

Effects of COVID-19 Pandemic on Manipal University College, Malaysia (MUCM) Student's Preference to Return to the Clinical Setting

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Abstract

The Coronavirus Disease 2019 (COVID-19) pandemic has interrupted medical students' clinical education. Hospital clinical exposure plays a vital role in a medical student's life, therefore, this pandemic has caused students to face a challenge in balancing medical education, risk exposure and personal and environmental aspects. Due to the current circumstances, the willingness of students' desire to return to the clinical setting is highly influential by several factors. This study was designed to assess the perception and attitude of clinical year medical students to return to the hospital settings during the COVID-19 pandemic. A cross sectional study was carried out from January 2021 till February 2021 in our college, Melaka University College Malaysia (MUCM). The students for this study were chosen using the purposeful sampling method in which they were asked to complete a validated online questionnaire that included multiple choice questions and perception questions, willingness to return, domains of exhaustion and disengagement and self regulated learning. The data was statistically analyzed using Epi Info version 7.0. Frequency tables, percentages, means, and standard deviation, odds ratio, Chi-square test and unpaired T test were included in the analysis. A total of 156 students took part in the study, with 119 (76.3 percent) preferring to return to the clinical setting and the remaining 37 (23.7 percent) preferring not to return to the clinical setting. Students who opted to return had higher scores in autonomous motivation, professional obligation, and a lower self-perception of the disease's likelihood of spreading. Those students who preferred to return had high scores in autonomous motivation, professional responsibility and a lower self-perception on the risk of fostering the disease. Overall, students' preference to return was influenced by key factors including; risk to self and patients, motivation, burnout and professional responsibility. Procuring the views on students' preference to return can help medical institutions address the obstacle and take the necessary steps to benefit both students and the health care system.

Keywords

COVID-19, Preference, Medical Students, Perception, Cross-sectional Study, Malaysia

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1. Introduction

The World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency on January 30, 2020. Since the virus was found to be highly pathogenic

and virulent, stringent precautionary measures were applied to reduce the spread of transmission and these measures are still sustained to date [1]. It was then declared a pandemic in March 2020 [2]. The origins of the virus date back to December 2019, in Wuhan City, China [2]. According to

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WHO, there are 103,362,039 confirmed COVID-19 cases worldwide as of 3 February 2021, with 2,244,713 deaths [3].

The first trace of COVID-19 virus was detected in Malaysia on 25th January 2020, and was found to be contracted by the individuals from Singapore due to their recent travel to the country [4]. As a result of the increasing number of cases and deaths, Malaysia implemented their first Movement Control Order (MCO) in March [4]. In January 2021, Malaysia imposed another MCO, however, due to the escalating number of cases and deaths, the MCO was extended [5]. As of 3rd February 2021, there are 226,912 cases, encompassing 809 deaths in Malaysia. As a result, due to the increasing severity of the COVID-19 cases, most districts have been labeled as red zones, indicating the presence of more than 41 cases [6].

The COVID-19 pandemic has had a huge impact on all industries, with the educational sector being one of them [7]. In medical schools all over the world, the COVID-19 pandemic has modified learning strategies globally. As a consequence, all medical students' clinical activities were halted and the permission of students to enter health care institutions was immediately suspended. This includes Malaysia, in which the medical institutions have temporarily closed [8]. The faculty of medical education have quickly transitioned the curriculum and examinations into online formats. Small-group formats and clinical skills sessions also convene online or may be postponed in some cases [9]. It is important to continue clinical training, but the risk of transmission of COVID-19 infection from students to susceptible peers, healthcare workers and patients should be taken into consideration. In addition, medical students' teaching may place an additional burden on busy clinicians and increase the demand for personal protective equipment (PPE) [10, 11]. Some argue that since students are not medical professionals, they should not be subjected to the same risks and responsibilities. It might be exacerbated by students' lack of clinical experience and abilities, while an untimely re-entry can lead to psychological problems, moral distress, and also legal responsibilities. However, some claim that clinical encounters during this pandemic would offer opportunities for students to learn about the professional responsibilities of health care workers [8].

A study done among medical students in South Africa had shown that the majority of them were unhappy with the quality of online teaching and the communication from the faculty. They were highly concerned about the lack of clinical exposure during the pandemic for several reasons. However, the students were mostly unwilling to return back to their clinical training mainly due to the concerns on their health due to the lack of health insurance and high risk of attaining the infection. Furthermore, only 50% of the students

followed the guidelines – screening protocols and hand washing. A few of the students reported that the quality of teaching and the lack of staff were another contributing factor for them not to return to clinical settings [10].

Another study done in Singapore had shown that factors such as year of programme, professionalism, motivation, burnout and knowledge of COVID-19 infection and risk perception had influenced the student's decision in returning to clinical settings. Approximately one-third of the medical student populations were reluctant to return to clinical settings mainly to avoid the risk of being vectors for transmitting the infection. They were also concerned about transmitting the disease from asymptomatic students to susceptible patients and health care workers therefore increasing the burden for the clinicians. Some stated that they were concerned about not being "well-trained", thus reluctant to return. About two-thirds of the students were willing to go back to clinical settings mainly because they believe that they hold a sense of professional responsibility and ethical standard to be a part of a medical team. To develop such capabilities, one should also have effective supervision from the institution, understanding students' perception of COVID-19 infection [12].

Ironically, the students were reluctant to return as they were more concerned about their health and how that would impact their studies in a clinical setting if they were infected in another study done in the United Kingdom. [13] Similarly a study done in Australia had also observed that the rapidly changing impacts of COVID-19 has caused anxiety among the medical workforce. However, their university had addressed all their concerns and reinforced clear guidelines among clinical supervisors in the advantages of resuming clinical placements. This was the main reason for the student's confidence to return to campus [20].

Since the occurrence of COVID-19, there have been multiple studies done investigating its effect on medical student's education particularly those who are in their clinical years. There are multiple factors influencing the student's preference on commencement of clinical learning and knowing the student's preference is crucial as it has an impact on the important decision of returning to clinical learning [12]. Based on the studies conducted, medical students are reported to have increased anxiety and particular concerns regarding their health and the continuation of clinical learning [14, 15]. However, there isn't sufficient research done to assess the different factors which affect the student's perception in this matter and this depicts a significant gap between the medical educators and students [12]. There are many more factors which can be included in the study, student's awareness of the disease, resilience as a consequence of burnout, professionalism, and motivation for learning medicine [16, 17, 18]. Medical institutions are said

to be responsible for the safety of students during the pandemic as well as facilitate student's learning and address their medical education at appropriate time [14, 19]. As a result, the importance of this study is to explore the various factors affecting medical student's preference and perception on returning to clinical settings during the COVID-19 pandemic.

The COVID-19 pandemic has resulted in disruptions in the clinical education of medical students all over the globe. Therefore, medical colleges need to balance the risk of COVID-19, as well as, try to maintain and provide the necessary clinical exposure for medical students. Hence, understanding the views of students on returning to the clinical setting is important. Our study, which is done amongst the medical students of Melaka Manipal Medical College who are currently undergoing their clinical years, aims to assess students views with the following objectives -

1. To assess the perception of medical students on COVID-19 risk to self
2. To assess the willingness of medical students to return to clinical setting during the pandemic
3. To assess the various personal and environmental factors that affect the students decision making in this regard

2. Methodology

2.1. Study Design, Setting, Time and Population

A cross-sectional study was conducted to assess the perception and attitude of medical students, who are currently in their clinical years, to return to the hospital settings during the COVID-19 pandemic. This study was conducted from January 2021 till February 2021. Manipal University College Malaysia (MUCM) is a private college which offers, Foundation in Science (FIS) and 2 bachelor courses: Bachelor of Medicine (MBBS) and Bachelor of Dentistry (BDS). Our target population comprises of all clinical year MBBS students ranging from Semester 6 up until Semester 10.

2.2. Sample Size

The data obtained on a previous research which was done on Medical Students' Preference for Returning to the Clinical setting during COVID-19 Pandemic suggested that 35% of the students preferred to not return to the clinical setting [12].

We used the formula application software "Epi Info" version 7.0 in order to find out the sample size according to the following parameters:

Population Size (N): 650 students

Expected Frequency: 35%

Acceptable Margin of Error (Confidence Limit): 7%

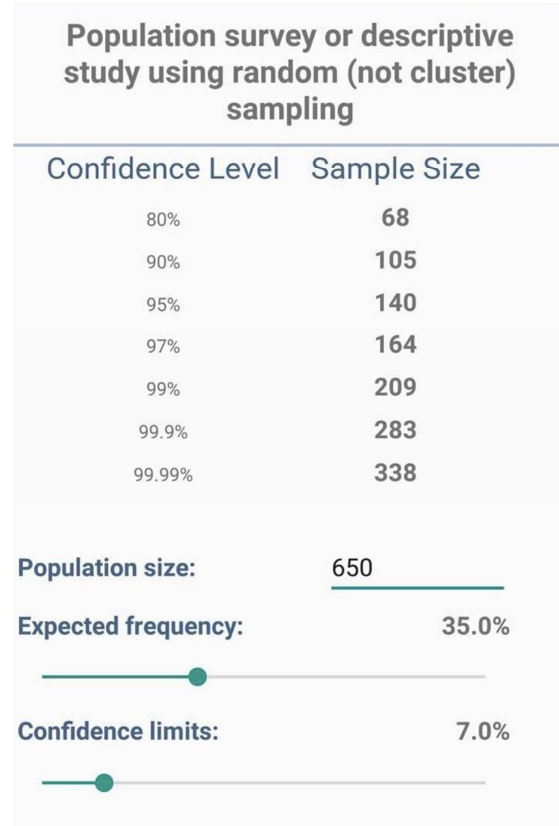


Figure 1. Data processed from Epi Info software to obtain sample size

The recommended minimum sample size needed was 140 students according to confidence level of 95%. Consequently, 10% of non-response rate was to be expected and was counted into our sample size and the calculation is as follows:

$$n \text{ final} = n \text{ calculated} / 1 - \text{nonresponse\%}$$

$$n(\text{final}) = 140 / (1 - 0.1)$$

$$n = 155$$

Therefore, the final sample size obtained for this study was 155.

2.3. Sampling

Purposive sampling is the sampling method of choice of this study, which is a non-probability sampling method. The inclusion criteria in our study are Malaysian and International Students of MUCM (only MBBS students from semester 6 to semester 10) who consented to take part in this study. Participants who failed to provide consent, complete the questionnaire or responded with irrelevant answers to the questions were excluded from this research.

2.4. Data Collection

An anonymous online questionnaire was developed and distributed among the clinical year students of Manipal University College Malaysia via Google Form. The questionnaire consisted of 6 parts, including the informed consent. These questions were adapted from a previously done study among medical students in Singapore [12].

The first part consists of the informed consent that allows the students to voluntarily agree or disagree to partake in the questionnaire. The second part consists of the demographic data which includes the age, gender, ethnicity, nationality, academic year and as well as the current place of stay.

The third part of the questionnaire is on perception of COVID-19 risk to self. It consists of 2 multiple choice questions asking on the probability of becoming infected and the risk to life. The fourth part of the questionnaire assesses the participant's willingness to return to the clinical setting. This part consists of the measure of professionalism which was developed by the author of a previously done research [12]. This scale focuses on the reasons to return and not to return and is rated by 4-point scale from 1-strongly disagree to 4-strongly agree.

In the fifth part of the questionnaire, we used the Oldenburg Burnout Inventory for Medical Students Scale [21]. This scale is used to measure burnout using two important dimensions: exhaustion and disengagement. The exhaustion component focuses mainly on the aspect of a medical student's feeling of desolation, overburden from work, a strong need for relaxation and a state of physical exhaustion. The disengagement component assesses the medical student's negative attitude towards their work. The exhaustion subscale consists of 8

items while the disengagement subscale also consists of 8 items. The students have to answer a total of 16 items and it is measured on a scale of 1=strongly disagree to 4=strongly agree.

Finally, the sixth part of the questionnaire, we used the modified Treatment Self-Regulation Questionnaire which was used to assess the degree to which motivation in relation to returning to the clinical setting is intrinsic (autonomous), extrinsic (controlled) or absent (amotivation) [22]. The intrinsic subscale and extrinsic subscale have 6 items each and the amotivation subscale has 3 items. This questionnaire consists of 15 items in total and is graded on a scale of 1=not at all true to 6=very true.

2.5. Data Processing and Data Analysis

The data was collected and processed using Microsoft Excel and Epi Info version 7.0 was used to statistically analyze the obtained data. The independent variables that we used in our cross-sectional study are age, gender, ethnicity, nationality, academic year, residence, motivation, burnout, perception of risk to self and professionalism. The dependent variable in this study is the student's preference to return. Descriptive statistics (frequency and percentage) were used to analyze the age, gender, ethnicity, nationality, academic year, residence. Mean and standard deviation was used to analyze the perceived risk and belief in severity of illness, professionalism, burnout and self-regulated learning. Level of significance is set to $p=0.05$ and we measured the association between gender, ethnicity, nationality, academic year and residence towards the preference of returning to the clinical setting during the COVID 19 pandemic. Statistical tests used for the hypothesis testing were determined based on the independent and the dependent variables and the details are given as follows.

Table 1. Statistical tests for assessing the relationship between various independent variable and dependent variable.

Independent variables	Dependent variables	Statistical test
Gender	Preference to return	Chi Square test
Ethnicity	Preference to return	Chi Square test
Nationality	Preference to return	Chi Square test
Academic year	Preference to return	Chi Square test
Residence	Preference to return	Chi Square test
Motivation	Preference to return	Unpaired T test
Burnout	Preference to return	Unpaired T test
Professionalism	Preference to return	Unpaired T test
Perception of risk to self	Preference to return	Unpaired T test

2.6. Ethical Consideration

The participants were given the questionnaire along with an informed consent form with all the important and relevant details of the study. The participants were given the option to participate on their free will and none of them will be

compelled to participate in this study. This research was done ethically by acquiring consent from the Research Ethics Committee, Faculty of Medicine, Manipal University College Malaysia, Melaka, Malaysia. Participants were provided the assurance of confidentiality.

3. Results

Table 2. Socio Demographic details of the clinical year medical students of Manipal University College Malaysia (MUCM) (n=155).

Variables	Frequency (%)
Age	
<22	22 (14.1)
22-25	131 (84.0)
>25	3 (1.9)
Mean (SD)	23.0 (1.5)
Minimum-Maximum	19-30
Gender	
Male	55 (35.3)
Female	101 (64.7)
Ethnicity	
Chinese	22 (14.1)
Indian	83 (53.2)
Malay	16 (10.1)
Others	35 (22.4)
Nationality	
International student	35 (22.4)
Malaysian	121 (77.6)
Academic Year	
Year 4	79 (50.6)
Year 5	77 (49.4)
Residence	
Home	46 (29.5)
Hostel	89 (57.0)
Outside hostel	21 (13.5)
Preference to return to clinical setting	
Yes	119 (76.3)
No	37 (23.7)

We received a total of 156 responses from the online questionnaire that was distributed via Google Forms. The sociodemographic characteristics of our respondents are shown in Table 2. Most of the respondents fell into the age group of 22-25 (84%) while the rest were either younger than 22 (14.1%) or older than 25 (1.9%). Females have been noted to respond the most (64.7) whereas males comprised about 35.3% of responders. Among the ethnic groups, Indians comprised more than a majority of the responders with about 53.2%, whereas the Chinese, Malay and other ethnic groups comprised 14.1%, 10.1% and 22.45 respectively. In terms of nationality, the majority were Malaysians (77.6%) while the remaining were international students (22.4%). Since our questionnaire was only distributed to clinical year medical students, out of the total of 156 responses, 79 responses (50.6%) were from 4th year medical students while the remaining 77 responses (49.4%) were from 5th year medical students. They were also asked about their residence, we found out that the majority, 57% are residing in the hostel premises while the rest are at home (29.5%) and living outside of the hostel (13.5%). Finally, for the sociodemographic component we assessed the preference, 119 respondents (76.3%) answered 'yes' while 37 respondents (23.7%) answered 'no' for the question "If given the choice, would you prefer to re-enter clinical education immediately."

Table 3. The perception of COVID-19 risk to self.

Variable	Mean (SD)	Min-Max
Perceived risk of infection		
If you were to return to clinical settings, how likely do you believe it would be for you to become infected by COVID-19?	3.3 (0.9)	1-5
Belief in severity of illness		
If you were to become infected by COVID-19, how likely do you believe that it would result in a critical risk to your life?	2.9 (0.8)	1-5
Computed 'personal risk' score = perceived risk infection x belief in severity of illness	9.9 (4.6)	1-25

Table 3 shows the students' perception on COVID-19 threat to themselves if they were to return to the hospital environment and their belief in the severity of infection as well. Most students who favor to re-enter clinical education immediately do believe that they are likely to be infected by COVID-19. However not all of them believe that the

infection would be a threat to their lives. Then, a 'personal risk' result of individual participants was calculated by multiplying the perceived risk of infection and the belief in severity of illness. It was established that students who do not want to resume clinical training had a higher personal risk score.

Table 4. Professionalism: Willingness of the medical students to return or not return to the clinical setting.

Variables (Professionalism)	Mean (SD)	Min-Max
Reasons to return		
"Returning to the clinical setting during COVID-19 red zone is important to me because..."		
It is part of my professional responsibility	3.0 (0.7)	1-4
It is a chance to help provide care to patients	2.8 (0.8)	1-4
I want to be responsive to the needs of patients	2.8 (0.7)	1-4
It is a chance for me to improve my clinical capacity	3.1 (0.7)	1-4
I am part of the team therefore I should be there	2.6 (0.8)	1-4
It is part of my social responsibility to help the most vulnerable when needed	2.9 (0.8)	1-4
It is part of my moral obligation	2.8 (0.7)	1-4
Reasons to not return		
"I should not return to the clinical setting during COVID red zone because..."		
I don't want to be a drain on clinician's time	2.8 (0.8)	1-4
I don't want to be a possible vector of infection	3.3 (0.7)	1-4
I want to reduce possible risks to patients as I am not trained	3.2 (0.7)	1-4

Table 4 assessed the medical students predilection to return or not return to the clinical setting during the COVID 19 pandemic. This was a scale that was author-developed from a reference article [12]. Most students that were willing to return to the hospital setting scored the highest in their response to “It is a chance for me to improve my clinical capacity.” Many, also said they want to return because it is part of their professional responsibility as a future doctor and they feel obliged to help the vulnerable when in need. On the other hand,

most students were not willing to return because they believed that they could be a possible source of infection and also because they want to minimize the possible risk to patients as they are still medical students and not yet fully trained. In the reasons to not return, the lowest score in response was to the rationale “I don’t want to be a drain on clinicians’s time”, which explains that some students don’t want to return because they believe that they could be a burden on the clinicians’ hectic schedule during the pandemic.

Table 5. Motivation in relation to return to clinical settings -modified Treatment Self-Regulation Questionnaire and Burnout Inventory for Medical Students accessing the exhaustion and disengagement of the students.

Degree of Motivation	Mean (SD)	Min-Max
Autonomous (Intrinsic) (6-36)	28.3 (6.8)	6-36
Controlled (Extrinsic) (6-36)	18.5 (6.7)	6-36
Amotivation (Absent) (3-18)	8.1 (3.5)	3-18
Burnout	Mean (SD)	Min-Max
Exhaustion (8-32)	22.7 (2.6)	16-32
Disengagement (8-32)	22.8 (2.7)	16-32

The Table 5 describes the degree of motivation in relation to return to clinical settings using modified TSR Q questionnaire [22]. There was a greater score for autonomous motivation (intrinsic motivation) for the majority of students who wanted to return to the clinical environment. Students who choose not to return to the clinical setting, however, were found to have absent or amotivation, which is the total

absence of both intrinsic and extrinsic motivation.

Table 5 also describes the burnout inventory for medical students in accessing the exhaustion and disengagement of the students [21]. Compared to exhaustion, there was a higher score for disengagement in medical students when determining preference to return to clinical settings.

Table 6. Association between gender, ethnicity, nationality, academic year and residence towards the preference of returning to the clinical setting during the COVID 19 pandemic.

Independent Variables	Preference to return to clinical setting		OR (95% CI)	Chi-Square	P value
	Yes n (%)	No n (%)			
Gender					
Female	78 (77.2)	23 (22.8)	1.16 (0.54-2.49)	0.14	0.707
Male	41 (74.6)	14 (25.5)	1 (Reference)		
Ethnicity					
Malay	13 (81.2)	3 (18.8)	4.33 (0.96-19.58)	3.89	0.049
Indian	69 (83.1)	14 (16.9)	4.93 (1.79-13.59)	10.52	0.001
Others	26 (74.3)	9 (25.7)	2.89 (0.93-8.93)	3.50	0.061
Chinese	11 (50.0)	11 (50.0)	1 (Reference)		
Nationality					
International	28 (80.0)	7 (20.0)	1.32 (0.52-3.32)	0.34	0.557
Malaysian	91 (75.2)	30 (24.8)	1 (Reference)		
Academic Year					
Year 4	66 (83.5)	13 (16.5)	2.30 (1.07-4.94)	4.67	0.031
Year 5	53 (68.8)	24 (31.2)	1 (Reference)		
Residence					
Hostel	72 (80.9)	17 (19.1)	3.85 (1.41-10.53)	7.46	0.006
Home	36 (78.3)	10 (21.7)	3.27 (1.08-9.90)	4.61	0.032
Outside Hostel	11 (52.3)	10 (47.6)	1 (Reference)		

Table 6 shows the association between gender, ethnicity, nationality, academic year and residence towards the preference to return back to the clinical setting in the midst of COVID-19 infection.

There are 78% female students and 41% male students that preferred to return to the hospital setting. However, female students are 1.16 times more likely to prefer to return to the clinical clerkship when compared to the male students. The P

value here is 0.707, which is more than 0.05 level of confidence therefore negative association between gender and their preference to return seen. In terms of ethnicity, 83.1% of indian students, 81.2% of malay students, 74.3% of other races and 50% of student population chose to return to clinical clerkship. Indian students are 4.93 times more likely to prefer to go back to clinical clerkship compared to Chinese students and their P value is 0.001 which is less than 0.05

thus showing a significant association. Malay students are 4.33 times more likely to choose to go back to clinical clerkship compared to Chinese students, their P value is 0.049 which is less than 0.05 thus suggesting that there is a significant association. Finally, the other ethnicity students are 2.89 times more likely to go back to clinical practice and clerkship compared to Chinese students. However, P value is 0.061 which is more than 0.05 therefore negative association between other ethnicities and the likeliness to return to clinical rotation unlike the strong association between the Indian and Malay ethnicities which showed a strong association with preference to return to hospital rotation. As for nationality, 80% of the International students and 75.2% of Malaysian students preferred to return to the hospital rotation. International students are 1.32 times more likely to prefer to return to the hospital setting during the COVID-19 pandemic in comparison to Malaysian students. The P value is 0.557 which is more than 0.05 level of significance. Therefore, there is negative association between nationality and the preference to return to the hospital setting. For the variable, academic year,

83.5% students are 4th year medical students and 53% of the students are 5th year medical students. Thereby showing that 4th year medical students are 2.30 times more likely to go back to clinical clerkship during the COVID-19 outbreak compared to 5th year medical undergraduates. The P value is 0.031, which is less than 0.05, hence it is a statistically significant association with the academic year and the preference to return to the clinical setting. Lastly, for the residence variable, 80.9% of students reside in the hostel, 78.3% of them at home and 52.3% of them reside outside the hostel. Students who stay in the hostel are 3.85 times more likely to prefer to return to clinical clerkship compared to those residing outside the hostel. The P value is 0.006 which shows a strong significance. However students residing at home are 3.27 times more likely to prefer to return to clinical settings compared to those residing outside the hostel. The P value is 0.032 which is lesser than 0.05 shows statistical significance between residence and preference to return to clinical learning.

Table 7. Association of the preference to return or not return between motivation, burnout, perception of risk to self and professionalism.

Independent variable	Preference to return to clinical settings- Mean (SD)		P value
	Yes	No	
Motivation ^a			
-Autonomous motivation	30.3 (5.0)	22.2 (8.1)	<0.001
-Controlled motivation	19.4 (6.1)	15.6 (7.7)	0.003
-Amotivation	8.0 (3.3)	8.5 (4.1)	0.573
Burnout ^a			
-Exhaustion	22.5 (2.5)	23.5 (2.8)	0.046
-Disengagement	22.5 (2.5)	23.8 (3.1)	0.034
Professionalism ^a			
Reasons to return			
-It is part of my professional responsibility	3.1 (0.6)	2.5 (0.9)	<0.001
-It is a chance to help provide care to patients	2.9 (0.8)	2.4 (0.9)	0.004
-I want to be responsive to the needs of patients	2.9 (0.6)	2.4 (1.0)	0.002
-It is a chance for me to improve my clinical capacity	3.3 (0.6)	2.7 (0.9)	<0.001
-I am part of the team therefore I should be there	2.8 (0.7)	2.2 (0.9)	<0.001
-It is part of my social responsibility to help the most vulnerable when needed	3.0 (0.6)	2.4 (0.9)	<0.001
-It is part of my moral obligation	2.9 (0.7)	2.5 (0.8)	0.012
Reasons to not return			
-I don't want to be a drain on clinicians time	2.7 (0.8)	3.1 (0.8)	0.012
-I don't want to be a possible vector of infection	3.2 (0.7)	3.6 (0.7)	<0.001
-I want to reduce possible risks to patients as I am not trained	3.1 (0.5)	3.5 (0.4)	<0.001
Perception of risk to self ^a			
Perceived risk of infection			
-If you were to return to clinical settings, how likely do you believe it would be for you to become infected by COVID-19?	3.1 (0.8)	3.9 (0.8)	<0.001
Belief in severity of illness			
-If you were to become infected by COVID-19, how likely do you believe that it would result in a critical risk to your life?	2.8 (0.8)	3.1 (0.8)	0.020
Computed 'personal risk' score = perceived risk infection x belief in severity of illness	9.1 (4.2)	12.4 (4.7)	<0.001

^a Means are shown for ease of interpretation, however P-values were obtained from non-parametric tests (Mann-Whitney)

Table 7 shows the association of the preference to return or not return between motivation, burnout, professionalism and perception of risk to self.

For motivation, we have 3 subscales, namely: autonomous (internal motivation), controlled (extrinsic motivation) and amotivation (absent motivation). A maximum mean value of

30.3 was obtained for autonomous motivation from those who chose to go back to hospital settings. A mean of 22.2 preferred to not return to the clinical setting. P value <0.001 depicts that there is a positive association between autonomous motivation and their likeliness to return. For controlled motivation, the maximum mean obtained was for those who chose to return to clinical clerkship; the mean was 19.4 P value 0.003 suggests that there is a significant association between controlled motivation and their likeliness to return back to hospital rotations. For final subscale, amotivation, the highest mean was for those that said they did not want to go back to hospital rotations. P value of 0.573 shows there is negative association between amotivation and likeliness to return.

Burnout is divided into two domains which is exhaustion and disengagement. For the exhaustion subscale, a mean of 23.5 opted not to go back to clinical clerkship with a P value of 0.046 suggests that there is a significant association between exhaustion and the likeliness to go back to hospital. The subscale disengagement has the highest mean value of 23.8 for those that choose not to go back to hospitals. P value is 0.034 suggests that there is a positive association, disengagement and the preference to go back to hospital settings.

Under professionalism, majority of the respondents stated they want to return as it is part of their responsibility, enhance their clinical knowledge, achieve teamwork and have social responsibility to help out vulnerable people and each of these reasons scored a mean of 3.1, 3.3 and 3.0 respectively. Students who have stated 'as they are a part of the team, hence they should be there' as a reason to return scored a mean of 2.8, which is the lowest among all the reasons to return to clinical settings. For all those who have not preferred to return, 'a chance to improve one's clinical capacity' seems to be the reason for students to prefer not to return and scored a mean of 2.7. The P value for all the reasons to return were found to be lower than 0.05, hence this indicates a significant association between the respective reasons to return and preference to return back to clinical settings. Among the reasons not to return, on the other hand, the reason 'not to act as possible vectors of transmission' hasn't affected the decision of the respondents to return with a mean of 3.2 whereas its also one of the reasons that has affected the preference of students for not returning. The P value was less than 0.05 which showed a considerable association the inferences not to go back and preferability to return to hospital.

Perception of risk is assessed in two components, how the risk of infection is perceived and their belief in severity of illness. When the personal risk score was computed for both the components mentioned above, we obtained the highest mean of 12.4 for those who opted not to go back to clinical

clerkship. On the other hand a mean of 9.1 preferred to go back to hospital with P value, <0.001 shows positive association between the "personal risk score" and the likeliness to return back.

4. Discussion

This cross-sectional study was conducted among the undergraduate medical students of Melaka University College Malaysia to assess their perception of COVID-19 hazard to self, to assess the willingness of clinical year medical students to come back to clinical settings during the COVID-19 pandemic and to assess the various personal and environmental factors that affect the students decision-making in this regard. Through this study we found that the majority of them which is about 76.3% of the students prefer re-entering clinical education immediately if they were given a choice. In a previously done study, it was found that two-thirds of students said yes to returning to clinical learning and it was associated with many factors such as perception of risk to self, professionalism, motivation and burnout as well [12]. From this study we have found that there is a substantial association between ethnicity and fondness to return to clinical learning. The preference of Indian ethnicity is in the superiority, followed by other ethnicities, then Chinese and Malay ethnicities. This is made clear by the reality that the majority of the population in our study are of Indian ethnicity. Furthermore, we have found that there is a remarkable association between academic year and the fondness to return to clinical learning where students in Year 4 scored higher compared to students in Year 5. Based on a previous study among undergraduate medical students in Singapore, there was significant association between year of study and students preference [12]. On analyzing the association between the residence of medical students and their preference on resuming clinical learning, a significant association between residence and preference was found. Most of the students who prefer to resume clinical learning immediately are residing in the hostel. Based on previous research most students who live with at least one of their parents said yes to return to a clinical setting and there is a significant association between living with at least 1 parent and preference [12].

We discovered that those who wanted to resume clinical learning demonstrated positive professionalism, despite their concern for the time of physicians and their fear of being potential vectors of infection to patients. We found a significant difference in professionalism between those who chose to return and not willing to return. Those who preferred to return recorded a considerably higher response to the justification 'It is part of my professional responsibility'

which matched our results. [12]. This is in line with students' willingness to be held to medical professionals' high honorable expectations and to be a part of the medical team. [23, 24].

In this study the student population risk perception is 3.3 which is a neutral response perceived risk of COVID-19. This is because half of the students were confident about the SOP guidelines and also the preventive measures taken by the college and the faculties. The rest of the students were hesitant and skeptical about the preventive measures of controlling the infection as well as exposure to COVID-19. In a previous study done in Singapore students who favored not to return had remarkably higher risk perception scores. Students who preferred not to return were more worried about transmitting risk of infection to patients as they lack training, however the students wish to return did not see this as a prohibiting factor. [12]. Next, in our study the belief in severity of the illness is 2.9 which is also a neutral response. The reasons for this neutral mean score is mainly due to the age group of our study population. Furthermore, they believe to be less likely to get infected as they are staying alone in the hostel. The rest of them still found it prohibitive as they still do not have proper understanding about COVID-19. A similar study was done in South Africa where the majority of the students were concerned about lack of clinical exposure. However, they were all unwilling to return back to their clinical settings due to lack of health insurance and potential risk of getting the infection and transmission. [10].

The study showed a higher score for autonomous motivation compared to controlled motivation in which both exhibits a significant affiliation between autonomous and controlled motivation and the preference to return to clinical learning but there is no significant affiliation between amotivation and preference to return to clinical learning. In comparison to a previous study which also shows a higher autonomous and controlled motivation which shows the students are self driven to learn and gain knowledge [12]. Moving on, we also found that exhaustion and disengagement under the burnout scale has significant association with the students preference in returning to clinical learning. Based on a previous study among medical students in Singapore, a significant association between exhaustion and preference to return was found whereas there was no significant association between disengagement domain and the preference to resume clinical learning immediately [12].

We were able to recognize some limitations in this study. The study was conducted for a period of only 5 weeks and data collection was limited for 1 week therefore we were not able to obtain every clinical year students' opinion regarding their preference to return. This observation was done at a specific point in time thus making it difficult for us to

explore deeper into the opinions of the students' responses over a longer period of time, as we were only able to incorporate the general domains into the questionnaire. In addition, this research was done on clinical year students from only one institution therefore the results of this study cannot be concluded to all clinical year medical students from other institutions.

In our study, we were able to pinpoint up to a certain extent the reasons why many of the students in the study group preferred to return and not to return and also the association between various factors that contribute to being a medical student and the preference to return. A larger study group which could include other professionals of the healthcare system can be used for the research and help to gain valuable insight into the above topic by considering more variables. These could also help to improve healthcare in a better way and also help the students to accommodate the current circumstances of the pandemic and their effects on their medical education.

5. Conclusion

In conclusion, from our study, we found that the majority of the students of Manipal University College, Malaysia (MUCM) preferred to come back to clinical settings during the COVID-19 due to various contributing reasons. Due to the pandemic, medical schools and hospitals find it hard to incorporate education into an environment that is risky to a student's life. However, clinical exposure plays a vital role in sculpturing a medical student thus the knowledge of medical students' perception and their preference to return to the clinical setting can help contribute to the discussions under the current and evolving circumstances.

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