Research Article

THE EFFECT OF VIRTUAL EDUCATION IN RELATION TO WAYS OF TRANSMISSION, CONTROL AND PREVENTION OF COVID-19 DISEASE ON THE ANXIETY OF INTERNSHIP STUDENTS BEFORE ENTERING THE WARD IN 2020

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Abstract

Background: Corona anxiety is present in medical students who must attend hospital. Due to the prevalence of Coronavirus Disease (COVID-19) disease and more attention to holding virtual classes and the need to pay attention to corona anxiety in inter-ship students of nursing, midwifery and operating room, this study aims to determine the impact of virtual education on transmission, control and Prevention of COVID-19 disease due to corona anxiety was performed in these students.

Materials and methods: This quasi-experimental study was performed on 90 internship students of nursing, midwifery and operating room. The instruments of this study included the Demographic Profile Questionnaire and the Corona Disease Anxiety Scale (CDAS). In the intervention group, e-learning on methods of transmission, prevention and treatment of coronavirus in 6 sessions of 45 minutes three times a week (for two weeks) online by creating an educational channel for group discussion and information exchange and another channel only for Educational content was provided in WhatsApp Independent t-test was used to compare the mean and standard deviation of coronavirus anxiety scores between the two groups, before the intervention and after the intervention. Data were analyzed using SPSS software version 21, and paired t-test was used to compare the mean scores in each group before and after the intervention.

Results: The mean and standard deviation of the age of the research units was 23.02 ± 1.3. The results of independent t-test showed that after the intervention, there was no significant difference between the intervention and control groups in terms of mean score of coronary anxiety ($p > 0.05$). The results of paired t-test showed that there was no statistically significant difference in the mean score of coronavirus anxiety in the intervention and control groups before and after the intervention ($p > 0.05$).

Conclusion: The results of this study showed that virtual education did not have a significant

effect on reducing anxiety caused by Corona virus and the mean score of students' anxiety did not change. This indicates proper planning and education about this disease in the country and achieving the goal of increasing people's awareness by the Ministry of Health, Treatment and Medical Education and it is recommended that the training be directed to students other than the medical sciences and others. ASEAN Journal of Psychiatry, Vol. 24 (9) September, 2023; 1-8.

Keywords: COVID-19 Disease; Virtual Education; Anxiety, Internship Students; Medical Education

Introduction

The modern corona virus is spreading rapidly around the world these days and has infected many countries around the world [1]. The corona virus is actually a broad family of viruses that cause respiratory infections from a common cold to the SARS epidemic that broke out in 2003 [2]. Coronavirus Disease (COVID-19), the newest member of the family, is currently spreading rapidly in December 2019 in Wuhan, China, with a human pandemic [3]. The latest global statistics on the outbreak of coronavirus show that in a short period of time from the onset of the disease (late December 2019) to the time of writing (February 14, 2021) the disease has spread rapidly And so far the number of patients in the world has reached 109 million 106 thousand 464 people, of which 2 million 405 thousand 465 people have died. In Iran, 1,518,263 people have been infected with this disease and 58,945 people have died [3,4]. Coronavirus causes a wide range of symptoms, from fever and poor respiratory symptoms (upper respiratory tract infection) to diarrhea, weakness, lethargy, and in more severe cases, progressive lung infection and respiratory failure, kidney failure, or multiple organ failure [1,2]. Laboratory symptoms also include lymphopenia, thrombocytopenia, leukocytosis, elevated liver enzymes, and creatinine, which do not have a good prognosis [2,3]. The incubation period of the disease varies from 12 to 14 days, and on the fourth day of the disease has the highest rate of virus spread, and then gradually the load of the virus in the body decreases and transmission to others is reduced by the same amount [4,5]. It is possible to spread the disease to others up to 24 hours after the end of fever and other symptoms [6]. To date, no successful vaccine or antiviral drug for the treatment of modern coronavirus has been clinically approved, and the only way to prevent the disease and control the infection is to follow public health principles [3]. The health system and society of Iran have also been severely affected by this pandemic [5]. The outbreak of this disease has led to the closure of schools, universities and some businesses and has caused stress in our society [4,6].

Anxiety and stress are also common in COVID-19 and appear to be largely due to the unknown and cognitive un-clarity of the virus [7]. Fear of the unknown reduces the perception of immunity in humans and has always been anxious for humans, and there is still little scientific information about COVID-19 that exacerbates this anxiety anxiety can weaken the immune system and make them vulnerable to diseases such as coronavirus disease anxiety is an inevitable and necessary part of life and is a pervasive phenomenon and experience of the general public that is essential for her survival and growth and affects every person regardless of age, gender, race, economic status or level of education [5,8-10]. Although some stresses are normal and necessary, if the stress is severe, persistent or repetitive; Unable to cope effectively or with few supportive resources, stress is considered a negative phenomenon that can lead to physical illness and mental disorders [9,11]. Anxiety and stress are seen in medical students, especially nursing and midwifery, and operating rooms due to their jobs that are closely related to patients [10,12]. Also at this point in time due to the prevalence of this disease and its rapid epidemic, this stress is present in students who will enter the field and may be in contact with COVID-19 patients [1,13]. Today, virtual learning is about to become one of the most important educational environments and information technology has created many opportunities for education [14]. Growth and development of new communication tools has provided a ground for human beings in the new age to free themselves from the fence of spatial and temporal dependence by using new methods of teaching and learning and be able to learn in any place according to her needs and desires [15]. Virtual learning for learners increases access to information, personal training, interaction and increases learner comfort [14,15].

Web-based learning or online learning is rapidly changing the face of higher education [16]. The advantages of this educational method include lower cost, flexibility, ease of access, inclusiveness and the possibility of self-direction in learning and adapting to individual learning goals [17]. New methods of training such as cyberspace-based learning are a good way to overcome traditional barriers to training [18]. At present, one of these obstacles is the impossibility of holding a face-to-face class due to the prevalence of COVID-19 virus. On the other hand, in every situation, human beings try to increase their ability to adapt to a new situation by learning specific knowledge and skills [16].

As a result, students need to learn strategies to deal with anxiety [17]. Therefore, due to the rapid spread and transmission of this disease and the impossibility of holding face-to-face classes for students, it seems that conducting this research to identify the anxiety created And strategies to deal with it is essential and can help improve the quality of performance and learning of nursing, midwifery and operating room students during internships in the field Therefore, the present study aimed to investigate the effect of virtual education on ways of transmission, control and prevention of COVID 19 disease on anxiety of internship students before entering the ward at Zabol University of Medical Sciences in 2020.

Materials and Methods

This quasi-experimental study was performed on nursing, midwifery and operating room students of Zabol School of Nursing and Midwifery. The sample size was estimated based on the mean and standard deviation of the anxiety score in the study of Sheydaei Aghdam et al., and with 95% confidence interval and 95% statistical test power in each group of 30 people [19]. To ensure the sample size and to consider the possible loss, the sample size in each group was determined to be 45 people and a total of 90 people.

Sample size formula:

$$n = \frac{(Z_1 - \frac{\alpha}{2} + Z_1 - \beta)^2 (S_1^2 + S_2^2)}{(\overline{x}_1 - \overline{x}_2)} = 29.71$$

$$Z_1 - \frac{\alpha}{2} = 1.96 \quad S_1 = 5.15 \quad \overline{X}_1 = 45.25$$

$$Z_{1-\beta} = 1.64 \quad S_2 = 2.02 \quad \overline{X}_2 = 51.64$$

The sampling method was random. To match the groups and ensure that an equal number of all three fields of nursing, midwifery and operating room are in the test and control groups, 15 people in each field were randomly placed in the control group and 15 people in the experimental group. Inclusion criteria include studying in one of the fields of nursing, midwifery or operating room, being internship student (semesters 7 and 8), Having a smartphone to attend e-learning classes and having a minimum score of mild corona virus anxiety and exclusion criteria included dissatisfaction to participate in the study, absence from more than one training session, severe anxiety and chronic illness. The instruments of this study included the Demographic Profile Questionnaire (DPQ) and the Corona Disease Anxiety Scale (CDAS). The demographic questionnaire included information such as age, gender, field of study, ethnicity and internship. Coronavirus Anxiety Scale (CDAS) is based on Alipour study that this tool has been developed and validated to measure anxiety caused by the outbreak of Coronavirus in Iran [5]. The final version of this tool has 18 items and 2 components (agents). Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. This instrument is scored in the 4-point Likert range (never=0, sometimes=1, most of the time=2 and always=3); Therefore, the highest and lowest scores that the respondents get in this questionnaire are between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety in individuals. To evaluate the content validity of the questions, a questionnaire was presented to 5 experienced psychologists. These individuals examined the degree to which the items were conceptual and whether the questionnaire covered all aspects of the subject, as well as the appearance of the questionnaire. The reliability of this tool was obtained using Cronbach's alpha method for the first factor/0/879α, the second factor/0/861α and for the whole questionnaire /0/919α. Scores less than 39 indicate mild anxiety, 40 to 60 moderate anxiety, and more than 60 severe anxieties. After the plan was approved by the university ethics committee and the necessary coordination was done and the necessary permits were obtained, research was conducted. First, among the students of Zabol School of Nursing and Midwifery, 90 people who met the inclusion criteria were selected to participate in the study and 45 people were randomly assigned to the intervention group and 45 people to the control group. Informed consent was obtained from the research units and they were given the necessary training on how to

conduct the study, the purpose of conducting it, its non-complication, confidentiality of information and leaving the study at any stage if they did not wish to continue cooperation. Demographic characteristics questionnaire and coronavirus anxiety questionnaire were filled out electronically by the research units in both intervention and control groups before the intervention to prevent the spread of coronavirus diseases (The questionnaire was prepared electronically by the researcher and sent to the email or WhatsApp of the units and after being completed by the units, it was returned to the researcher). In the intervention group, e-learning on methods of transmission, prevention and treatment of coronavirus in 6 sessions of 45 minutes three times a week (for two weeks) online by creating an educational channel for group discussion and information exchange and another channel only for educational content was provided in WhatsApp. Students' attendance at each training session was reviewed and confirmed. In order to review the contents of the previous sessions, questions and answers were asked in the first 15 minutes of each session. At the end of each session, the contents of the same session were sent in PDF format to the students and they were asked to refer to the channel and receive and read the educational materials. It is noteworthy that some questions related to the problems raised were answered to the students on the same day. Educational content was prepared from valid scientific references (Table 1).

Table 1. Virtual education content related to coronavirus disease.

Content	Day	Week
Attendance of students-Definition of COVID-19 disease-Recognition of the cause, prevalence and epidemic of the disease-Questions and answers and answers to questions of research units-Presentation of the meeting in PDF format	1	1
Attendance of students-Review of the contents of the previous session-Education of symptoms and complications of the disease-Training of methods of transmission of COVID-19 disease-Questions and answers about methods of transmission-Presentation of the contents of the session in PDF	2	1
Attendance of students-Review of the previous session-Teaching methods to prevent infectious diseases with special emphasis on ways to prevent COVID-19 disease-Questions and answers-Presenting the contents of the session in PDF	3	1
Attendance of students-Review of the previous session-Listening to students talking about their anxiety about the disease and answering their questions, the causes of disease transmission to them and reassuring research units that if the way is followed Prevention of disease such as hand washing, mask use, etc. in the wards will not pose a risk of spreading the disease-Summary	1	2
Attendance of students-Review of the contents of the previous session-Teaching ways to control the disease and education in this regard that having the disease does not necessarily mean severe complications and ultimately death. Presenting statistics of patients recovering from this disease-Questions and answers-Talking about students' concerns-Presenting the contents of the session in PDF	2	2
Attendance of students-Quick review and summary of the contents of previous sessions-Questions and answers from research units-Answers to other questions of the units about the disease-Summary	3	2

No intervention was performed for the control group. One week later, the Corona virus anxiety questionnaire was completed again by the intervention and control groups electronically as a post-test. Data were analyzed using SPSS software version 21. Descriptive statistics were used to describe the demographic characteristics. Independent t-test was used to compare the mean and standard deviation of coronavirus anxiety scores between the two groups, before the intervention and after the intervention, and paired t-test was used to compare the mean scores in each group before and after the intervention.

Results

The mean and standard deviation of the age of the research units was 23.02 ± 1.3. 44.4% of the units (n=40) were male and 45.6% (n=50) were female. 24.4% (22 people) of units in public wards, 8.8% (8 people) in intensive care unit, 40% (36 people) in operating room and 26.8% (24 people) in Delivery Block (LDR) they had internships in the field. There was no significant difference between the intervention and control groups in terms of any of the demographic characteristics (Table 2).

The mean score of coronavirus anxiety before the intervention was 20.11 in the case group and 20.57 in the control group, which indicates mild anxiety in students.

The results of independent t-test showed that before the intervention, there was no significant difference between the intervention and control groups in terms of mean corona anxiety score (p>0.05).

The mean score of coronavirus anxiety after the intervention was 20.62 in the case group and 21.31 in the control group, which indicates mild anxiety in students.

Also, the results of independent t-test showed that after the intervention, there was no significant difference between the intervention and control groups in terms of mean score of coronary anxiety (p>0.05).

The results of paired t-test showed that there was no statistically significant difference in the mean score of coronavirus anxiety in the intervention and control groups before and after the intervention (p>0.05).

Table 3 compares the mean and standard deviation of coronary anxiety scores in the intervention and control groups in detail (Table 3).

Table 2. Frequency distribution of the studied units according to some individual characteristics by two intervention and control groups.

Group	Variable	Intervention group N=45	Control group N=45	Test result Chi-square
		Mean ± SD	Mean ± SD	
	Age	22.82 ± 1.33	23.22 ± 1.27	P>0.05
		Number (percent)	Number (percent)	-
Male	Gender	9(20)	31(68.9)	-
Female		36(80)	14(31.1)	P>0.05
Nursing	Field of study	15(33.3)	15(33.3)	P>0.05
Midwifery		15(33.3)	15(33.3)	
Surgical technologist		15(33.3)	15(33.3)	
General sections	Internship section	10(22.2)	12(26.7)	P>0.05
Intensive care unit		5(11.1)	3(6.7)	
Operating room		19(42.2)	17(37.8)	
Delivery block (LDR)		11(24.4)	13(28.9)	

Table 3. Mean and standard deviation of coronavirus anxiety score in the studied units in the intervention and control groups before and after the intervention.

Group	Variable	Before intervention Mean ± SD	After intervention Mean ± SD	Paired t-test result
Intervention		20.11 ± 3.09	20.62 ± 3.51	df=44
				p=0.92
Control	Coronavirus anxiety	20.57 ± 3.24	21.31 ± 2.74	df=44
				p=0.80
Independent t-test result		df=88	df=88	-
		p=0.48	p=0.30	

Discussion

The results of this study showed that virtual training in 6 sessions of 45 minutes and 3 times a week did not have a significant effect on anxiety caused by Corona virus in students and research units had mild anxiety before and after the intervention and the mean anxiety score in the intervention group did not change. The reason for this can be attributed to cases such as mass media and extensive education about COVID-19 disease, the unknownness of this disease, the high mortality rate of this disease in different age groups, etc. In this section, we discuss other studies that are somehow related to the present study.

Shabani conducted a study to determine the effectiveness of distance education educational package for the prevention of COVID-19 disease on reducing fear and anxiety in the virtual English class. It was concluded that virtual education significantly reduced the fear and anxiety caused by coronavirus among students [20]. Ding X concluded that education on coronavirus significantly reduced anxiety and depression and improved sleep quality in adolescents [21]. The results of these two studies are in conflict with the present study and the reason for this could be the possibility of more students in the field due to attending hospitals and more knowledge of medical students than other students.

In a 2020, study of students in Ecuador, Antonio J found that the level of anxiety caused by the corona virus was high among the students in the study [22]. While in the present study, the level of anxiety of students was mild and the reason could be more knowledge of medical and paramedical students about ways to prevent and control the disease.

In 2020 study, Zafar et al., found that medical students and staff showed mild levels of coronavirus anxiety [23]. The study also found that ordinary people suffer from higher levels of anxiety than medical students and staff. In the study of Nasirzadeh et al., was found that 51.4% of the research units have anxiety caused by COVID-19 disease [24].

Rahmani et al., was found that 61.8% of hospital staff, mostly nurses, had mild coronary anxiety and 38.2% had moderate or severe anxiety. There was also a significant relationship between COVID-19 anxiety and burnout [25]. In a 2020 study of students in China, Yao Zhang concluded that coronavirus disease and its fear of high mortality affect various aspects of students' mental health. It leads to anxiety, depression and poor sleep quality [26]. Also in a study in France, students were anxious about the spread of the Corona virus [27]. The results of all the above studies are consistent with the present study.

Conclusion

The results of this study showed that virtual education did not have a significant effect on reducing anxiety caused by corona virus and the mean score of students' anxiety did not change. This indicates proper planning and education about this disease in the country and achieving the goal of increasing people's awareness by the Ministry of Health, Treatment and medical education and it is recommended that the training be directed to students other than the medical sciences and others. However, the possibility of anxiety in the medical staff and especially students in this field who do not have much experience should not be ignored, and education should be continued regarding the ways of transmission, prevention and treatment of diseases such as COVID-19, which are rapidly transmitted and cause death. And they have paid a high rate, and as before, the media, especially television and virtual space, were also used in this regard. On the other hand, according to the results of this study and other related studies, other researchers are requested to conduct more studies in a larger volume and in different communities.

Ethics approval

The study was approved by the ethical committee of Zabol university of medical sciences (Ethical code: IR.ZBMU.REC.1399.165 on 9th of Mar 2021.)

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