

Challenges in the Clinical Education Environment during the COVID-19 Outbreak: The Experiences of Medical Students

Peyman Namdar¹, Leila Dehghankar², Mahya Shafaei², Rahman Panahi³, Leili Yekefallah⁴

¹ Associate Professor, Department of Emergency Medicine, Metabolic Disease Research Center, Research Institute for Prevention of Non-Communicable Diseases, Qazvin University of Medical Science, Qazvin, Iran

² Social Determinants of Health Research Center, Research Institute for Prevention of Non-Communicable Diseases, School of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran

³ PhD in Health Education and Promotion, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

⁴ Associate Professor, Metabolic Disease Research Center, Research Institute for Prevention of Non-Communicable Diseases, School of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran

Corresponding Author: Leili Yekefallah; Associate Professor, Metabolic Disease Research Center, Research Institute for Prevention of Non-Communicable Diseases, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran
Email: leili_fallah@yahoo.com

Qualitative Study

Abstract

Background: The aim of the present study was to determine the challenges of medical students in the clinical education environment during the outbreak of Covid-19 to understand their experiences.

Methods: This qualitative study was performed based on the hermeneutic phenomenological approach and Van Manen's analytical method from 10th of August to 12th of September 2020 in different departments of Qazvin University of Medical Sciences, Iran. In this phenomenological study, using the purposive sampling method, the participants were selected from among medical students. The data were collected through semi-structured interviews with 12 medical students. All the interviews were recorded and transcribed, and then, the codes, categories, and themes were extracted using Van Manen's analytical method.

Results: The 5 main themes of the present study were 'inefficient clinical education', 'dealing with real work conflicts', 'the future professional challenges', 'the challenges related to organizational policy', and 'the challenges related to the sense of stigma among the medical staff'. The most important challenges consisted of 'moving away from the educational goals due to reduced attendance at the clinical setting', 'the cancellation of some clinical courses', 'the creation of stress in the students by professors', 'fear of getting sick and transmitting the disease to family members', 'fatigue and heavy sweating due to caring for a large number of patients while wearing isolation gowns', 'the prolongation of the students' studies and delay in starting their thesis'.

Conclusion: The results of this study provided a deeper insight into the perceptions, feelings, and experiences of medical students during the coronavirus pandemic.

Keywords: Education; Medical students; COVID-19

Citation: Namdar P, Dehghankar L, Shafaei M, Panahi R, Yekefallah L. **Challenges in the Clinical Education Environment during the COVID-19 Outbreak: The Experiences of Medical Students.** *Int J Body Mind Culture* 2021; 8(2):115-25.

Received: 05 Nov. 2020

Accepted: 02 Mar. 2021

Introduction

Medical personnel have always been exposed to contagious diseases. The likelihood that Covid-19 can be transmitted even by asymptomatic individuals multiplies the risk of infection (Taghrir, Borazjani, & Shiraly, 2020; Biscayart, Angeleri, Lloveras, Chaves, Schlagenhauf, & Rodriguez-Morales, 2020; Bai et al., 2020). Presently, all attention is on the Covid-19 pandemic. Medical students are directly or indirectly in contact with this disease (Ikhlaiq, Bint-E-Riaz, Bashir, & Ijaz, 2020). Thus, they are considered a high-risk occupational group (O'Byrne, Gavin, & McNicholas, 2020). These students are the best and most reliable sources for the examination of clinical education problems because they are directly involved in this process.

The risk of this disease being transmitted to health care professionals is very high in this pandemic (Han & Yang, 2020). Stirling and Harmston have noted that the risk of disease transmission could be a serious threat to the students and that they should be aware of this risk. The direct connection between the students and hospitals and universities can act as a disease transmission channel between pathogenic factors and large and susceptible populations (Stirling & Harmston, 2015).

Previous studies have suggested that the challenges of the clinical environment could lead to anxiety and stress (Meyer, Nel, & Downing, 2016). As a result, they may reduce students' critical thinking and affect their learning (Khan, Begum, Rehman, & Khan, 2020). The prevalence of Covid-19 can cause significant psychological stress in students, which may have adverse effects on their learning and mental health (Al-Rabiaah et al., 2020). During the pandemic, the students in the clinical environment have often suffer from stress and learning disturbances, which can have negative impacts on their academic achievement (Lovric, Farcic, Mikšic, & Vcev, 2020).

In a study by Gallagher and Schleyer, students were asked about the challenges they experienced in the clinical environment during the Covid-19 outbreak. They replied that by approaching the fourth year and the internship period, being away from the clinical environment were very problematic for them. Moreover, they felt that they were not useful enough and it was very difficult for them, conscientiously and morally, not to be able to help (Gallagher & Schleyer, 2020). One of the challenges that medical students are faced with, especially those who have taken the residency test, is their absence from the clinical environment (Menon, Klein, Kollars, & Kleinhenz, 2020; Theoret & Ming, 2020). Liu et al. (2020) showed that the challenges of working in the Covid-19 ward for the treatment team providing patient care included working in an overall new environment, burnout due to heavy workload, lack of equipment, fear of getting infected and contaminating others, and feeling unable to handle the patients' needs and to overcome the challenges in these stressful situations (Liu et al., 2020).

This pandemic provided an opportunity for the students who voluntarily helped in this crisis to explore the risks and costs. It is important that any decisions the students make (whether to enter the clinical setting or choose a purely theoretical path) be fully supported without being judged (Swift et al., 2020).

Negligence in identifying the problems and challenges that students face in the clinical education environment hinders effective learning and progress. Jamshidi, Molazem, Sharif, Torabizadeh, and Najafi (2016) found that the inefficient presence of students in the clinical education setting increases the rate of dropout. Some students have abandoned the medical profession because of such challenges in the clinical setting (Jamshidi et al., 2016).

Qualitative studies provide an opportunity for the in-depth exploration of mental experiences, taking into account the broader factors of the subject matter. In addition,

qualitative studies on other infectious diseases have recommended that clinical trials be conducted and health policies be formulated (Robinson et al., 2020). Educated and efficient manpower is the most important asset of any nation and training efficient people is the goal of any educational system, especially the higher education system. Moreover, the economic, social, political, and cultural developments of any society depend on its specialized human resources. Given the importance of this issue and the fact that we need to be aware of the various challenges of and concerns about Covid-19, all efforts should be made to explore the students' perceptions and experiences in this regard. Since no study has yet been conducted on the experiences of medical students in relation to Covid-19 in Iran, the current research team conducted a qualitative study with a phenomenological approach in order to obtain a deep understanding of the experiences of these students regarding the challenges of the clinical education environment.

Methods

This phenomenological study was conducted to gain an in-depth understanding of medical students' experiences of the challenges of the clinical education environment during the outbreak of Covid-19.

The participants of this study were a number of medical students who were doing internships in different departments of Qazvin University of Medical Sciences, Iran. In total, 12 medical students (volunteers) were selected using purposive sampling method.

The study inclusion criteria were studying in one of the fields of medical sciences and the ability of hearing and speech, and the exclusion criteria included incomplete answers to interview questions and unwillingness to participate in the study. Sampling was continued until data saturation was reached.

The data were collected using semi-structured interviews and non-structured observations until data saturation. The interviews were conducted from the 10th of August to the 12th of September 2020. In order to reach a deep understanding of the experiences of these students about Covid-19 and the challenges of the clinical education environment, the participants were initially asked to express their challenges in the clinical education environment. The sample questions were as follows:

Have your clinical education and learning rates changed significantly during this period?

Are there any new issues in your clinical learning?

Has your desire for internship changed?

What did you experience in your current internship that you had not experienced before Covid-19? Has your opinion about your profession and field of study changed compared to before?

Do you feel useful as a medical staff member these days?

What is your general sense?

The average duration of the interviews (in 1 to 2 sessions) was 30 to 50 minutes. All the interviews were performed by the fifth author (MSh) and analyzed by all the authors. From this point on, the transcribed data were the raw source for the deeper understanding of these students' experiences with respect to the challenges of the clinical education environment in this study.

Non-structured observations were also used during the semi-structured interviews to record the participants' behavior and establish non-verbal communication, facial expression, and eye contact.

The data were analyzed based on van Manen's phenomenological method. Van

Mann introduces 6 methodological themes that play a practical role in performing hermeneutic phenomenology. The 6 steps suggested by researchers (van Manen) to researchers are as follows:

- 1). Explore the experience under study as lived.
3. Reflect on the intrinsic themes that reveal the characteristics of the phenomenon.
4. Describe the phenomenon using the art of writing.
5. Establish and maintain a strong and conscious communication with the phenomenon.
6. Create coherence with respect to components and the whole.

In the coding process, each interview was initially read several times and this question was asked: “which statements are necessary to a deep understanding of the experiences of the students regarding the challenges of the clinical education environment”. Then, the statements were identified and underlined and their meanings and interpretations were written down. Finally, the thematic sentences were merged and categorized so that the major themes and minor categories were obtained. After initial coding, 130 codes were extracted. Similar items were omitted and the codes were reduced to 113, as a result, 15 categories and 5 themes were discovered. The accuracy of the qualitative findings was confirmed by assessing their validity, verifiability, reliability, and transferability (Burns & Grove, 2005).

The interview files and extracted codes were reviewed by external observers and their opinions were taken into consideration (Menon et al., 2020).

Ethical Considerations: The ethical code of the study was obtained from the Deputy of Research and Technology at Qazvin University of Medical Sciences (IR.QUMS.REC.1399.125) and informed written consents were obtained from the research participants.

Results

In the present study, 12 participants (6 women and 6 men) ranging in age from 21 to 35 years (24.83 ± 1.23 years) and undertaking various internships at medical training centers were interviewed in an in-depth and semi-structured manner (Table 1).

Initially, 130 codes were extracted and after reduction, deletion, and merging, 113 original codes remained. Finally, by analyzing the information, 5 themes (including inefficient clinical training, dealing with real work conflicts, future professional challenges, organizational policy challenges, and challenges related to the sense of stigma among the medical staff), 15 categories, and 66 sub-categories were extracted. One of the most important challenges for the students in clinical education at the time of the coronavirus outbreak was inefficient clinical education (Table 2).

Table 1. The demographic characteristics of the participants

Participant	Age	Sex	Marital status	Semester	The clinical wards
1	29	Female	Married	Second	Surgery resident
2	32	Female	Single	Second	Anesthesia resident
3	30	Female	Married	Second	Internal resident
4	35	Female	Married	Third	Infectious resident
5	34	Male	Single	Fourth	Anesthesiology student
6	30	Male	Single	Fourth	Emergency Medical Science student
7	22	Male	Single	Third	Operating room student
8	32	Male	Married	Fourth	Internal resident
9	21	Male	Married	Fourth	Nursing student
10	22	Male	Married	Fourth	Nursing student
11	26	Female	Married	Fourth	Emergency Medical Science student
12	25	Female	Married	Third	Intern

Table 2. The clinical challenges in the education environment during the outbreak of Covid-19

Themes	Categories	Sub-categories	
Inefficient clinical education	Instructor-related challenges	Reluctance of experienced professors to attend clinical training environments Creation of stress in the students by the professors Prevention of students' attendance in the coronavirus wards by some professors Lack of psychological support for the students in the clinical environment	
	Challenges related to educational planning	Insufficient ability of some professors in the clinical setting Lack of a suitable scientific background regarding Covid-19 Cancellation of some clinical courses Reduced duration of some clinical courses The gap between virtual and clinical types of learning The low speed of the virtual education system Not learning practical skills through virtual education Lack of clinical scenarios in a virtual format Inadequate number of students in different wards	
	Challenges related to the quality of education	Presence of students from various clinical disciplines and congestion in the clinical environment Disregard for the students' opinions in clinical planning Reduction of the number of clinical procedures Moving away from educational goals due to the students' reduced time of presence in the clinical environment Lack of access to scientific information Lack of learning without the presence of professors Fear of becoming disabled due to illness while dealing with infected patients	
	Student-related challenges	Fear of transmitting the disease to family members Fear of being a carrier and dealing with patients	
	Challenges of clinical evaluation	Professors' excessive valuing of theoretical knowledge Lack of clarity of the final evaluation process for the student Lack of evaluation based on the lesson plan	
	Challenges related to lack of independence in clinical wards	Lack of planning for the independence of students Lack of mentorship in the clinical setting	
	Resolution of real work conflicts	Inconsistency-related challenges	Inconsistencies between the existing infrastructure for clinical education and the intended objectives Lack of coordination between the educational goals and the expectations of the students in the clinical environment Inconsistencies between lesson plans and clinical activities Inconsistencies between the goals that the professors and the clinical staff set for the students
		Administrative barriers to the acquisition of clinical skills	Lack of valuing education and the dignity of the students and professors
		Concerns about not obtaining their desired jobs	Students' lack of exposure to various cases and diseases Students' inability to manage the patients due to insufficient education
	Professional challenges in the future	Concerns about not obtaining their desired jobs	Students' not having the opportunity to deal with patients during their internship Students' attendance in the clinical wards without having the necessary knowledge and skills Limited access to the clinical skills learning center Lack of training for working with devices and equipment in the clinical setting
Challenges related to the clinical environment		Failure to obtain the expected income Concerns about the lack of job opportunities Prolongation of the students' studies and delay in starting their thesis	
Challenges related to organizational policies		Working in a completely new and different clinical environment Lack of capacity of the clinical environment for the presence of students Lack of enough space for the students to rest Presence of a large number of students in the pavilion Fatigue and heavy sweating due to caring for a large number of patients while wearing isolation gowns	

Table 2. The clinical challenges in the education environment during the outbreak of Covid-19 (continue)

Themes	Categories	Sub-categories
Challenges related to organizational policies	Challenges related to hospital staff	Some hospital staff members' not having accepted the presence of students Some clinical staff members' inappropriate treatment of the students Lack of communication between the hospital staff and faculty members
	Managerial challenges	Multiplicity of national programs and policies Cumbersome bureaucracies Pressures from educational groups Lack of financial resources Lack of human resources Lack of transparency regarding the roles and duties of managers Disproportionate authority and responsibilities of the managers Lack of transparency in the rules and processes of the organization Failure to comply with the requirements of teamwork
Challenges related to the sense of stigma among the medical staff	Individual challenges Sociocultural challenges	Feelings of isolation and depression Feeling frustrated due to failure to treat patients Attaching the stigma of 'carrier' to the medical team People being fearful of the medical staff and distancing themselves from them People's inappropriate treatment of the medical staff

1- Inefficient clinical education: The first extracted theme of this study included the categories of 'professor-related challenges', 'challenges related to educational planning', 'challenges related to the quality of education', 'student-related challenges', 'challenges of clinical evaluation', and 'challenges related to the students' lack of independence in the clinical environment'.

In this regard, a participant stated: "the professor does not allow us to attend the coronavirus ward because she is afraid of contaminating herself and the students" (Participant 1).

"We had less clinical activity than the other groups because some of our clinical courses were canceled or cut short", said one student (Participant 2).

"Most of our professors pay attention to the students' theoretical knowledge, which reduces our motivation to learn clinical activities", said one participant (Participant 9).

Another student stated: "some professors do not leave us alone for a moment in the clinical setting, which makes us dependent on them and prevents us from learning independently" (Participant 10).

2- Dealing with real work conflicts: The second theme of the qualitative data was dealing with real work conflicts and included 2 categories and 7 sub-categories. The categories of this theme included 'inconsistency-related challenges' and 'administrative barriers to the acquisition of clinical skills'. In this regard, one participant said: "there is a huge difference between our theoretical training and our clinical activity in the clinical environment, which confuses use" (Participant 4).

Another participant asserted that "most of the objectives of our clinical course plans are not performable in the clinical setting" (Participant 3).

Another student said: "some members of the clinical staff do not respect the students and their education" (Participant 4).

3- The future professional challenges: The third theme included the categories of the students' 'concerns about not acquiring the desired professional qualifications during their studies' and their 'concerns about not obtaining their desired jobs'.

In this regard, a participant announced, "I am worried that at the time of my graduation, I might not have the necessary abilities to manage patients because I was not taught the various treatment procedures" (Participant 6).

Another participant reported that "most students are concerned that they will not have a job and enough income after graduation; therefore, they do not have the motivation to engage in clinical activities" (Participant 6).

4- The challenges related to organizational policy: The fourth theme was 'organizational policy' that included the categories of 'challenges related to the clinical environment', 'challenges related to hospital staff', and 'managerial challenges'.

In this regard, a participant noted that "due to the lack of human resources, we are used as medical personnel in fields that are irrelevant to our educational goals. In addition, no welfare facilities have been provided for us" (Participant 7).

Another participant stated: "our numbers in the pavilion are high, which makes us tired and reluctant to engage in clinical activities" (Participant 8).

5- The challenges related to the sense of stigma among the medical staff: The fifth theme included the categories of 'individual challenges' and 'sociocultural challenges'. From the students' point of view, people being fearful of the medical staff and distancing themselves from them caused them to feel isolated and depressed.

In this regard, one participant stated: "when I got into a taxi and the others realized that I was a medical staff member, they asked me to get out of the taxi" (Participant 3). Another participant stated: "when the treatment methods are not effective and the patient is lost, I feel frustrated and defeated" (Participant 4).

Discussion

The present study was conducted with the aim to understand the students' experiences regarding the challenges in the clinical education environment during the outbreak of Covid-19. The 'educational planning challenges' was one of the categories of the theme of inefficient clinical education. In this regard, the students stated that there was a large gap between what they had learned in theory through e-learning and their clinical training. In their study, Elahi, Alhani, and Ahmadi (2014) pointed out that one of the problems of nursing education was the large gap between theoretical education and clinical practice. Scully asserted that most clinical educators have an important role in teaching both theoretical and clinical principles (Scully, 2011). Therefore, the ability to combine academic knowledge with nursing clinical practice in order to apply theory in clinical practice is one of the key issues in ensuring the competence of nursing educators (Parsh, 2010). In the studies by Theoret and Ming (2020) and Menon et al. (2020), it has been mentioned that one of the medical students' challenges was their absence from the clinical environment, especially for those who had taken the residency test.

In their study, Baraz, Memarian, and Vanaki (2015) aimed to determine the challenges of students in clinical settings and stated that the most important challenges for students were the learning environment and the adequate competence of the instructors. Identifying the challenges of clinical education in order to eliminate or modify them is useful in creating more learning opportunities, improving the achievement of educational goals, promoting the students' skills to meet complex care needs, using theories in a clinical setting, and improving the quality of health care (Baraz et al., 2015).

One of the most important challenges mentioned by the students in the category of 'professor-related challenges' was the 'creation of stress in the students by the professors'. In this regard, Al-Rabiaah et al. (2020) reported in their study that 77% of the students in the Covid-19 crisis had severe stress and there was a significant relationship between their stress levels and general health.

Joolae, Jafarian Amiri, Farahani, and Varaei also acknowledged that the students' challenges in the clinical setting included the lack of skill and preparation for the clinical setting and dealing with real patients, which could affect the learning process.

The results showed that, in the category of the 'quality of clinical education', the most important challenges were the 'reduction of the number of clinical procedures' and 'moving away from educational goals' due to the reduced number of days in the clinical environment.

The results showed that in the category of 'student-related challenges', the most important challenges mentioned were 'fear of being disabled due to illness through contact with infectious patients', 'fear of infecting the family', 'fear of being a carrier', and 'exposure to patients'. In their study, Lovric et al. (2020) found that most students feared infection and were concerned about the health of their family. They regularly took protective measures, were afraid of the clinical environment, and often reported difficulty in concentrating and learning (Lovric et al., 2020). Liu et al. (2020) showed that the challenges of working in the Covid-19 ward were burnout, fear of getting infected, and fear of infecting others. In another study, researchers found that the reasons for some students' unwillingness to work in the coronavirus ward included their concerns about not having adequate physical support, the possibility of infecting their relatives, and belonging to a family or having a family (Collado-

Boira, Ruiz-Palomino, Salas-Media, Folch-Ayora, Muriach, & Balino, 2020). Elrggal et al. (2018) and Al-Hazmi, Gosadi, Somily, Alsubaie, and Bin (2018) also mentioned that the fears of unemployment due to Covid-19, being infected, and contaminating their family members were the most important challenges for the students in the clinical environment. The results of these studies are rather logical because they indicate the students' level of awareness of the pathogenicity and high risk of coronavirus transmission in the clinical environment. In the study by Stirling and Harmston (2015), it was demonstrated that this risk can be a serious threat to the students and the direct relationship between the students and hospitals and universities can act as a channel in transmitting the disease to large and susceptible populations.

One of the categories of the theme of 'inefficient clinical education' was the 'challenges of clinical evaluation', which is one of the important topics in clinical education. Parsh (2010) suggested that the clinical educators' ability for effective evaluation is one of their important characteristics.

The results showed that the second main theme was 'dealing with real work conflicts' with the category of 'inconsistencies and administrative barriers to the acquisition of clinical skills'. The students considered the most important challenges of this theme to be the 'inconsistencies between the existing infrastructure for clinical education and the intended objectives', the 'inconsistencies between educational goals and expectations of the clinical staff from the students', the 'inconsistencies between the curriculum and clinical activities', 'lack of valuing education and the dignity of the students, professors, and instructors', and the 'students' lack of exposure to various cases and diseases'. Jamshidi *et al.* (2016) studied the challenges of students in the clinical education environment in Shiraz, Iran. They concluded that the most important challenges for the students in facing the clinical education environment included insufficient and dysfunctional communication skills, discrimination among the students, insufficient preparation, insufficient knowledge, and incorrect practical skills, which affected the students' learning in the clinical environment (Jamshidi *et al.*, 2016).

The results demonstrated that the third main theme was 'professional challenges in the future', the most important categories of which included 'concerns about not obtaining the desired professional qualifications during their studies', 'concerns about not obtaining their desired jobs', 'inability to manage patients due to insufficient education', 'the students' lack of exposure to patients during their internship', 'their lack of training for working with the devices and equipment available in the clinical wards', and 'their concerns about the lack of job opportunities'. Furthermore, Elrggal *et al.* (2018) and Al-Hazmi *et al.* (2018) showed that the fear of Covid-19 and not having a job were the most important challenges for the students in the clinical environment.

The results showed that the fourth main theme was the 'challenges related to organizational policy', the most important categories of which were the 'challenges related to the clinical environment', the 'challenges related to the hospital staff', and 'managerial challenges'. Liu *et al.* (2020) explained that wearing personal protective equipment and an isolation gown for a long time was stressful, especially for nurses who had to be in the isolation wards during all shifts (Liu *et al.*, 2020). Magerman (2016) noted the existence of educational facilities as a necessity for clinical education and considered it as one of the important responsibilities of clinical managers. Magerman (2016) also noted that the clinical environment should be well-equipped so

that health care providers can receive the necessary training.

This study is one of the first studies conducted on this phenomenon among medical students during the Covid-19 period in Iran. Students had many experiences of missed care and were eager to share their experiences. One of the limitations of the current study was that due to the new pandemic, limited research has been performed on the subject. Hence, the results of the current study cannot be compared with those of other papers. Another limitation of the current research was the small number of participants. Therefore, it is recommended that future studies be performed with a larger number of participants.

Conclusion

The results of this study provided a deeper insight into the perceptions, feelings, and experiences of medical students during the coronavirus pandemic. The information obtained helped us to identify the needs, problems, and challenges of the students in the clinical environment during this pandemic and improved their academic performance. Therefore, to create effective support mechanisms for the students, it is important to have a comprehensive understanding of their perceptions, feelings, and experiences in crisis.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

This research has received grants from the Deputy of Research of Qazvin University of Medical Sciences.

References

- Al-Hazmi, A., Gosadi, I., Somily, A., Alsubaie, S., & Bin, S. A. (2018). Knowledge, attitude and practice of secondary schools and university students toward Middle East Respiratory Syndrome epidemic in Saudi Arabia: A cross-sectional study. *Saudi.J Biol.Sci*, 25(3), 572-577. doi:10.1016/j.sjbs.2016.01.032 [doi];S1319-562X(16)00034-6 [pii]. Retrieved from PM:29686521
- Al-Rabiah, A., Tamsah, M. H., Al-Eyadhy, A. A., Hasan, G. M., Al-Zamil, F., Al-Subaie, S. et al. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *J Infect.Public Health*, 13 (5), 687-691. doi:S1876-0341(20)30005-8 [pii];10.1016/j.jiph.2020.01.005 [doi]. Retrieved from PM:32001194
- Bai, Y., Yao, L., Wei, T., Tian, F., Jin, D. Y., Chen, L. et al. (2020). Presumed Asymptomatic Carrier Transmission of COVID-19. *JAMA*, 323(14), 1406-1407. doi:2762028 [pii];10.1001/jama.2020.2565 [doi]. Retrieved from PM:32083643
- Baraz, S., Memarian, R., & Vanaki, Z. (2015). Learning challenges of nursing students in clinical environments: A qualitative study in Iran. *J Educ Health Promot*, 4, 52. doi:10.4103/2277-9531.162345 [doi];JEHP-4-52 [pii]. Retrieved from PM:26430679
- Biscayart, C., Angeleri, P., Lloveras, S., Chaves, T. D. S. S., Schlagenhauf, P., & Rodriguez-Morales, A. J. (2020). The next big threat to global health? 2019 novel coronavirus (2019-nCoV): What advice can we give to travellers? - Interim recommendations January 2020, from the Latin-American society for Travel Medicine (SLAMVI). *Travel Med Infect.Dis*, 33, 101567. doi:S1477-8939(20)30017-X [pii];10.1016/j.tmaid.2020.101567 [doi]. Retrieved from PM:32006657

- Burns, N., & Grove, S. K. (2005). *The Practice of Nursing Research: Conduct, Critique, and Utilization*. Practice of Nursing Research: Conduct, Critique, & Util. Philadelphia, PA: Elsevier/Saunders.
- Collado-Boira, E. J., Ruiz-Palomino, E., Salas-Media, P., Folch-Ayora, A., Muriach, M., & Balino, P. (2020). "The COVID-19 outbreak"-An empirical phenomenological study on perceptions and psychosocial considerations surrounding the immediate incorporation of final-year Spanish nursing and medical students into the health system. *Nurse.Educ Today*, 92, 104504. doi:S0260-6917(20)30840-6 [pii];10.1016/j.nedt.2020.104504 [doi]. Retrieved from PM:32563039
- Elahi, N., Alhani, F., & Ahmadi, F. (2014). Professional Partnership: Nurses' experience of theory-practice gap in nursing education. *Journal Of Nursing Education*, 3(1), 21-31. doi:Article.
- Elrggal, M. E., Karami, N. A., Rafea, B., Alahmadi, L., Al, S. A., Alamoudi, R. et al. (2018). Evaluation of preparedness of healthcare student volunteers against Middle East respiratory syndrome coronavirus (MERS-CoV) in Makkah, Saudi Arabia: a cross-sectional *Z Gesundh.Wiss.*, 26(6), 607-612. doi:10.1007/s10389-018-0917-5 [doi];917 [pii]. Retrieved from PM:30533343
- Gallagher, T. H., & Schleyer, A. M. (2020). "We Signed Up for This!" - Student and Trainee Responses to the Covid-19 Pandemic. *N Engl J Med*, 382(25), e96. doi:10.1056/NEJMp2005234 [doi]. Retrieved from PM:32268020
- Han, Y., & Yang, H. (2020). The transmission and diagnosis of 2019 novel coronavirus infection disease (COVID-19): A Chinese perspective. *J Med Virol.*, 92(6), 639-644. doi:10.1002/jmv.25749 [doi]. Retrieved from PM:32141619
- Ikhlaq, A., Bint-E-Riaz, Bashir, I., & Ijaz, F. (2020). Awareness and Attitude of Undergraduate Medical Students towards 2019-novel Corona virus. *Pak.J Med Sci*, 36(COVID19-S4), S32-S36. doi:10.12669/pjms.36.COVID19-S4.2636 [doi];PJMS-36-S32 [pii]. Retrieved from PM:32582311
- Jamshidi, N., Molazem, Z., Sharif, F., Torabizadeh, C., & Najafi, K. M. (2016). The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. *ScientificWorldJournal.*, 2016, 1846178. doi:10.1155/2016/1846178 [doi]. Retrieved from PM:27366787
- Joolaei, S., Jafarian Amiri, S. R., Farahani, M. A., & Vaezi, S. (2015). Iranian nursing students' preparedness for clinical training: A qualitative study. *Nurse.Educ Today*, 35(10), e13-e17. doi:S0260-6917(15)00296-8 [pii];10.1016/j.nedt.2015.07.026 [doi]. Retrieved from PM:26279334
- Khan, A., Begum, H., Rehman, A., & Khan, A. (2020). Experiences of healthcare students and the challenges posed by their clinical learning environment. *Cent. Eur. J. Nurs. Midwifery*, 11(1), 19-24.
- Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S. et al. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *Lancet.Glob.Health*, 8(6), e790-e798. doi:S2214-109X(20)30204-7 [pii];10.1016/S2214-109X(20)30204-7 [doi]. Retrieved from PM:32573443
- Lovic, R., Farcic, N., Mikšic, Š., & Vcev, A. (2020). Studying during the COVID-19 pandemic: A qualitative inductive content analysis of nursing students' perceptions and experiences. *Educ.Sci.*, 7(10), 1-18.
- Magerman, J. (2016). *Clinical supervisors' experience of supervising nursing students from a higher education institution in the Western Cape [Thesis]*. Cape Town, South Africa: University of the Western Cape.
- Menon, A., Klein, E. J., Kollars, K., & Kleinhenz, A. L. W. (2020). Medical Students Are Not Essential Workers: Examining Institutional Responsibility During the COVID-19 Pandemic. *Acad.Med.*, 95(8), 1149-1151. doi:10.1097/ACM.0000000000003478 [doi]. Retrieved from PM:32349014

- Meyer, G. M., Nel, E., & Downing, C. (2016). Basic student nurse perceptions about clinical instructor caring. *Health SA Gesondheid, 21*, 444-452.
- O'Byrne, L., Gavin, B., & McNicholas, F. (2020). Medical students and COVID-19: the need for pandemic preparedness. *J Med Ethics, 46*(9), 623-626. doi:medethics-2020-106353 [pii];10.1136/medethics-2020-106353 [doi]. Retrieved from PM:32493713
- Parsh, B. (2010). Characteristics of effective simulated clinical experience instructors: interviews with undergraduate nursing students. *J Nurs Educ, 49*(10), 569-572. doi:10.3928/01484834-20100730-04 [doi]. Retrieved from PM:20669874
- Robinson, K., O'Neill, A., Conneely, M., Morrissey, A., Leahy, S., Meskell, P. et al. (2020). Exploring the beliefs and experiences of older Irish adults and family carers during the novel coronavirus (COVID-19) pandemic: A qualitative study protocol. *HRB.Open.Res, 3*, 16. doi:10.12688/hrbopenres.13031.1 [doi]. Retrieved from PM:33015540
- Scully N., J. The theory–practice gap and skill acquisition: an issue for nursing education. *Collegian* 2011; 18(2), 93-98.
- Stirling, B., & Harmston, J. (2015). Readying nurses for clinical practice: Protecting students during an outbreak of Middle Eastern-Coronavirus in Saudi Arabia. *J. Nurs Educ. Pract., 5*(2), 40-44.
- Swift, A., Banks, L., Baleswaran, A., Cooke, N., Little, C., McGrath, L. et al. (2020). COVID-19 and student nurses: A view from England. *J Clin Nurs, 29*(17-18), 3111-3114. doi:10.1111/jocn.15298 [doi]. Retrieved from PM:32298512
- Taghrir, M. H., Borazjani, R., & Shiraly, R. (2020). COVID-19 and Iranian Medical Students; A Survey on Their Related-Knowledge, Preventive Behaviors and Risk Perception. *Arch Iran Med, 23*(4), 249-254. doi:10.34172/aim.2020.06 [doi]. Retrieved from PM:32271598
- Theoret, C., & Ming, X. (2020). Our education, our concerns: The impact on medical student education of COVID-19. *Med Educ, 54*(7), 591-592. doi:10.1111/medu.14181 [doi]. Retrieved from PM:32310318
- van Manen, M. (2016). *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. London & New York: Taylor & Francis.