



# Impact of the COVID Pandemic on Anesthesiology Assistants' Educational Satisfaction, Behavior and Quality of Life

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## Abstract

**Background:** The corona pandemic has created many unpredictable challenges for the medical staff and students. In almost all countries, changes have been made in the medical education programs at all levels. The anesthesiology assistants are among the most affected groups due to the role of this specialty in the management of COVID patients.

**Methods:** We prepared a questionnaire including demographic information, as well as 20 questions associated with work and educational issues. The questionnaire was sent to all anesthesia assistants *via* SMS and the answers were collected within 5 days. The 20 main questions were designed in the form of multiple-choice questions with 5 standard options.

**Results:** Responses were immediately reported after categorization. Chi-square test was used to compare the answers among the subgroups, such as male and female, single and married and at different levels. 66 anesthesia assistants out of total amount of 71 at four different levels (92.9%) answered the questions. The results showed that the majority of assistants have experienced a higher level of stress during corona pandemic and the negative effects of the pandemic on their medical education were obvious.

**Conclusion:** According to the responses received in this study, the amount of stress in male assistants was less than females and also married assistants experienced less stress in comparison to singles.

**Keywords:** Assistant education, Job satisfaction, Stress

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## Introduction

The corona pandemic, along with the many problems it has created for patients, has posed unpredictable challenges to the medical treatment and educational system.

In recent years, the SARS and MERS pandemic have caused problems for the medical educational system and medical staff all around the world and some studies have been conducted in this regard (1-3), but the dimensions and consequences of the COVID 19 pandemic are incomparable to them and unprecedented in terms of the extent of involvement, the number of the countries involved, the duration of the involvement, and the population affected.

In almost all countries and educational systems, changes have been made in the curriculum, clinical rotations, and the rate of medical students' attendance at all levels (4-7).

The prolongation of this pandemic along with the applied changes will definitely affect the quality of medical education and these changes are needed to be examined from the perspective of the students themselves to be considered in future decisions about how to continue educational issues.

The pandemic COVID 19 has influenced various aspects of the professional and personal lives of medical staff and has impacted on lifestyle, job satisfaction, hope for the future, family relationships, and mental health (8,9).

Numerous studies have been conducted in different centers on various target populations that have had remarkable results (1,8-10). The extent of these effects seems to be related to the degree of involvement of the target group in the treatment of corona patients.

In Iran, almost as in other countries, after detecting the first COVID 19 cases, some preparations were made nationally in line with the recommendations of the World Health Organization and other world reference centers. Consequently, with the increase of awareness about this disease, updates were gradually made.

The field of anesthesia, due to its position in the treatment cycle of COVID patients, is one of the specialties that has the maximum exposure and involvement in the treatment process of these patients. In addition to the significant work stress on assistants in this field, restrictions on educational matters such as changes in clinical rotations, employing assistants

in ICUs extra to planned program, restrictions on elective surgeries, cancellation of classes and morning report sessions, also had affected the education quality of these assistants (11).

## Materials and Methods

This study is a descriptive cross-sectional study that was performed among anesthesia assistants at Shahid Beheshti University of Medical Sciences in Tehran, Iran.

To conduct this study, a questionnaire including demographic information such as age, gender, school year and marital status, as well as 20 questions related to work and educational issues was prepared to assess the impact of the corona pandemic on education and job satisfaction of anesthesia assistants.

The questions were adjusted with the help of valid questionnaires measuring job satisfaction and stress levels like Likert scale and Minnesota satisfaction questionnaire, and modified according to the target population and the issues considered by the authors of the study.

These questions were divided into three categories: questions related to educational issues, questions related to satisfaction with the anesthesia field of study and professional issues, and questions associated with the possible effects of the corona pandemic.

A pilot study was conducted with the participation of 5 general surgery assistants to check the clarity of the questions as well as the time required for answering. It was found that there is no ambiguity in the text of the questions and answering was possible in less than 10 minutes, which was considered by the authors of the study.

After finalizing the questions, the questionnaire was created in Google and the link of the questionnaire was sent to all the anesthesia assistants *via* SMS and the answers were collected within 5 days. A reminder text message was also sent twice during this period. The questionnaire was anonymous and finally, out of 71 undergraduate assistants, 66 students participated in this study and filled out the questionnaire.

All the questions were designed multiple choice. Questions related to demographic information were designed with appropriate options and 20 main questions in the form of multiple-choice questions with 5 standard options (1- strongly disagree,

2- disagree, 3- neutral, 4- agree, 5- strongly agree). Responses were reported raw after the categorization. Chi-square test was utilized to compare the answers among the subgroups, such as male and female, as well as single and married and different levels. The answers 'strongly agree with' and 'agree with' were considered as positive and 'strongly disagree' and 'disagree' as negative.

## Results

Out of 71 anesthesia assistants in the first to fourth level to whom the questionnaire was sent, 66 (92.9%) answered the questions. Of these, 26 were men and 40 were women, and in total, 32 were married and 34 were single.

In terms of age, 6.06% were under 30 years old, 62.12% were in the range of 30 to 35 years, 12.12% were in the range of 36 to 40 years and 19.70% were over 40 years old. 21.21% of the respondents were residents from the first level, 22.72% from the second level, 25.75% from the third level and 30.30% from the fourth level. The educational programs and rotations of all these assistants changed due to the COVID 19 pandemic, and all of them were exposed to COVID patients (Table 1).

Out of a total of 66 assistants, 34 assistants were partially or completely satisfied with getting accepted in the field of anesthesia (51.5 vs. 29.7%) and also 23 individuals believed that their interest in this field has increased by starting their studies while 30 people did not believe so (34.9 vs. 45.4%). Regarding the amount of information about job stress in the field

amount of information about job stress in the field of anesthesia, 26 people were relatively familiar with the amount of stress in this field and 29 people were not familiar enough (39.4 vs. 44%) (Table 2).

Regarding the question about choosing anesthesia by knowing the importance of this field in the corona pandemic, 46 out of 66 people disagreed (69.7%) and the rest had no opinion.

63 assistants believed that the prevalence of corona pandemic has affected the education process in the anesthesia department (95.5%) and all assistants believed that the corona pandemic has increased the workload and mental stress (100%). Also, all the assistants (66 people) agreed that they are worried about being infected or infecting their family members with coronavirus (100%). 53 assistants felt afraid and depressed with the death of corona patients and seven participants disagreed (80.3 vs. 10.6%) (Table 3).

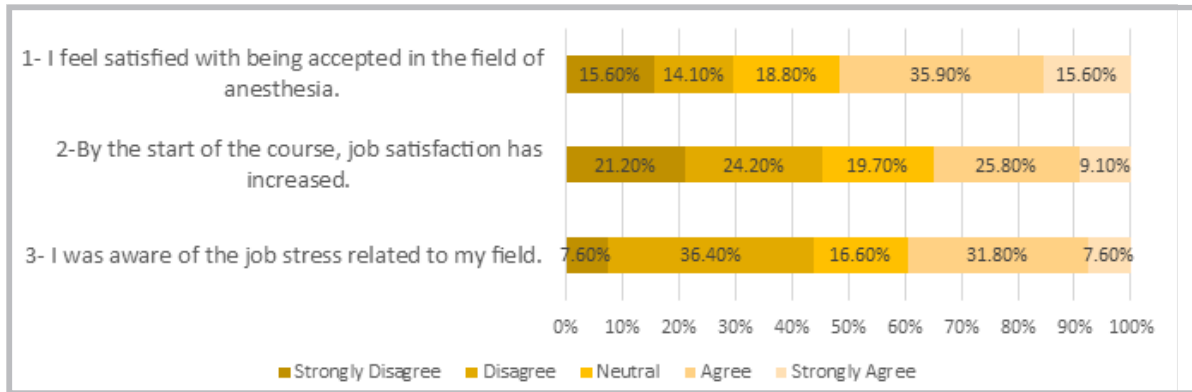
47 assistants did not agree with having a suitable future career and income. In contrast, 8 participants believed that they will have good ones (68.8 vs. 12.3%). 56.4% were professionally motivated to finish their studies while 28.7% were not motivated enough. Regarding having the feeling of job security, 75.4% disagreed and 7.7% agreed. 63 out of 66 participants in the study are dissatisfied with the amount of salary received (95.5%) (Table 4).

18 people (27.2%) have thought about leaving and stopping their study and 16 (24.3%) have thought about hurting themselves at least once. 65.6% of the participants felt that they are threatened by death due to work conditions while 23.5% disagreed.

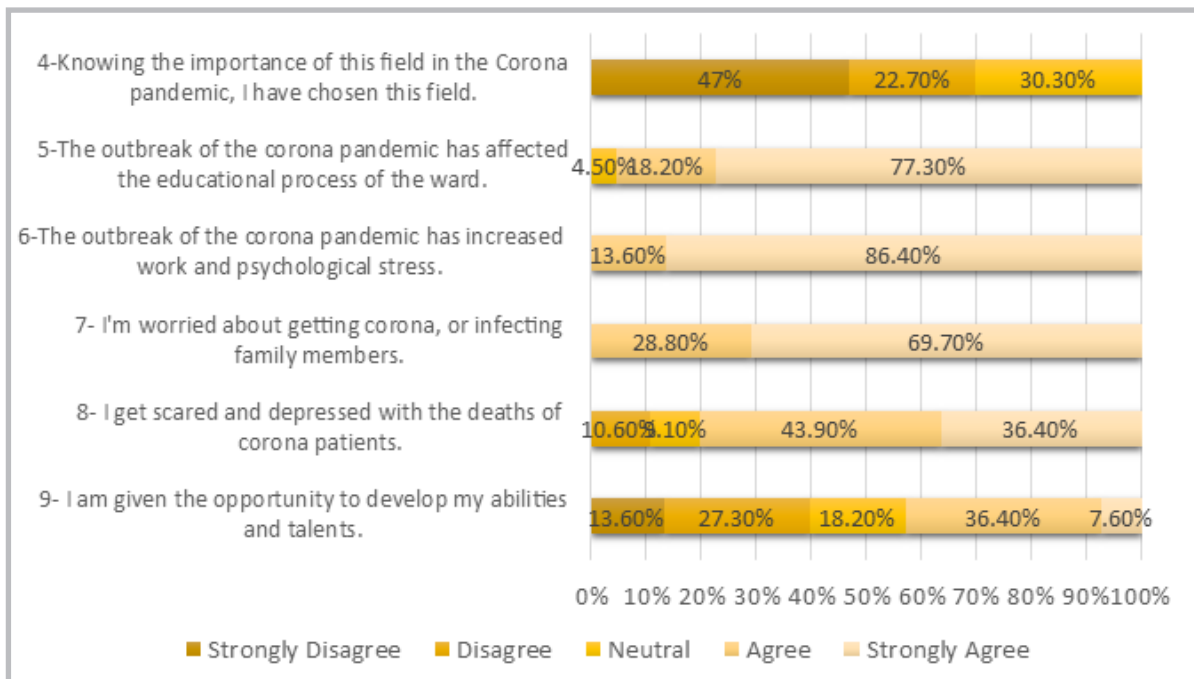
Table 1. Demographic data

Demographics				
	Under 30 y/o	30-35 y/o	36-40 y/o	Above 40 y/o
Age	4 (6.06 %)	41(62.12 %)	8(12.12%)	13(19.70%)
		Female	Male	
Gender		40(60.60%)	26(39.40%)	
		Married	Single	
Marital Status		32(48.48%)	34(51.51%)	
	Level 1	Level 2	Level 3	Level 4
Assistants' Level	14(21.21)%	15(22.72)%	17(25.75)%	20(30.30)%

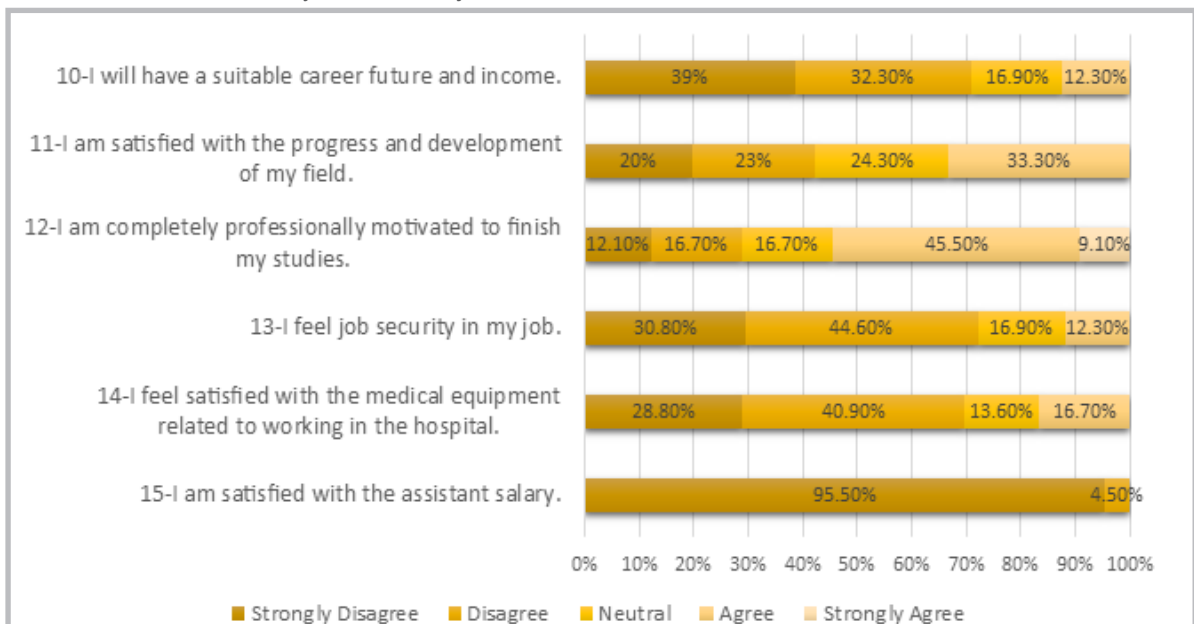
**Table 2.** Amount of satisfaction and stress



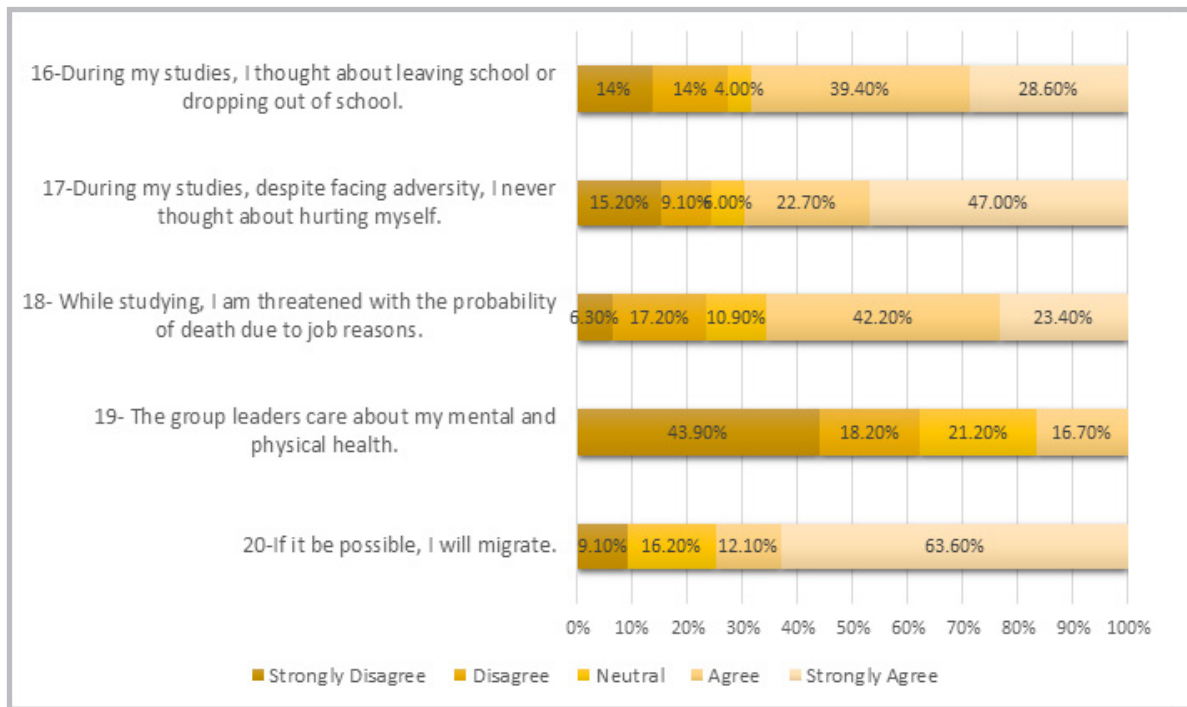
**Table 3.** Corona and stress relation



**Table 4.** Amount of salary received and job satisfaction relation



**Table 5.** Amount of salary received and job satisfaction relation



**Table 6.** Marital and sex impact on stress

Question 17	Strongly Disagree(1)	Disagree(2)	Neutral(3)	Agree(4)	Strongly Agree(5)	Mean score	p-value
Male (26)	2	1	1	5	17	4.31±1.22	0.012
Female(40)	8	5	3	10	14	3.43±1.57	
Married(32)	2	2	0	7	21	4.34±1.18	0.001
Single(34)	8	4	4	8	10	3.24±1.58	

Question 8	Strongly Disagree(1)	Disagree(2)	Neutral(3)	Agree(4)	Strongly(5) Agree	Mean score	p-value
Male (26)	0	5	4	15	2	3.54±0.90	<0.001
Female(40)	0	2	2	14	22	4.40±0.81	
Married(32)	0	6	5	15	6	3.66±1.00	0.001
Single(34)	0	1	1	14	18	4.44±0.70	

of anesthesia, 26 people were relatively familiar with the amount of stress in this field and 29 people were not familiar enough (39.4 vs. 44%) (Table 2).

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18 people (27.2%) have thought about leaving and stopping their study and 16 (24.3%) have thought about hurting themselves at least once. 65.6% of the participants felt that they are threatened by death due to work conditions while 23.5% disagreed.

The majority of the assistants (74.7%) agreed to immigrate if the conditions were met (Table 5).

The analysis of two sample questions between subgroups is reported in table 6 as key questions. Questions 8 and 17 were chosen to be analyzed between female and male and also single and married subgroups which revealed statistical different responses. Our data showed that women and singles are more likely to experience higher level of stress (Table 6).

## Discussion

This study was designed to investigate the level of anesthesia assistants' satisfaction at Shahid Beheshti University of Medical Sciences, from the educational process during the corona epidemic, as well as the

level of stress and job satisfaction and hope for the future among them (12).

The outbreak of the COVID 19 pandemic in general has led to many changes in educational systems at all stages from preschool to higher education at universities. Compulsory arrangements have been taken to reduce the prevalence of the virus and to protect the students' health, including the closure of educational centers and turning to online education, which has sometimes disrupted the quality of education.

One of the places where the quality of education is likely to be most affected by these events is medical education at various levels (13). The outbreak of the corona pandemic not only has reduced total hours of physical presence in treatment settings, but also has significantly altered predetermined educational programs.

The field of anesthesia is no exception to this rule, and after the outbreak of the pandemic, serious forced changes have been made in the programs and rotations of these assistants. More involuntary or voluntary attendance in emergency departments and clinics, as well as inpatient and ICU wards of COVID patients, naturally reduces exposure to other elective patients and routine rotations, as the former.

In this study, we asked anesthesia assistants at different levels considering the impact of pandemics on their educational process in hospitals, and all residents believed that their educational process was disrupted. The relatively limited opportunity that anesthesia assistants have, to acquire the necessary skills related to the field has made them worried. Disruption of the normal process of rotations, as well as reduced attendance hours in some wards, and reduced exposure and participation in the treatment process of many elective non-COVID patients, have certainly had a negative impact on the educational cycle of anesthesia assistants.

The experience of previous pandemics has demonstrated that the prevalence of a widespread pandemic, in addition to causing great physical pressure and fatigue for medical personnel, can also affect their stress and quality of life by causing chronic mental fatigue. In this study, based on the responses recorded by anesthesia assistants who are at the forefront of the fight against COVID, specifically experience a high



level of job stress that can affect all aspects of their professional and private lives which require officials' and policy makers' special attention. Also, it seems that more arrangements should be taken into account to maintain and improve their mental health.

These arrangements can include adjusting working conditions in terms of time and providing the possibility of adequate physical and mental rest, and it should be possible to receive psychological counseling and adequate psychological support for staff. Long working hours in a stressful environment, and the fear of getting infected and infecting family members are other problems that anesthesia assistants face.

In this study, concerns about the future of the job and lack of job security feeling are quite obvious among the answers which require special attention of decision makers in the country's health system. And the desire of the majority of assistants participating in this study to immigrate is a warning signal for the health system, which, in addition to the 100% dissatisfaction of the assistants with the salaries received, needs to be considered at higher levels of health management.

According to the responses received in this study, the amount of stress in male assistants is less than female and also in married couples the amount of stress is less than single ones, which is in line with the results reported in several studies.

This study has several limitations, the most important of which is the limited sample number who have entered the study and for better conclusions and greater generalizability, such a study can be conducted among multiple universities. The next limitation of this study is based on subjective findings.

## Conclusion

Corona pandemic has affected the educational process of anesthesia assistants at Shahid Beheshti University of Medical Sciences and has also caused a higher level of job stress and reduced job satisfaction among them. The above, along with concerns about the future of the job, and lack of job security, require paying special attention by health system decision makers, and taking the necessary arrangements.

## References

1. Rainbow S, Dorji T. Impact of COVID-19 on medical students in the United Kingdom. *Germs*. 2020 Sep;10(3):240-3.
2. Rose S. Medical student education in the time of COVID-19. *JAMA* 2020 Jun 2;323(21):2131-2.
3. Alsoufi A, Alsuyihili A, Msherghi A, Elhadi A, Atiyah H, Ashini A, et al. Impact of the COVID-19 pandemic on medical education: medical students' knowledge, attitudes, and practices regarding electronic learning. *PLoS One* 2020 Nov 25;15(11):e0242905.
4. Papapanou M, Routsis E, Tsamakidis K, Fotis L, Marinos G, Lidoriki I, et al. Medical education challenges and innovations during COVID-19 pandemic. *Postgrad Med J* 2022 May;98(1159):321-7.
5. Lorello GR, Gautam M, Barning C, Peer M. Impact of the intersection of anaesthesia and gender on burnout and mental health, illustrated by the COVID-19 pandemic. *Anaesthesia* 2021 Apr;76 Suppl 4(Suppl 4):24-31.
6. Hussain S, Almas T. Impact of COVID-19 on medical students aspiring toward a career in otolaryngology: a medical student's perspective. *Otolaryngol Head Neck Surg* 2021 Sep;165(3):385-6.
7. Patil A, Ranjan R, Kumar P, Narang H. Impact of COVID-19 pandemic on post-graduate medical education and training in India: lessons learned and opportunities offered. *Advances Med Educ Pract* 2021 Jul 26;12:809-16.
8. Yu X, Zhao Y, Li Y, Hu C, Xu H, Zhao X, et al. Factors associated with job satisfaction of frontline medical staff fighting against COVID-19: a cross-sectional study in China. *Front Public Health* 2020 Aug 4;8:426.
9. Abd-Ellatif EE, Anwar MM, AlJifri AA, El Dalatony MM. Fear of COVID-19 and its impact on job satisfaction and turnover intention among Egyptian physicians. *Saf Health Work* 2021 Dec;12(4):490-5.
10. Harries AJ, Lee C, Jones L, Rodriguez RM, Davis JA, Boysen-Osborn M, et al. Effects of the COVID-19 pandemic

on medical students: a multicenter quantitative study. *BMC Med Educ* 2021 Jan 6;21(1):14.

11. Ismail TI, Shehata SF, Mahrous RS. Occupational stress and burnout among frontline Egyptian anesthesiologists during COVID-19 outbreak in Egypt. *Egyptian J Anaesthesia* 2021 Jan 1;37(1):91-9.

12. Dabbagh A, Abtahi D, Aghamohammadi H, Ahmadizadeh SN, Ardehali SH. Relationship between “simulated patient scenarios and role-playing” method and OSCE performance in senior anesthesiology residents: a correlation assessment study. *Anesth Pain Med* 2020 Aug 22;10(5):e106640.

13. Dabbagh A, Elyassi H, Sabouri AS, Vahidshahi K, Ziaee SA. The role of integrative educational intervention package (monthly ITE, mentoring, mocked OSCE) in improving successfulness for anesthesiology residents in the national board exam. *Anesth Pain Med* 2020 Apr 23;10(2):e98566.