potential exposure while on the hospital placement. (Lyons et al., 2020)

Fear of family members or oneself being infected with COVID 19 has become the most picked by respondents as main concern regarding COVID 19 which was 23.8%. This was supported by a study done by Doshi D., et al., (2021) which revealed that the prevalence of subjects feared of being infected with COVID-19 was about 45.2%. Being infected with COVID-19 or awaiting the possibility of becoming ill was likely to be more stressful because of the fear of mortality or morbidity associated with a disease. (Bahar et al., 2021)

Strength & Limitation of the study

As the questionnaire was distributed through an online platform, it was cost effective. The sample selected for this study was specifically students who are pursuing a health profession career, and are identified as medical students. The results obtained in this study may not be applicable to students outside of this designation. The choices of sampling method were limited due to movement control order, thus online platforms will be the only way to get responses and this might lead to lack of motivation for the respondents to answer the questionnaire as it was difficult to meet the respondents directly.

CONCLUSION

COVID-19 has caused an increase in health problems and death throughout the whole world. Having a high perception of risk is important as it plays an important role in determining an individual's preventive behaviors. When the coronavirus pandemic unfolded in late 2019, the WHO was quick to realize the need for a tailored risk communication strategy. The majority of medical students in this study were aware of the high risk of getting COVID-19, and most of them received adequate information about the

condition. Failure to communicate the right message effectively can result in loss of trust, damage to the economy and loss of lives. One potential way to ensure appropriate risk communication is using social media channels since this was the main source of information in this population, and ensuring an ongoing consistent media presence. Other than that, it is undeniable that the pandemic COVID-19 has an impact on a person's mental health. According to our findings, 66.1% of respondents suffer from at least mild psychological distress. Hence, it is important that institutions for higher education provide a mechanism to identify and give intervention for those at risk. However, further studies are needed to address these issues to better prepare institutions for higher education for similar situations in the future.

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References

1. Abdulghani, H. M., Sattar, K., Ahmad, T., & Akram, Az. (2020). Association of COVID-19 Pandemic with undergraduate Medical Students' Perceived Stress and Coping. Psychology research and behavior management, 13, 871–881. https://doi.org/10.2147/PRBM.S276938

2. Bahar Moni AS, Abdullah S, Bin Abdullah MFIL, Kabir MS, Alif SM, Sultana F, et al. (2021) Psychological distress, fear and coping among Malaysians during the COVID-19 pandemic. PLoS ONE 16(9): e0257304. https://doi.org/10.1371/journal.pone.0257304

3. Birhanu, Z., Ambelu, A., Fufa, D. et al. (2021) Risk perceptions and attitudinal responses to COVID-19 pandemic: an online survey in Ethiopia. BMC Public Health 21, 981. https://doi.org/10.1186/s12889-021-10939-x

4. David J Cennimo, M. D. (2021). Coronavirus disease 2019 (COVID-19) clinical presentation: History, physical examination, Complications.

5. https://emedicine.medscape.com/article/2500114-clinical

6. Ding Y, Du X, Li Q, Zhang M, Zhang Q, Tan X, et al. (2020) Risk perception of coronavirus disease 2019 (COVID-19) and its related factors among college students in China during quarantine. PLoS ONE 15(8): e0237626. https://doi.org/10.1371/journal.pone.0237626

7. Doshi, D., Karunakar, P., Sukhabogi, J. R., Prasanna, J. S., & Mahajan, S. V. (2021). Assessing Coronavirus Fear in Indian Population Using the Fear of COVID-19 Scale. International journal of mental health and addiction, 19(6), 2383–2391.
https://doi.org/10.1007/s11469-020-00332-x

8. Funk C, Kennedy B (2019) Public confidence in scientists has remained stable for decades. http://www.pewresearch.org/fact-tank/2017/04/06/public-confidence-in-scientists-has-remained-stable-for-decades/

9. Ismail,A.;Ismail,N.H.; Abu Kassim, N.Y.M.; Lestari, W.; Ismail, A.F.; Sukotjo, C. (2021) Knowledge, Perceived Risk, and Preventive Behaviors amidst COVID-19 Pandemic among Dental Students in Malaysia.

Dent. J. 9, 151. https://doi.org/10.3390/dj9120151

10. Khasawneh, A. I., Humeidan, A. A., Alsulaiman, J. W., Bloukh, S., Ramadan, M., Al-Shatanawi, T. N., Awad, H. H., Hijazi, W. Y., Al-Kammash, K. R., Obeidat, N., Saleh, T., & Kheirallah, K. A. (2020). Medical Students and COVID-19: Knowledge, Attitudes, and Precautionary Measures. A Descriptive Study From Jordan. Frontiers in public health, 8, 253. https://doi.org/10.3389/fpubh.2020.00253

11. Lewandowsky S, Gignac GE, Vaughan S (2013) The pivotal role of perceived scientific consensus in acceptance of science. Nat Clim Change 3(4):399–404. https://doi.org/10.1038/nclimate1720

12. Lyons, Z., Wilcox, H., Leung, L., & Dearsley, O. (2020). COVID-19 and the mental well-being of Australian medical students: impact, concerns and coping strategies used. Australasian psychiatry : bulletin of Royal Australian and New Zealand College of Psychiatrists, 28(6), 649–652. https://doi.org/10.1177/1039856220947945

13. Oktari, R. S., Detiro, M. D., & Rahman, S. (2021). How is COVID-19 perceived by medical students? A survey in Aceh province, Indonesia. Jamba (Potchefstroom, South Africa), 13(1), 1146. https://doi.org/10.4102/jamba.v13i1.1146

14. Quadros, S., Garg, S., Ranjan, R., Vijayasarathi, G., & Mamun, M. A. (2021). Fear of COVID 19 Infection Across Different Cohorts: A Scoping Review. Frontiers in Psychiatry, 12(September). https://doi.org/10.3389/fpsyt.2021.708430

15. Saravanan, C., Mahmoud, I., Elshami, W., & Taha, M. H. (2020). Knowledge, Anxiety, Fear, and Psychological Distress About COVID-19 Among University Students in the United Arab Emirates. Frontiers in Psychiatry, 11(October), 1–10. https://doi.org/10.3389/fpsyt.2020.582189\

16. Varghese, N. E., Sabat, I., Neumann-Böhme, S., Schreyögg, J., Stargardt, T., Torbica, A., van Exel, J., Barros, P. P., & Brouwer, W. (2021). Risk communication during COVID-19: A descriptive study on familiarity with, adherence to and trust in the WHO preventive measures. PloS one, 16(4), e0250872.

17. https://doi.org/10.1371/journal.pone.0250872

18. Coronavirus. (2021). World Health Organization.

19. https://www.who.int/health-topics/coronavirus#tab=tab_1