Research Article

MEDICAL AND NURSING STUDENTS' PREFERENCE TOWARDS RETURNING CLINICAL SETTING DURING COVID-19 PANDEMIC: A CROSS-SECTIONAL ONLINE SURVEY IN NEPAL

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Abstract

Introduction: Coronavirus disease (COVID-19) pandemic has created dilemma among medical and nursing educators in Nepal for bringing students in clinical setting for continuing clinical education. The objective of this study was to assess undergraduate medical and nursing students' preference for returning to clinical setting during COVID-19 pandemic in Nepal, and to explore factors associated with that preference. **Methods:** A cross-sectional electronic survey was carried out among 379 undergraduate medical and nursing students enrolled in different colleges in Nepal. The survey used semi-structured questionnaire in Google form to collect data. The link of the Google form was send to the potential participants through email and social media. Both descriptive (frequency, percentage, mean and SD) and inferential statistics (Chi-square test, independent t-test and binary logistic regression) were used to analyze data in SPSS vs20. Ethical approval was sought from Institutional Review Committee of National Medical College to carry out this study. **Results:** Around 2/5th of the students preferred not to return to clinical setting. Multivariable analysis depicted students preferring not to return with lower sense of professionalism, lower autonomous motivation and a higher perception of self-risk to COVID-19. **Conclusions:** The preference to return to clinical settings among students is dependent of several factors including but not limiting to professionalism during pandemic. Medical and nursing educators need to consider these factors while making decision and preparing these prospective healthcare professionals to serve wisely during pandemic in resource poor settings like in Nepal.

Keywords: Clinical education; clinical setting; medical and nursing students; pandemic; preference; return.

INTRODUCTION

Medical and nursing education is not a liberal arts study, instead a vocational-competency based training with a large portion of clinical placements to create qualified prospective healthcare professionals (Santos, 2020; Rose, 2020). World Health Organization declared outbreak of coronavirus (COVID-19) as a pandemic (World Health Organization, 2020). With COVID-19 pandemic becoming widespread, many countries suspended undergraduate medical and nursing students' clinical placements (Santos, 2020; Rose, 2020). Although uncertainty of the pandemic led medical and nursing colleges to resume undergraduate education through online teaching, face-to-face clinical activities in clinical settings are still suspended in Nepal. There has been debate regarding returning medical and nursing students into strained clinical setting (Brodar, 2020). Reasons for pausing clinical activities include limiting essential staffs in hospitals, preserving personal protective equipment (PPE), and reducing exposure risk to students. There are thoughts advocating that clinical placements during pandemic enable opportunities for learning and inculcation of professional responsibilities (Chema, 2020). An important element of such an analysis is knowledge of the preference of students regarding resumption of education in clinical setting which is currently lacking, representing a critical gap for medical and nursing educators in Nepal. The purpose of this study was to assess undergraduate medical and nursing students' preference for returning to clinical setting during COVID-19 pandemic in Nepal, and to explore factors associated with that preference.

METHODS

A web-based cross-sectional design was adopted for the study. The study was carried out among undergraduate medical and nursing students enrolled from first year to final year at different medical and nursing colleges in Nepal, who were 18 years or above, and gave digital informed consent. The minimum sample size was estimated using the formula, $n=z^2pq/l^2$. With prevalence of preference for returning clinical setting 64.8%[6], margin of error 5%, and non-response of 10%, the sample size was 386. Among 386 invited potential samples, seven declined to participate in the study. Thus, total number of students participated was 379 during data collection period from 13th September to 26th September, 2020. Ethical approval was taken from Institutional Review Committee of National Medical College to conduct the study (reference number-NMC/501/076/077). Data were collected via online survey using semi-structured questionnaire in Google form. The questionnaire was developed based off of modified survey conducted in Singapore[6], and consisted of four parts: demographic information; motivation to hospital return (Modified Treatment Self-Regulation Questionnaire (Compton *et al.,* 2020; Levesque *et al.,* 2007)), perception of COVID-19 risk, and preference for immediate re-entering hospital setting

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during COVID-19 pandemic and reasons towards that preference in terms of professionalism related to pandemic. Modified Treatment Self-Regulation Questionnaire (TSRQ) consisted of 15 items with 6 point rating scale and was used to measure the degree to which motivation is intrinsic (autonomous), extrinsic (controlled) or absent (a motivation). Professionalism related scale consisted of 10 items with 4 point rating. Perception of COVID-19 risk to self was assessed via 2 items with 5 point rating scale. The study instrument in the format of Google form was pretested among 40 medical and nursing students of researcher's institution to identify any ambiguities in the questionnaire. Data collected via online survey were imported to excel sheet, cleaned and analyzed in SPSS (Statistical Package for Social Sciences) version20. First, a point-estimate and 95% confidence intervals (95% CI) were determined for the prevalence of students who would prefer to return to clinical setting at that time. Subsequently we identified potential factors associated with students' preference by comparing categorical variables (sex, stream of education and year of study) and continuous variables (age, TSRQ-autonomous motivation, controlled motivation and a motivation, professionalism, and perception of self-risk to COVID-19) between groups of students who voiced a preference to Return or Not Return to clinical setting, using chi-square or independent samples t-tests. We retained associated factors with a p-value less than 0.10 for a multivariable analysis to determine the explanatory contribution of those variables in terms of students' preference to Not Return, using binary logistic regression with backward conditional stepwise entry method.

RESULTS

The age of participants ranged from 18 years to 30 years. Of the total 379 participants, 72.3% were female; 29% were enrolled in third year of their study; 12.4% were studying in institution located at province 1, 14.8% at province 2, 54.4% at Bagmati province, 6.6% at Gandaki province, 10% at province 5, and remaining 1.9% at Karnali/Sudurpaschim province. Out of total participants, while 53.6% (95%CI 48.7 – 58.6) expressed their preference to return to clinical setting immediately and 46.4% (95%CI 41.4 – 51.3) preferred not to return to clinical setting immediately for continuing their education, if given the choice. The preference to return to clinical setting differed across year of study, with students in third year (i.e. first clinical year in medical curriculum) being the least likely to prefer to return (36.4%); stream of education, with bachelor of medicine and bachelor of surgery (MBBS) students more likely to return; and sex, with male more likely to return (Table 1). As presented in Table 2, students preferring to "not return" showed a significantly higher perception of personal risk towards COVID-19 (p<0.001). Similarly, they depicted significantly lower ratings on professional identity, and contrarily, higher ratings on items linked to concern for causing harm to patients or the healthcare system. Moreover, student responses varied on measures of autonomous motivation and controlled motivation (p<0.001). To gain a clearer understanding of variables most explanatory for student's preference to "not return" to clinical setting, a multivariable analysis was conducted.

Table 1. Overall participant's demographics and comparisons between preferences to return/not return

| Characteristics | Category | Mean (SD) or n (%) | Student Preferences | | p-value |
			Return Mean (SD) or n (%)	Not Return Mean (SD) or n (%)	
Age		21.5 (2.1)	21.7 (2.2)	21.2 (1.9)	0.020
Sex	Male	105 (27.7)	68 (64.8)	37 (35.2)	0.007
	Female	274 (72.3)	135 (49.3)	139 (50.7)	
Stream	MBBS	204 (53.8)	125 (61.3)	79 (38.7)	0.001
	Nursing	175 (46.2)	78 (44.6)	97 (55.4)	
Year of Study	First	78 (20.6)	49 (62.8)	29 (37.2)	<0.001
	Second	90 (23.7)	46 (51.1)	44 (48.9)	
	Third	110 (29)	40 (36.4)	70 (63.6)	
	Fourth/Final	101 (26.6)	68 (67.3)	33 (32.7)	

Table 2. Personal attributes and risk perception of participants based on preference to return/notreturn.

| Modifiable variables | Category | Mean (SD) | Student Preferences | | p-value |
			Return Mean (SD)	Not Return Mean (SD)	
TSRQ	Autonomous motivation	23.5 (7.3)	26.2 (6.8)	20.5 (6.7)	<0.001
	Controlled motivation	15.9 (6.7)	16.8 (7.0)	15.0 (6.2)	0.009
	Amotivation	8.3 (3.5)	8.0 (3.5)	8.6 (3.5)	0.102
Professionalism					
	It is part of my professional responsibility	2.9 (0.7)	3.3 (0.6)	2.6 (0.7)	<0.001
	It is a chance to help provide care to patients	2.8 (0.8)	3.1 (0.7)	2.6 (0.7)	<0.001
	I want to be responsive to the needs of patients	2.8 (0.7)	3.1 (0.6)	2.5 (0.7)	<0.001
Reasons to return	It is a chance to improve my clinical capacity	2.9 (0.8)	3.2 (0.8)	2.6 (0.8)	<0.001
	I am part of the team therefore I should be there	2.7 (0.8)	3.0 (0.7)	2.4 (0.7)	<0.001
	It is part of my social responsibility to help the most vulnerable when needed	3.0 (0.7)	3.2 (0.6)	2.7 (0.7)	<0.001
	It is part of my moral obligation	2.9 (0.8)	3.1 (0.7)	2.6 (0.7)	<0.001
	I don't want to be a drain on clinician's time	2.5 (0.9)	2.1 (0.8)	2.8 (0.8)	<0.001
Reasons to not return	I don't want to be a possible vector of infection	2.9 (0.9)	2.6 (0.9)	3.3 (0.7)	<0.001
	I want to reduce possible risks to patients as I am not trained	3.1 (0.9)	2.8 (0.9)	3.4 (0.7)	<0.001
Perception of COVID-19 risk to self					
Perceived risk of infection	If you were to return to the clinical setting right now, how likely do you believe it would be for you to become infected by COVID-19?	3.6 (0.9)	3.3 (0.9)	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?	3.2 (0.9)	3.0 (0.8)	3.5 (0.9)	<0.001
Computed "personal risk" score	Perceived risk of infection x belief in severity of illness	12.2 (5.5)	10.3 (4.7)	14.3 (5.6)	<0.001

Table 3. Binary logistic regression for explaining preference not to return to clinical setting

Variables	*B*	Standard Error (S.E.)	Wald	*df*	*p*-value	Odds Ratio (95% CI)
Final Model						
Constant	1.85	2.01	0.85	1	0.356	6.40
Age	-0.14	0.06	4.39	1	0.036	0.86 (0.75; 0.99)
Sex (Female)	0.67	0.30	4.83	1	0.028	1.96 (1.07; 3.59)
It is part of my professional responsibility	-1.13	0.22	24.79	1	<0.001	0.32 (0.20; 0.50)
I don't want to be a drain on clinician's time	0.36	0.17	4.25	1	0.039	1.44 (1.01; 2.04)
I don't want to be a possible vector of infection	0.37	0.21	3.09	1	0.078	1.45 (0.95; 2.22)
I want to reduce possible risks to patients as I am not trained	0.46	0.20	5.08	1	0.024	1.58 (1.06; 2.37)
Autonomous motivation	-0.08	0.02	11.98	1	0.001	0.91 (0.87; 0.96)
Controlled motivation	0.04	0.02	3.83	1	0.050	1.04 (1.00; 1.09)
"Personal risk" score	0.08	0.02	9.79	1	0.002	1.08 (1.03; 1.14)

Note: Variables entered on step 1: Age, Sex, Stream, Year of Study, "It is part of my professional responsibility"; "It is a chance to help provide care to patients"; "I want to be responsive to the needs of patients"; "It is a chance for me to improve my clinical capacity"; "I am part of the team therefore I should be there"; "It is part of my social responsibility to help the most vulnerable when needed"; "It is part of my moral obligation"; "I don't want to be a drain on clinicians' time"; "I don't want to be a possible vector of infection"; "I want to reduce possible risks to patient as I am not trained"; (TSRQ) Autonomous Motivation; (TSRQ) Controlled Motivation; Personal Risk.

Table 4. Perception towards resources enabling students' return to clinical setting during pandemic, multiple responses (N=379)

Perception of enabling resources for clinical return	Frequency	Percentage
Availability of PPE and sanitizers	298	78.6
Adequate knowledge of safety from COVID-19	241	63.6
Training to remain safe from COVID-19	259	68.3
Ensure safe food in hospital premises	202	53.3
Vehicle facility from residence to hospital and vice-versa	181	47.8
Appropriate infrastructure of clinical training in hospital with measure of physical distancing	297	78.4

All variables that varied between response groups (Return/Not Return) at p < 0.10 level were entered into a multivariable logistic regression model. As presented in Table 3, final multivariable model showed that seven variables were associated with student's preference to "not return", two of which were demographic factors- age and sex (for an example, female students had almost twice the odds of not returning to clinical setting compared with male students), three were related to professionalism, one related to autonomous motivation and one related to perception of personal risk towards COVID-19. As depicted in Table 4, there were various resources identified by students which could enable them for immediate return to clinical setting. Around four-fifth reported availability of PPE and sanitizers in clinical setting and provision of appropriate infrastructure that could imply measure of physical distancing during clinical training would enable them for returning to clinical setting for continuing their education.

DISCUSSION

The current study was carried out during continuous suspension of medical and nursing education in clinical settings during ongoing COVID-19 pandemic. Overall, more than two-fifth of the students were found to have had preference to not return to clinical setting for continuing their clinical education. This proportion is higher than the study conducted in Singapore where only one-third students preferred not to return (Compton *et al.,* 2020). This finding is similar to the perspective of students currently undertaking medical education in the United Kingdom (Reddy and Palmer, 2020), where they resonated with preference to return to clinical placements. This may be due to higher medical facilities, easy access to personal protective equipments and higher sense of professional responsibility among students in settings of high income countries as compared to low-and-middle income countries. In current study, the proportion of

responsibility towards patients, healthcare system and whole medical-nursing fraternity. The association of autonomous motivation and students' preference to return reflects experience-based learning model where students gain competency through participation and a state of positive mind including a sense of professional identity via confidence and motivation (Dornan *et al.,* 2007). Further, the students preferring not to return in this study had higher perceived risk for self towards COVID-19 and they also did not want to burden health system and kill clinician faculties' time working in hospitals. This finding is similar with literature that the students can act as vectors for transmission of the disease, may consume scarce personal protective equipments and place added burden on teaching faculties (Miller *et al.,* 2020). However, most of these are modifiable factors where faculties and administrators at medical and nursing schools could emphasize on these issues, particularly educate and train students on protecting themselves from risk of getting infection and thereby reducing their perception of risk so that they could prefer to return to clinical settings. Furthermore, students who preferred not to return to clinical setting immediately had lower ratings towards their response to the reason that "It is a part of my professional responsibility". This result is congruent with the finding of the study conducted in Singapore (Compton *et al.,* 2020). Developing clinical skill and reflective learning at simulating environment in clinical setting working under faculties and imitating them are part of grooming professional identity and are considered to be the desire of prospective healthcare professionals to develop ethical standards so that they can be the part of healthcare team and the system (World Health Organization, 2020; Ferrel *et al.,* 2020; Should Medical Students, 2020; Zuger *et al.,* 1987). Based on current experience (personal communication with faculties and undergraduate students of medical and nursing schools within the country), online teaching in the form of lectures, problem based learning, clinical case presentation and virtual community based learning are being carried out. This online

learning activities. However, the frequency and intensity of online teaching particularly related to community posting has not been effective and should have been postponed and conducted in real life settings. It has been rightly pointed out that medical and nursing education should be viewed differently and requires training at clinical setting (Shrestha *et al.,* 2020). Some schools have been found (personal communication with faculties and undergraduate students within the country) that students are promoted from one year of study to another without completing hospital based rotations, laboratory based skill sessions and community based posting. In short run, this could be the solution to mitigate the loss of learning time by completing the course of education in allotted time but promoting students from one academic year to other without fulfilling and completing all necessary components of medical and nursing education is at no means better for producing qualified healthcare professionals. Globally, many universities have removed face-to-face written examination and introduced online remote assessment for students (Alsafi *et al.,* 2020; Ahmed *et al.,* 2020).

However, such an assessment upraises concern over honesty, quality and fairness of student's examination process particularly in medical education (Appiah, 2020), which is supposed to train and prepare a qualified health professional who would take care of health system in future. Instead, medical and nursing schools should think of alternative ways for continuing clinical education with minimal compromise in the quality of education. Moreover, rather than taking a sole decision by school administration, it should give choice for students and consider their viewpoint as they are important stakeholders of medical education and are future of healthcare system. Importantly, more than half of the students in this study had preferred to return to clinical setting immediately considering the pandemic as an opportunity to learn in real life setting and getting involved in clinical setting as social responsibility of this profession. This finding is consistent with the result of a survey done in Ireland, where 59% of the respondents showed preference to volunteer during crisis caused by infectious diseases with majority considering it as a moral obligation during pandemic (O'Byrne, 2020). As students are not well qualified for meaningful healthcare, their involvement in patient care during COVID-19 would provide tremendous educational learning benefits to medical and nursing students (Lim *et al.,* 2009). In this regard, schools should consider innovative ways to deliver clinical education to medical and nursing students at clinical setting during pandemic. For an example, rather than involving a whole group of students daily for four weeks rotation in clinical wards, smaller sub-groups of students in an alternative day or weekly 2-3 days for eight to ten weeks rotation can be done to minimize the risk of overcrowding during pandemic situation and without compromising in the contents of this noble education to create a sound healthcare professionals who could deliver rightly during an outbreak situation in future. The evidence of shortages of well prepared healthcare workforce during crisis situations especially in low-and-middle income countries pin points the need of pandemic preparedness in undergraduate medical curriculum with the aim above educational benefit and getting them prepared to deal during pandemic. A study on a disaster preparedness medical school elective in the USA showed that the training for the preparedness decreased the claim of unpreparedness during emergency among students from 70% to 11% (Patel *et al.,*

occur in future,it befits healthcare educators to ensure that all prospective healthcare personnel are well prepared during their educational training including undergraduate medical and nursing training (O'Byrne, 2020). The limitations of the current study include the design of the study due to which the results need to be interpreted with caution. Moreover, due to the nature of the study being an online survey, potential participants who were not in access of internet during the data collection phase might have been left out whose perspective would have been important for the study.

Conclusions

The need of educational restructuring in medical and nursing schools particularly in low resource countries like Nepal has been highlighted by COVID-19 pandemic. The schools need to think of innovative techniques and prepare students to serve for betterment of population health during pandemic of infectious diseases as well continuing clinical training indulging them at minimum risk. Medical and nursing students should not be kept away from clinical settings during pandemic as it has been considered an opportunity to learn during adverse conditions which would prepare them to serve as a skilled health professional in future. Moreover, with more than halves of the students reporting preference to return clinical setting, this should not be ignored by the schools for their effective learning. Instead, schools should consider professionalism and ethics related issues and resources identified by this study as enablers to students' return. Students need to be trained in ethics, social responsibility in medicine and generate autonomous motivation so that they are well prepared to continue their clinical education and contribute to healthcare system during pandemic. Student's choice need to be considered by schools as voluntary learning is much more effective than forceful learning. Furthermore, nation's medical and nursing council should prepare guidelines for schools regarding teaching-learning and its assessment during pandemic and these councils should strictly monitor for making schools implement the guidelines and thereby maintaining uniformity in quality education in various medical and nursing schools. Moreover, these councils should play proactive roles in monitoring ethical aspects and safer environment in clinical settings for continuing clinical education with minimal risks to students. Future qualitative studies in this issue are recommended which can better elucidate the impact of the pandemic on medical and nursing students' professional identity formation.

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