Outcome of COVID-19 Awareness Educational Program for School Students and Teachers, Egypt

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Abstract:

Background: Coronavirus (COVID-19) is a disease that was originally detected in China. It is becoming a global health problem with a progressive increase in cases and deaths around world. Schools present a potential hazard for spread of infection, especially droplet infections. **Objective:** The current study aimed to raise school staff and students awareness towards COVID-19 preventive measures by assessing their knowledge before and after health education program implementation. **Methods:** An interventional study was conducted among preparatory and secondary school students and teachers in Tanta during February and March 2020. The study included 1770 participants from 4 different schools. The data were collected using a self-administered questionnaire drawn by the researchers. **Results:** 81.2% of teachers significantly had a good total knowledge than the secondary and preparatory students (71.4% and 61.1%, respectively) after health education intervention. The attitude of secondary school students was positively affected compared to preparatory school students after health education intervention. Multiple regression analysis showed that age (0.00*) and gender (0.004*) differences were significantly associated with the level of knowledge. **Conclusion and Recommendations:** Health education intervention was effective among participants. Thus, it should be adopted by health personnel to transfer health-related information to the public. The findings of this study proved that educational health programs play a fundamental role in promoting the knowledge of students and staff members and positively directing their attitudes and practices towards prevention of infection.

Keywords: Attitude, COVID-19, Health, Knowledge, School.

Introduction:

By the end of December 2019, an emerging respiratory infection was firstly discovered in Wuhan city, China. The pathogen was isolated, analyzed, and finally identified as a novel strain of coronavirus which differs from both MERS-CoV and SARS-CoV. This is identified as the seventh member of the coronaviruses family infecting humans.[1]

The outbreak has spread to the whole country, reached beyond the boarder and was declared as a public health emergency of international concern by the World Health Organization (WHO) in late January, 2020.[2] Later, WHO declared COVID-19 as a "global pandemic" on March 11, 2020. The virus has spread rapidly, with more than 118,000 cases reported in 114 countries and number of deaths reaching 4291.[3]

Egypt announced its first confirmed case of COVID-19 on 14 February 2020; it was the second country in the WHO EMRO region to confirm a case and the first one to report a case in Africa.[4] Egypt's Health

Ministry has performed a series of preventive measures which follow the objectives of WHO for this response to limit human-to-human transmission including preventing international spread through identifying, isolating, and caring for patients early, and accelerating the development of diagnostics and therapeutics.[5]

In spite of the national measures in preventing the spread of the current pandemic, the success or failure of these efforts is highly correlated with public behavior. Adherence to these measures is highly dependent on the public's knowledge and attitudes towards COVID-19. Evidence shows that public knowledge is fundamental in mitigating pandemics.[6]

Schools present a potential hazard for the spread of infection, especially droplet infections. Thus, interventions carried out at schools would have a positive effect on health as well as health behavior of school children, their families, and community. Recognizing the importance of schools, the Ministry of Health implemented several interventions with the cooperation of WHO preventive measures. School closure was considered when confirmed cases were discovered by the Ministry of Education.[7]

The gap in knowledge, poor attitudes, and bad practices in relation to disease prevention and control have a contributing role in spreading the infection during mass gatherings.[8] So, the assessment of student's knowledge and attitude towards novel corona virus has received considerable attention by researchers from different countries across the globe to ensure effective preventive practice regarding novel coronal virus infection.[9]

Research questions:

To what extent health education sessions impact the knowledge and attitudes of school students and teachers?

To what extent there is a positive relationship between some demographic variables and knowledge among school students and teachers??

Aim:

This study aimed to raise the awareness of school staff and students towards COVID-19 preventive measures by assessing their knowledge before and after the implementation of a health education program.

Subjects and methods:

Study Design and Settings:

A pre-post interventional study was conducted during the period from 20th of February to 10th of March 2020 at Tanta, the capital of Al-Gharbia, an Egyptian governorate which ranks the ninth largest populated area with about 5.3 million inhabitants in 2017. There are 17 governmental preparatory and secondary

schools within Tanta's two main parts; first and second ones. A multi-stage random sample technique was used to select schools randomly from each main part in the city; the schools chosen from the second part of the city are: "Al Zahraa school", a preparatory school and ''Qasm Amin school'' a secondary school and the ones selected from the first part are "Tanta Preparatory school'' and ''Tanta Secondary school''.

Target Population:

The current study included 655 preparatory school students and 770 secondary school students in addition to 354 teachers..

Inclusion criteria:

Students and teachers enrolled in and learning/working during the time of the study in any one of the four chosen schools, and those who agreed to participate in the study.

Exclusion criteria:

Students or teachers who were not enrolled in or learning/working in the four mentioned schools, and those who refused to participate in the study.

Sample size calculation:

Due to the scarcity of this type of studies at that period, the calculations were based on the assumption that the probability of having good knowledge and positive attitude towards preventive measures against coronavirus disease was 50% [17] at confidence interval of 95% and limit of precision of 5%. The recorded data from the previous 4 schools indicated that there were approximately 9560 students and 450 teachers. Using Epi info 7 software, sample size was calculated to include 369 students and 207 staff members (a total sample= 576 participants). The sample size was increased over the determined sample size to compensate dropouts.

Methods:

In late February 2020, the study participants underwent a critical health educational program to respond to the public health needs of school students and staff to prevent the spread of infection with the following plan:

▪ Introducing information sessions by researchers to all students and staff members.

▪ Assessing knowledge regarding COVID-19 through pre- and post-questionnaires for the students and staff members.

Steps of action:

▪ Ethical clearance was obtained from the ethical research committee at Faculty of Medicine, Tanta University, and an informed consent was obtained from the schools' authorities prior to participation in the study after a brief explanation of the its objectives and benefits.

- Further communication was made with schools through the student services departments and with students' parents as well to obtain their consent of participation.

- Prior to start of the session, a pre-test questionnaire was given to all attendees.

- During the sessions, students and faculty staff were presented.

- At the end of 4th session, a post-test was conducted using the same tool to assess the knowledge among participants after four sessions of health education.

Study tools:

Part one: collection of data using a self - structured questionnaire

A self-administered structured survey questionnaire was designed by researchers to collect the data. The questionnaire was developed grounded on the associated literatures, frequently asked questions posted on the World Health Organization (WHO) and the Egyptian Ministry of Health websites, [10,11] and a panel of experts in our college who assessed its validity and reliability. The survey is comprised of 4 sections with a total number of 24 questions as follows:

Section one: This section included questions regarding participants' demographics including age, gender, occupation, and residence.

Section two: This section aimed to assess the studied sample's general knowledge regarding novel coronavirus. Dichotomized "yes", "no", and "don't know" options were used. To make a clear demarcation of participants' knowledge level, the responses were scored. Every correct answer added one mark to a participant's total score and zero was given for the wrong or uncertain answers.

Section three: This section assessed the participant's attitude towards the tools used as preventive measures against COVID-19. Five questions were provided for the participants to disclose their attitude by using "Yes or No" scale.

Section four: This section is asking about the most frequent ways to get information about disease; either WHO websites, social media, browsing newspaper, or books.

This questionnaire was checked for completeness and consistency upon collection. Furthermore, it was field-tested on a pilot sample of 10% of the target sample to clarify any ambiguities and ensure its proper understanding. The pilot sample was not included in the final sample of the study. The questionnaire was proved to be valid and reliable (Cronbach's Alpha 0.82).

Part two: **Intervention setting**

A health education program and training sessions on emergency preparedness and

precautions were implemented as follows:

Objectives: Improving knowledge and highlighting the role of practicing the preventive measures against infection for schools' students and staff members. Responding quickly to an epidemic is important to facilitate disease control and offer protection for students, staff members, and the community from panic and disruption of work.

Site: It was done both in each class alone (small group) or a group of students in meeting halls (large group) according to the time table.

Number and Time: Each school had 4 sessions; each session lasted for 2 hours in the morning (9 am to 11 am) on Monday or Wednesday according to the previously prepared time table.

Tools : Variety of tools were used such as: power point slides, videos, presentations, some topics focusing on playing promotional cartoons of COVID-19 awareness, lectures by professional medical staff, releasing handbook copies on COVID-19, organizing blackboard newspapers, hand copy newspapers, and sharing posters guided from WHO website. The lectures were supported by visual aids and written notes on PowerPoint slides as well as a discussion period at the end of sessions. All tools were well designed and prepared.

Contents: The conducted sessions focused mainly on:

- General knowledge of the virus causing Corona disease .e.g. the most vulnerable groups of people who are susceptible of infection and mapping of viral spread around the world.
- Symptoms and signs of infection.
- Egypt's situation regarding infection.
- WHO recommendations and ways of prevention
- Practice of some preventive measures; for instance: proper way of washing hands as a major preventive measure using WHO correct hand washing diagrams and the ways of best practice, perfect way of using personal protective equipment, social distancing, isolation in case of sickness, and avoiding hand contact with eye, nose, or mouth.

Information were clearly presented to boost the level of accurate information and avoid the spread of inaccurate information.

Messages from sessions: At the end of sessions, insisting on:

- Role of all the students and teachers as health educators and the need to continually updating themselves with information from scientific sources and informing their family and community as needed

- Deal seriously with the epidemic, but without panic.

Data Analysis:

Data were analyzed using software Statistical Package for Social Sciences (SPSS) version 20. Number and percentages were used to express qualitative data. Parametric tests were performed to test the relationship between the level of knowledge and socio-demographic characteristics. Regression analysis was done to find a relationship between knowledge and different associated factors. P-value < 0.05 was considered statistically significant.

Ethical Consideration:

The approval of the ethics committee of Tanta University, Faculty of Medicine was obtained (code number 34004/8/20). Approval letters were presented to the responsible personnel in each school. Objectives of the study were explained in verbal and written forms attached to all questionnaires. Confidentiality of the collected data was assured to all participants. Informed oral and written consents from students' parents and teachers themselves were obtained from those who agreed to participate prior proceeding in the study.

Results:

The study included 770 students (54%) in the age group (16-20 years old) in secondary schools, 655 students (46%) in the (10-15 years old) age group in preparatory schools, and 345 teachers in the (20-50 years old) age group. Females were more than males in teachers as well as preparatory and secondary school students (61.7%, 24.2%, and 30.3%, respectively). The majority of participants (90.0%) were from Tanta and only 10.0% were from rural areas (Table 1).

After health education sessions:

For teachers, more than four fifths of teachers (87%) reported that corona is an infectious disease and 85.2% knew that is an droplet infection. Furthermore, high proportion of teachers (86.1%) knows that corona causes death. A percentage of 92.8% agreed that the elderly, children, pregnant women, and chronic ill patients are highly exposed to infection (Table 2).

Teachers had good attitude about preventive measures as shown in Table (3). The majority of teachers (91.3%) wash their hands continuously, 83.8% of them believe in wearing masks during gatherings, 67.8% avoid international travelling, and 58% cover their mouth when sneezing and coughing (Table 3).

For the school students, secondary and preparatory school students (90.9% and 85.5%, respectively) reported that Corona is an infectious disease, 93.1% of preparatory students knew the disease symptoms, and

59.5% of them can identify the person with the disease (Table 2). The attitude of secondary school students was positively affected than preparatory school students after the implementation of health program (Table 3).

Table (4) illustrates the regression of total knowledge with age (years), sex, and residence. Knowledge scores were significantly associated with age and gender (p<0.05). Multiple linear regression analysis showed that male gender (vs female, β: 0.05, p<0.05), age groups (β: -0.08,p<0.05).

Table (5) showed the relation between total knowledge and occupation of the studied groups. Teachers became more knowledgeable (81.2%), followed by secondary students (71.4%), and finally preparatory students (61.1%) after the implementation of health program.

Discussion:

To the best of our knowledge, this is the first intervention study in Egypt to raise the awareness of teachers and students in Tanta about COVID-19 through a health education intervention. The importance of health education can be illustrated by Zhong et al, 2020, study which assessed the knowledge of Chinese residents during epidemic and reported that their knowledge about COVID-19 was improved through health education which consequently improved their attitudes and practices towards the disease.[11]

In the present study, the majority of the 3 groups reported that COVID-19 may be a fatal disease in some conditions and answered correctly that the disease is highly infectious (Table 2). In accordance, Li et al. 2020, conducted a cross sectional study among 4607 citizens from 31 provinces in China where the participants reported that COVID-19 is highly severe with reasonable control.[12]

Moreover, Al Mohaissen, 2017, found in her study among the community of Saudi Arabian university that the half of the respondents (53.3%) thought that infection is highly contiguous.[13]

Regarding the disease symptoms, high frequency of preparatory school students knew that fever, cough, and difficult breathing are the most prevalent symptoms of COVID-19 (Table 2). The same results were reported by Geldsetzer 2020, who assessed the knowledge and perception of 3000 participants in the United States and 3000 participants in the United Kingdom and found that most of the participants identified fever, cough, and shortness of breath as 3 widespread symptoms and signs of COVID-19.

These similar results indicate that most of people around the world follow the same

source of information; either social media or WHO websites.[14]

The majority of teachers after education sessions knew that washing hands continuously, wearing masks during gathering, and evading direct hand touch with nose, eyes, or mouth are important measures to prevent COVID-19 transmission (Table 2).

These findings agree with those of Bhagavathula et al, 2020, who conducted a study among health care workers (HCWs) and found that high majority of them (85.6%) agreed that these measures help to decrease COVID-19 transmission.[15]

Although the two samples are different in their occupation, but they have nearly the same sound information regarding preventive measures which confirms the role of health education as an important way to raise awareness of communities.

Similarly, Goni et al, 2019, reported that 81.3% of respondents knew the protective measures of respiratory tract infections like receiving vaccination, wearing face masks, and washing hands.[16]

Good hand hygiene and use of face masks are some of the important prevention strategies suggested by the Centers for Disease Control and Prevention (CDC) to control the infection with COVID19.[17]

The current study reported that after health education sessions, the majority of teachers, secondary school students, and preparatory school students had good attitudes regarding COVID-19 and ways of prevention (Table 3).

A nearby cross sectional study conducted by Geldsetzer, 2020 who assessed the knowledge and perception of participants in the United States and others living in the United Kingdom found that entrants generally had sound knowledge regarding COVID-19; however, there were several significant misunderstandings on how to stop the infection.[14]

Also, Alzoubi et al, 2020, who conducted a study to assess the KAP among 592 students from medical and non-medical universities in Jordan found that the total knowledge about COVID-19 was good (about 90% of the studied sample).

They also found that although there were high level of good attitude and practice towards the disease protective measures, 20% of the studied sample wrongly thought that taking antibiotics will prevent infection with COVID-19.[18]

These 2 previously mentioned recent studies emphasize the role of health education sessions to correct the wrong information circulated in communities and decrease panic among people.

Tork and Mersal 2018, found in their study among Qassim University students in Saudi Arabia that 70.7% of the participants

had a considerable level of knowledge about MERS-CoV.[19]

On the other hand, a study conducted by Medani et al. 2018 among primary school students in Al Majmaah city reported poor knowledge about MERS-CoV (68%) as the students did not get any health education about the disease in their school.[20] This denotes the profound importance of raising the students' awareness by health education sessions and prevention measures.

In the current study, there was a statistically significant association between socio-demographic data and general knowledge where age (years) and gender had a significant association with general knowledge (Table 4).

The same results were presented by Zhong et al. 2020 in their study which was conducted among Chinese residents where gender, education, age groups, and occupation were significantly associated with knowledge scores.[11]

Conclusion

Health education intervention is considered to be effective among participants by raising their awareness towards COVID-19; especially in terms of general knowledge and important protective measures.

At the baseline testing, there were wrong conceptions and information which were changed after sessions. Overall, teachers are more knowledgeable than students as they got more scores. Knowledge scores are significantly associated with age and gender.

Recommendations

The findings of this study proved that educational health programs represent a cornerstone in promoting the knowledge of students and staff members and directing their attitudes and practices towards the prevention of infection.

It will be in the interest of public health to include heath education in curriculums, use different media tools for health education, and utilize social media in empowering health education. Also, health authorities of the country should direct their policies and efforts for better containment of COVID-19 and its further spread.

Study limitations:

▪ Difficulty in obtaining an agreement from the Ministry of Education jeopardized random selection of the schools
▪ Difficulty in completing the questionnaires within the busy school day for the students and staff
▪ Closure of all schools in the 10th of March as per the Ministry of Education's decree as a logical solution to enforce social distancing within communities.

Declarations:

Conflict of interest: The authors declare that they have no conflict of interests.

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Table (1): Characteristics of the studied group

Variables (No.=1770) Students	Mean ± SD	Frequency No.(%)
Age of studied sample: ▪ 10-15y (preparatory school students) ▪ 16-20y (secondary school students)	20.2±12.6 12.0±1.3 17.5±2.1	 655(46%) 770(54%)
Gender of Preparatory school students ▪ Male ▪ Female **Gender of** Secondary school students ▪ Male ▪ Female		310(21.8%) 345(24.2%) 338(23.7%) 432(30.3%)
Teachers: ▪ **Age (20-50y)** **Gender :** ▪ Male ▪ Female	42.8±3.5	 132(38.3%) 213(61.7%)
Residence ▪ Urban (Tanta city) ▪ Rural		1593(90.0%) 177(10.0%)

Table (2): Number and percent distribution of the studied group regarding their general knowledge about COVID-19

Variable	Occupation (No.=1770)	Yes		No		I don't know		p
		Pre	post	pre	post	pre	post	
1- Have you ever heard of Corona's disease?	Teacher	329(95.4%)	340(98.6%)	6(1.7%)	3(0.9%)	10(2.9%)	1(0.3%)	0.008*
	Secondary student	683(88.7%)	740(96.1%)	22(2.9%)	28(3.6%)	65(8.4%)	2(0.3%)	
	Preparatory student	603(92.1%)	630(96.2%)	12(1.8%)	20(3.1%)	40(6.1%)	5(0.1%)	
2-Are you interested in learning about Corona's disease?	Teacher	295(85.5%)	330(95.7%)	15(4.3%)	10(2.9%)	35(10.1%)	5(1.4%)	0.0001*
	Secondary student	580(75.3%)	700(90.9%)	125(16.2%)	50(6.5%)	65(8.4.8%)	20(2.6%)	
	Preparatory student	455(69.5%)	600(91.6%)	155(23.7%)	30(4.6%)	45(6.9%)	25(3.8%)	
3-Is it a disease that affects China only?	Teacher	100(29%)	50(14.5%)	190(55.1%)	280(81.2%)	55(15.9%)	15(4.3%)	0.0001*
	Secondary student	145(18.8%)	100(13%)	465(60.4%)	612(79.5%)	160(20.8%)	58(7.5%)	
	Preparatory student	185(28.2%)	90(13.7%)	360(55%)	480(73.3%)	110(16.8%)	85(13%)	
4- Is it a first time disease appears in the world?	Teacher	100(29%)	280(81.2%)	155(44.9%)	55(15.9%)	90(26.1%)	10(2.9%)	0.0001*
	Secondary student	325(42.2%)	440(57.1%)	210(27.3%)	315(40.9%)	235(30.5%)	15(1.9%)	
	Preparatory student	315(48.1%)	400(61.1%)	155(23.7%)	200(30.5%)	185(28.2%)	55(8.4%)	
5-Is it a seasonal disease?	Teacher	90(26.1%)	100(29%)	130(37.7%)	217(62.9%)	125(36.2%)	28(8.1%)	0.0001*
	Secondary student	135(17.5%)	140(18.2%)	355(46.1%)	552(71.7%)	280(36.4%)	78(10.1%)	
	Preparatory student	105(31.8%)	120(18.3%)	335(51.1%)	413(63.1%)	215(32.8%)	122(18.6%)	
6-The causative organism of Corona's disease is virus?	Teacher	260(75.4%)	303(87.8%)	30(8.7%)	33(9.6%)	55(15.9%)	9(2.6%)	0.0001*
	Secondary student	565(73.4%)	590(76.6%)	50(6.5%)	97(12.6%)	155(20.1%)	83(10.8%)	
	Preparatory student	375(57.3%)	510(77.9%)	90(13.7%)	103(15.7%)	190(29%)	42(6.4%);	
7-Do you think Corona is a hereditary disease?	Teacher	20(5.8%)	13(3.8%)	235(68.1%)	302(87.5%)	90(26.1%)	30(8.7%)	0.0001*
	Secondary student	45(5.8%)	20(2.6%)	540(70.1%)	645(83.8%)	185(24%)	105(13.6%)	
	Preparatory student	55(8.4%)	30(4.6%)	385(58.8%)	400(61.1%)	215(32.8%)	225(34.4%)	
8-Is Corona an infectious disease?	Teacher	290(84.1%)	300(87%)	15(4.3%)	33(9.6%)	40(11.6%)	12(3.5%)	0.0001*
	Secondary student	630(81.8%)	700(90.9%)	25(3.2%)	60(7.8%)	115(14.9%)	10(1.3%)	
	Preparatory student	510(77.9%)	560(85.5%)	50(7.6%)	62(9.5%)	95(14.5%)	33(5%)	
9- Is it a droplet disease?	Teacher	195(56.5%)	294(85.2%)	50(14.5%)	20(5.8%)	100(29%)	31(9%)	0.0001*
	Secondary student	220(28.6%)	400(51.9%)	190(24.7%)	102(13.2%)	360(46.8%)	268(34.8%)	
	Preparatory student	205(31.3%)	292(44.6%)	180(27.5%)	77(11.8%)	270(41.2%)	286(43.7%)	
10- Symptoms include fever, cough and dyspnea?	Teacher	230(66.7%)	250(72.5%)	65(18.8%)	50(14.5%)	50(14.5%)	45(13%)	0.0001*
	Secondary student	530(68.8%)	608(79%)	55(7.1%)	84(10.9%)	185(24%)	78(10.1%)	
	Preparatory student	440(67.2%)	610(93.1%)	110(16.8%)	31(4.7%)	105(16%)	14(2.1%)	
11-Can you identify the person with the disease?	Teacher	180(52.2%)	196(56.8%)	80(23.2%)	78(22.6%)	85(24.6%)	71(20.6%)	0.0001*
	Secondary student	305(39.6%)	405(52.6%)	215(27.9%)	55(7.1%)	250(32.5%)	310(40.3%)	
	Preparatory student	360(55%)	390(59.5%)	115(17.6%)	69(10.5%)	180(27.5%)	196(29.9%)	
12-Does the disease can cause death?	Teacher	285(82.6%)	297(86.1%)	20(8.5%)	33(9.6%)	40(11.6%)	15(4.3%)	0.0001*
	Secondary student	610(79.2%)	639(83%)	55(7.1%)	51(6.6%)	105(13.6%)	80(10.4%)	
	Preparatory student	505(77.1%)	588(89.8%)	50(7.6%)	40(6.1%)	100(15.3%)	27(4.1%)	
13-Patients must be isolated in fever hospitals?	Teacher	100(29%)	140(40.6%)	210(60.9%)	200(58%)	35(10.1%)	5(1.4%)	0.0001*
	Secondary student	265(34.3%)	350(45.5%)	420(54.5%)	100(13%)	85(11%)	320(41.6%)	
	Preparatory student	345(52.7%)	373(56.9%)	265(40.5%)	210(32%)	45(6.9%)	72(11%)	
14-Are elderly, pregnant, chronic diseased patients and children high risk?	Teacher	300(87%)	320(92.8%)	5(1.4%)	23(6.7%)	40(11.6%)	2(0.6%)	0.0001*
	Secondary student	655(85.1%)	690(89.6%)	45(5.8%)	50(6.5%)	70(9.1%)	30(3.9%)	
	Preparatory student	560(85.5%)	578(88.2%)	50(7.6%)	73(11.1%)	45(6.9%)	4(0.6%)	

*p<0.05

Table (3): Distribution of the studied group as regards their attitude to preventive measures of COVID-19

Preventive measures	Studied groups (No.=1770)	No.(%)		P
		pre	Post	
▪ Wash hands continuously	Teacher	240(69.6%)	315(91.3%)	0.0001*
	Secondary student	490(63.6%)	603(78.3%)	
	Preparatory student	380(58%)	436(66.6%)	
▪ Wearing masks during gatherings	Teacher	250(72.5%)	289(83.8%)	0.0001*
	Secondary student	515(66.9%)	612(79.5%)	
	Preparatory student	390(59.5%)	502(76.6%)	
▪ Avoid international travelling	Teacher	200(58%)	234(67.8%)	0.01*
	Secondary student	325(42.2%)	477(61.9%)	
	Preparatory student	295(45%)	320(48.8%)	
▪ Evade direct hand ▪ contact with eyes, nose, and mouth	Teacher	180(25.1%)	280(81.2%)	0.02*
	Secondary student	550(71.4%)	696(90.4%)	
	Preparatory student	385(58.8%)	433(66.1%)	
▪ Cover mouth ▪ when sneezing/coughing	Teacher	185(53.6%)	200(58%)	0.008*
	Secondary student	255(33.1%)	410(53.2%)	
	Preparatory student	165(25.2%)	228(34.8%)	

*p<0.05

Table (4): Multiple linear regression analysis of some variables affecting knowledge:

Demographic variables (No.=1770)	coefficient	Standard error	T	p
▪ Age (years)	-0.08	0.1	3.5	0.000*
▪ Gender	0.05	0.2	2.04	0.04*
▪ Residence	-0.04	0.3	1.9	0.06

Table (5): Relation between total knowledge and occupation among the studied groups:

Occupation (No.=1770)	Total knowledge scores						X^2,p
	Poor		Satisfactory		Good		
	Pre	Post	Pre	post	Pre	post	
▪Teacher	35(10.1%)	15(4.3%)	70(20.3%)	50(14.5%)	240(69.6%)	280(81.2%)	80.2
▪Secondary student	70(9.1%)	40(5.2%)	255(33.1%)	180(23.4%)	445(57.8%)	550(71.4%)	0.0001*
▪Preparatory student	70(10.7%)	45(6.9%)	245(37.4%)	210(32.1%)	340(51.9%)	400(61.1%)	

*p<0.05

نتيجه برنامج تعليمي عن الوعي تجاه كوفيد-19 لطلبه المدارس والمدرسين- مصر

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الخلفية: فيروس كورونا (COVID-19) مرض يصيب الجهاز التنفسي ، وقد تم اكتشافه في الأصل في الصين. ولقد أصبحت مشكلة صحية عالمية مع زيادة تدريجية في الحالات والوفيات في جميع أنحاء العالم. **الأهداف:** هدفت هذه الدراسة إلى تقييم معرفة وسلوك موظفي المدرسة والطلاب وزيادة وعيهم تجاه المرض من خلال جلسات التثقيف الصحي أثناء جائحة COVID-19 في مدينة طنطا ، مصر. **طرق البحث:** أجريت دراسة شبه تجريبية بين طلاب المرحلة الإعدادية والثانوية والمعلمين بمدينة طنطا خلال شهري يناير وفبراير 2020 ، ضمت 1770 مشاركًا يمثلون الطلاب والمدرسين من أربع مدارس مختلفة. تم جمع البيانات باستخدام استبيان تم إجراؤه ذاتيًا بواسطة الباحثين. **النتائج:** غالبية المعلمين لديهم معرفة جيدة وسلوكيات جيدة بشكل ملحوظ من طلاب الثانوية والإعدادية بعد تدخل التثقيف الصحي، مع وجود فروق ذات دلالة إحصائية. **الاستنتاج و التوصيات** : كان تدخل التثقيف الصحي فعالا بين المشاركين. وبالتالي ، ينبغي أن يعتمدها العاملون الصحيون لنقل المعلومات المتعلقة بالصحة إلى الجمهور.