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Influence of knowledge and economic status on prevention of Corona Virus Infection (COVID-19): Evaluation of pharmacist intervention

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Abstract

Coronaviruses are considered as important animal and human pathogen. A novel corona virus was appeared in 2019 as the cause of Pneumonia cases in the Wuhan city in China. It rapidly transmitted, led to an epidemic throughout China, followed by a rapid increasing of cases in other countries throughout the world causing severe symptoms which led to death in some cases. So we designed this work in which we take 400 participants and divided them to A (200) participants and B (200) participants group (gp). Bgp received information literature about COVID-19 then collect their answers about certain questionnaire while Agp was answered the same questionnaire without any pharmaceutical intervention. Then assess knowledge level and attitude for all participants, the results revealed that the Bgp have more knowledge and excellent attitude than Agp and there was a significant difference ($p \leq 0.05$), between A and Bgp. and this difference between gps may be due to information literature which introduced previously to Bgp. Also we assess the effect of economic status on compliance for all (400) participants and the result revealed the most of them non-compliance due to economic status. Finally we recommended to make more studies similar to our study to get more reliable and correct data.

Keywords: corona virus infection, pharmacist intervention, animal and human pathogen

Introduction

Corona viruses are members of the *Nidovirales* order's Corona viridae family. Its name comes from crown-designed spikes on its exterior. Its dimensions range from 65 to 125 nm, and its single stranded RNA size ranges from 26 to 32 kbs in length. The corona virus families have 4 subgroups: α , β , γ , and δ . Acute respiratory distress syndrome and lung failure are caused by the Middle East respiratory syndrome coronavirus (MERS-CoV), H5N1 influenza A, H1N1 2009, and the uncontrolled acute respiratory syndrome coronavirus. Before the world witnessed a uncontrolled acute respiratory syndrome outbreak brought on by SARS-CoV, 2002 in Guangdong, China, it was previously believed that viruses exclusively affected animals. Years later, (MERS-CoV), another dangerous corona virus, caused an endemic in Middle Eastern nations [1]. In the first fifty days of the pandemic, a unique coronavirus outbreak in Wuhan, the first commercial hub of China, led to the deaths of more than 1800 persons and the infection of over 70,000 people. The virus was named by Chinese researchers as Wuhan coronavirus or 2019 new coronavirus. The International Committee on Taxonomy of Viruses gave the disease and virus their respective names [2].

In contrast to new corona virus, which has infested 120,000 people with a death rate of 2.9 percent across 109 nations as of this writing, SRAS-CoV infested 8098 people with a mortality rate of 9 percent via 26 countries in the world in 2003. It reveals that SARS-CoV-2 spreads more rapidly than SRAS-CoV, which may be related to a genetic recombination event that occurred at the S protein in the RBD region of SARS-CoV-2, which may have raised its capacity for transmission [3]. A virus that caused SARS in 2003 among Chinese patients in Guangdong province was recognized as a member of the Beta-corona virus subgroup and was given the name SARS-CoV [4]. More than 2428 people were infected with the MERS-corona virus, and 838 of them died, according to the WHO [5]. MERS-CoV is a member of the beta-coronavirus subgroup and differs from other human-CoV in terms of phylogeny. Mild upper respiratory injuries are where MERS-CoV infection begins, and as it progresses, it produces serious respiratory illnesses and consequences.

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Patients with MERS-corona virus infection have pneumonia, ARDS, and renal failure, much as those with SARS-corona virus [6].

The Chinese government recently informed WHO of many cases of pneumonia and other severe consequences with unknown etiologies. The Hunan market of seafood in Wuhan, China, was the origin of the illness, which quickly spread to more than 50 individuals. The Hunan Seafood Market sells a variety of animals, including bats, snakes, frogs, birds, and rabbits [7].

Immunological damage

This is an essential component of the body's defense against viruses, and virus-specific cytotoxic T cells are what detect it. One of the primary causes of mortality from ARDS is the cytokine storm, which is an severe systemic inflammatory response brought on by the production of massive quantities of proinflammatory cytokines and chemokines [8].

Individuals of all ages can become infested by the COVID-19 virus, however males were more frequently affected. All available data indicated that older individuals and those with underlying medical conditions were at high risks of getting severe corona virus-2019. The incubation time and clinical manifestation both varied from 2 to 14 days. This includes dyspnea, a dry cough, and fever. A sizable portion of patients reported experiencing gastrointestinal symptoms such nausea, vomiting, and diarrhea. Approximately 44 to 60 percent of Asian case series, tiredness or myalgia was present. Leukocytes levels were either normal or low and there was obvious radiographic evidence of pneumonia, which shares symptoms with SARS-CoV and MERS-CoV infections [9].

Leukopenia was the most frequent aberration reported in the research by Huang *et al.*, which suggests that 2019-nCoV may primarily affect lymphocytes, particularly T cells. Additionally, Holshue *et al.* and Chen *et al.* noted that although thrombocytopenia is seldom documented in other studies, it did occur in certain people. Additionally, ESR and CRP were commonly abnormal, the majority of patients had normal procalcitonin levels with contrast, and around 58 percent of adults were reported to have a delayed prothrombin time [10].

Situation in Iraq

An Iranian student brought COVID-19 to Iraq for the first time on February 22, 2020. Then four more cases from the same family with travel connections to Iran followed. The number of cases reported grew to practically all of Iraq's governorates. A WHO representative describes their complete support for the Iraqi Ministry of Health's COVID-19 preventative and containment efforts [11].

Curfews and mobility limits in federal Iraq have been extended until April 19 by the government of Iraq (GOI), while in the Kurdistan Regional Government, they have been prolonged until April 10 and it has been stated that government offices would be closed until April 16. Up to 11 April [12].

For COVID-19 awareness planning to be successful, it must be done in conjunction with good outbreak and epidemic response. The issue with COVID 19 is what goes wrong. Previous epidemics have demonstrated that when health systems are overworked, unnecessary mortality may rise considerably. Health systems throughout the world are

being strained by the COVID-19 epidemic. Some healthcare systems risk being overburdened and unable to function properly due to the fast-increasing demand on healthcare resources, including facilities and personnel [13].

Aim of study

Evaluation of society knowledge about COVID-19 to treat this defect and avoid many wrong behaviors due to lack of full information, this is done by pharmacist as he basic health care professional.

Method

400 individuals were asked to respond to a cross-sectional survey from the fifth of February to the seventh of August of 2021. with different age group varied from school age, teenager, and older and with various educational levels, thus subdivided into 200 participants of group A who are without pharmaceutical intervention and other 200 participants of group B which have been exposed to pharmaceutical intervention by educational information (literature) involved information about the COVID-19 like signs and symptoms of the viral infections, complication, ability to infect other persons and the ways by which COVID-19 transfer. Due to the outbreak, it was not feasible to do in-person interviews in the neighborhood, thus everything was done online. Participants received a web-based, single-language survey that was only available in Arabic at random.

Content of the Questionnaire

Here we divided the questions on three main questions parts which regarding knowledge evaluation, attitude (14) and economic status assessment.

The participants knowledge was evaluate by 7 questions regarding COVID-19 sign and symptoms, transmission, complications, similarity between COVID-19 symptoms and influenza, physical distance that prevent the infection and severity of infection. The participants attitude was evaluate by 10 questions regarding the importance of self-hygiene to prevent the infection like concomitance wearing mask face, using elbow while coughing or sneezing, if dispose tissue immediately after using that will highly restrict spreading of infection.

Also we assess the effect of economic status on prevention and adherence by create questions which were: If the mask and sterilization matters are available, will you use them? And the second one: if the reason of non-compliance with wearing a mask was due to economic reason?

Each question take 1 score if answer was positive and 0 score otherwise.

Results

Assessments of demographic criteria regarding (sex, educational level, occupation and age) show in (table.1), the finding show that the no. of female verse the no. of male in gp A was (145 and 55) respectively, while in gp B was (125and 75); the educational level was in gp A (126, 52 and 22) verse in gp B (141,25 and 35) for academic, secondary and primary level respectively, the occupation differences between A and B gp was (143, 27 and 30) verse (157, 22 and 21) students, worker and unemployed participants. Also the average of age results revealed; that the A verse B gp between (16_29) was (182 and 154), (30_49) was (18 and 29) and above 50 was (21 and 17) respectively.

Table 1: Assessments of demographic criteria of participants.

p-value	Participant (200) Forma (B)	Participant (200) forma (A)	(Sex) (Male)
	75	55	
0.871 NS	28.2%	27.5%	(Sex) (Female)
	125	145	
0.871 NS	71.8%	72.5%	Education level: (Academic)
	141	126	
0.062 NS	70.5%	62.8%	(Primary)
	24	22	
0.866 NS	12%	11.1%	(Secondary)
	35	52	
0.0425 *	17.5%	26.1%	Occupation: (Student)
	157	143	
0.076 NS	78.7%	71.4%	(Worker)
	22	27	
0.569 NS	10.9%	13.6%	(Unemployed)
	21	30	
0.207 NS	10.4%	15.1%	Age: (16-29)
	154	182	
0.761 NS	84.6%	82.3%	(30-49)
	29	18	
0.894 NS	9.55	10.1%	(50+)
	17	21	
0.877 NS	6%	7.6%	

$p \leq 0.05$ Non-Significant (NS).

Five of seven questions to assess patients' knowledge (table. 2) revealed significant differences between A and B groups which was with yes answers to evaluate the knowledge about symptoms (75.9, 76.4)% for A group and (96.6, 94.6)% for B group, about complication of virus was (71.9, 85.7)%,

treatment (57, 72.4)% and physical distance to prevent infection (70.2, 91.6)% for A to B group respectively, also two questions only about the route of transmission (26, 25.2)% and severity of disease (49.7, 51.7)% was shown non-significant differences between A and B groups respectively.

Table 2: Assessments of participant's knowledge.

p-value	Forma (B) No	Forma (B) Yes	Forma (A) No	Forma (A) Yes	
	12	188	48	152	
0.0071 **	3.4%	96.6%	24.1%	75.9%	Fever, cough and muscle pain are clinical symptoms of coronavirus
	154	46	148	52	
0.697 NS	74.8%	25.2%	74%	26%	An infected person is not considered contagious if his temperature is normal
	17	183	48	152	
0.0085 **	5.4%	94.6%	23.6%	76.4%	Symptoms of coronavirus is not similar to influenza
	98	105	100	99	
0.792 NS	48.3%	51.7%	50.3%	49.7%	Corona virus infection can cause severe symptoms in everyone
	34	166	56	144	
0.0388 *	16.3%	85.7%	28.1%	71.9%	Corona virus infection can cause serious complications
	55	145	86	114	
0.0369 *	27.6%	72.4%	43%	57%	Treatment is not currently available that may lead to recovery
	17	183	61	139	
0.0081 **	8.4%	91.6%	29.8%	70.2%	Physical distancing to prevent infection ranges between 1.5_2m

$p \leq (0.05 \text{ or } 0.01)$ non-Significant (NS)

All ten questions to assess participant's attitudes (table.3)

revealed significant differences between A and B groups

Table 3: Assessment of participant’s attitude:

P-value	Forma (B)	Forma (B)	Forma (A)	Forma (A)	
	No	Yes	No	Yes	
	26	174	57	143	Committed to wearing a mask.
0.0294 *	12.3%	87.7%	28.8%	71.2%	
	29	171	62	138	During coughing or sneezing do you use your elbow?
0.0216 *	14.3%	85.7%	31.8%	68.2%	
	20	180	45	155	After using a tissue for sneezing, do you get rid of it immediately?
0.0378 **	9.9%	90.1%	22.7%	77.3%	
	70	130	124	76	Do you take your temperature from time to time?
0.0078 **	40.4%	59.6%	62.3%	37.7%	
	13	187	52	148	Do you wash your hand regularly?
0.0062 **	5.5%	94.5%	26.1%	73.9%	
	31	169	92	108	Always use alcohol sanitizer?
0.0015 **	18.3%	81.7%	46.2%	53.8%	
	36	164	84	116	Are you avoiding contact your eye and nose?
0.0057 **	17.8%	82.2%	41.6%	58.5%	
	59	141	108	92	Do you disinfect your phone regularly?
0.0048 **	28.2%	71.8%	54%	46%	
	10	190	46	154	Resorting to quarantine when symptoms of infection appear.
0.0084 **	4%	96%	23.1%	76.9%	
	71	129	115	85	Did you ready to take vaccine?
0.0054 **	34.8%	65.2%	59.3%	40.7%	

NS $p \leq (0.05 \text{ or } 0.01)$: non-Significant

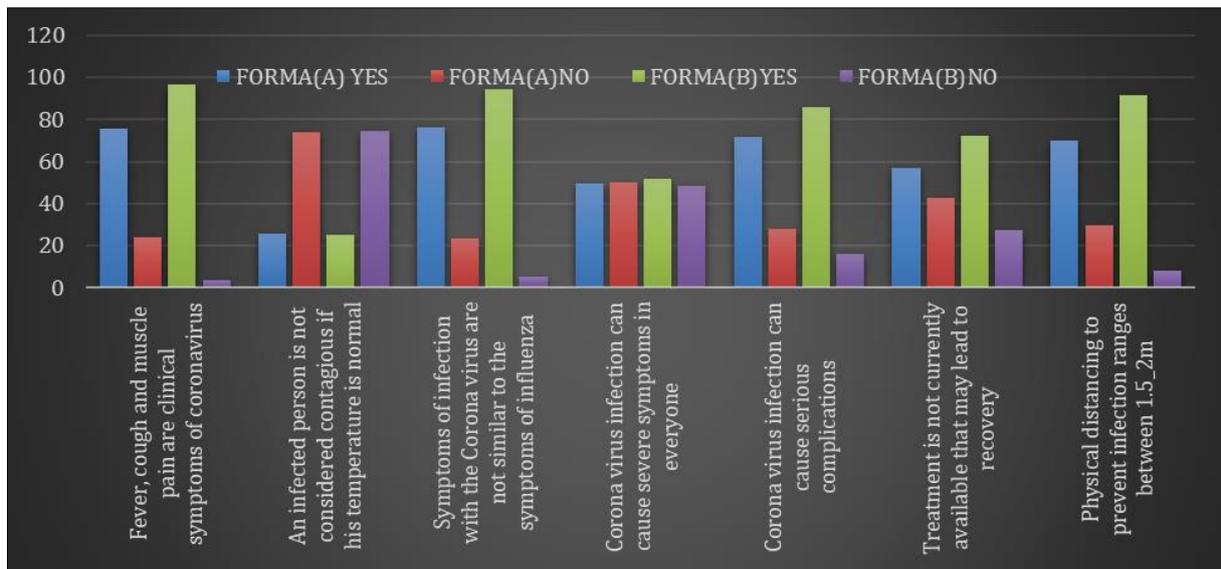


Fig 1: Assessments of participants knowledge

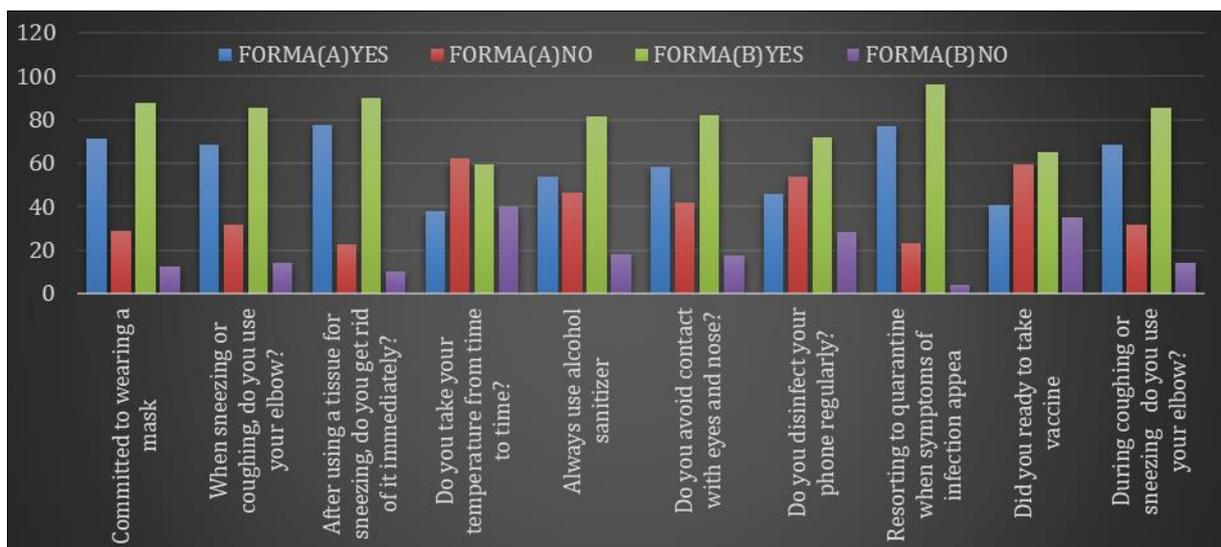


Fig 2: Assessments of participants Attitude

Also the questions to assess participant's economic status on prevention of COVID-19 infection (table. 4) revealed answer

yes with the first question for all participant was (367 out of 400) while for a second question was (286 out of 400).

Table 4: Assessment of participant's economic status on prevention of COVID-19 infection

Forma (A & B) No	Forma (A & B) Yes	
33	367	If the masks and sterilization matters are available, are you will use them? yes or no
8.25%	91.75%	
114	286	If the non-compliance with wearing a mask was related to an economic reason. yes or no
28.5%	71.5%	

Discussion

Our findings show non-significant differences of Demographic Characteristics for all participants in A and B GPS except in educational level, the no. of participants (52) with secondary level in AGP more than the no. of participant (35) in BGP but this issue will not effect on our results as we see in result section.

According to The results mentioned earlier in the knowledge part most answers showed that the knowledge of participants in BGP more than AGP and there is a significant and highly significant differences in, (p) value \leq (0.05 or 0.01) between B and AGP and this difference may be due to introduced of literature of information about the Corona virus for BGP and that explain the effect of pharmacists intervention as a good health provider and that ensure the results of previous work (15).

Also results revealed that the attitude of participants in BGP to improve the compliance was excellent than the attitude of participants in AGP and also we can explain that, by the effect of information literature that which introduced to BGP previously and the effect of economic status of participants was the important cause over the knowledge explains the noncompliance of most participants.

Conclusion

This work show clearly increasing the level of knowledge and attitude for most participants in Bgp than Agp due to the role of pharmacists as health care provider in COVID-19 information liturture orgnaziation which introduced to Bgp previously.

Also show the effect of economic status on most of participants complamince.

At the end we recommend other researchers trying to do the best in this field to provide more reliable and correct data.

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