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Original Research Article

Preparedness for prevention and Mitigation guidelines of COVID -19 at Academic Medical institute

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ABSTRACT

Background: The (n-COVID -19) novel coronavirus 2019 has been recognized as a highly pathogenic virus that infects the human respiratory tract and has high morbidity and mortality. The n-COVID -19 is an enormous burden on health-care facilities, causing approximately 2.1% mortality so far. Countries globally are at risk of developing pneumonia due to this novel Corona Virus. The surge of coronavirus disease 2019 (COVID-19) cases reached over 100 countries with more than 100,000 cases. The disease is fast spread among human, due to the assessment of transmission methods still not clear. Infection prevention control measures are essential in medical institutes. A poor understanding of the disease among academic and non-academic employees may result in delayed treatment and the rapid spread of infection. This study aimed to investigate and assess the level of preparedness, knowledge, and perceptions of the medical institute employees about COVID-19.

Materials and Methods: A cross-sectional, web-based study was conducted among academic and non-academic employees about COVID19 during the period from July to August 2020. The actual preparedness level of medical institutes can be determined by examining academic and non-academic employees' perceptions. A 33-item questioner survey instrument was developed and distributed using employees' email; it required 5 minutes to complete. A questionnaire survey concerning the perceptions of risks and countermeasures and knowledge about novel coronavirus 2019 was distributed at different Medical institutes. A chi-square test was used to investigate the level of association among variables at the significance level of $p<0.05$.

Results: All participants completed the survey. Seventy-five valid questionnaire responses were received and analyzed. After adjusting for sex, specialty, Qualification, and years of experience, knowledge of preventive measures (K-scores) in the medical institute, institutional measures (I-scores) were found to be more indicative of the level of preparedness across the institution.

Conclusion: As the global danger of COVID-19 continues to emerge, it is critical to improving the knowledge and perceptions of academic and non-academic employees. Educational interventions are urgently needed to reach academic and non-academic employees beyond borders. Substantial differences in emergency infection prevention and control measures, as perceived by academic and non-academic employees exist in a medical institute. Furthermore, to achieve a higher level of preparedness for prevention and mitigation for infectious diseases, Medical institutions should designate and implement effective mitigation guidelines of COVID -19 at Academic Medical institute.

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1. Introduction

Novel Coronavirus (COVID -19) infections are evolving respiratory viruses and are known to cause illness, the majority of infected patients with the 2019-nCoV present with signs and symptoms of lower respiratory infection which include (high-grade fever, headache, cough, and dyspnea). The former is just the early symptoms of the disease, but later may develop severe complications such as respiratory failure and multiple organ dysfunction syndromes (MODS) and the end-stage is death.[1] COVID -19 is a zoonotic pathogen that can be transmitted via human-to-human and animal-to-human interaction.[2] Multiple pandemic outbreaks occurred during 2002 (SARS), with ~800 deaths, and 2012 MERS-CoV (Middle East Respiratory Syndrome), with 860 deaths.[2,3] Approximately eight years after the MERS-CoV pandemic, the current pandemic in Wuhan City of novel coronavirus (COVID-19) has emerged as a global outbreak and significant public health issue[4]. In January 2020, the World Health Organization (WHO) declared COVID-19 a (PHEIC) public health emergency of international concern.[5] Surprisingly, in the March first week, a devastating number of new cases were reported globally, and COVID-19 emerged as a pandemic. As of 12 March 2020, more than 125,000 confirmed cases across 118 countries and more than 4600 deaths had been reported.[6] Wuhan pneumonia COVID-19 virus is also related to bats as well as seafood contact, however, this transmission occurs from bats to humans and then human to human transmission is reported if with close contact about 6 feet without having protective equipment. Interestingly, unlike the SARS and MERS, novel coronavirus 2019 is transmitting from human to human during the incubation period even the sign and symptoms have not yet occurred on the infected individual patient.[7] COVID-19 is spread through the droplet, fecal-oral route, and direct contact and has an incubation period of up to 14 days.[6] Implementing preventive control measures to control COVID-19 infection is the most critical intervention. The WHO and Centers for Disease Control and Prevention (CDC) had published recommendations for the prevention and control of COVID19.[8,9] The WHO also initiated several online training sessions and materials on COVID-19 in various languages to strengthen preventive strategies, including raising awareness and training in preparedness activities.[10] Misunderstandings have delayed controlling methods to provide necessary treatment,[11] led to the rapid spread of infection,[12,13] and put patients' lives at risk. In this regard, the COVID-19 pandemic offers a unique opportunity to investigate the level of knowledge and perceptions of academic and non-academic employees during this global health crisis. Besides, we aim to assess the perception of risk, knowledge of preventive measures, and the perceptions of emergency infection control measures for COVID-19 for academic and non-academic employees and to assess the levels of preparedness for prevention and Mitigation guidelines of COVID -19 at the Academic Medical institute.

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2. Materials and Methods

A descriptive exploratory cross-sectional Web-based design was conducted using a checklist survey to obtain responses from academic and non-academic employees at Inaya medical colleges during the period from July first till August 2020. The study subjects will be comprised of approximately 100 participants. One tool will be used for data collection. A 33 -item checklist survey was developed by the researchers using CDC and WHO[14,15] materials on respiratory sever pandemic emerging viruses to support the staff and employees in implementing the guidance in Preparedness, prevention, and control of COVID-19 in an academic institute. The checklist had been developed by using Google Form and will be published online.

2.1. Ethical considerations

Official permission to conduct the study has been obtained from the administrative authorities at IMC after an explanation of the purpose of the study. The developed tool will be tested for content validity by an expert in the related study field and the needed modifications will be done. The tool also will be tested for inter-reliability. The confidentiality of the research study employees' participants' information was retained during the research period by making the information of the employees nameless and asking them to afford direct answers.

2.2. Content of the checklist survey

The checklist comprised 33 closed-ended questions and took about 5 minutes to complete. The 33 -item checklist survey was divided into five parts, including Socio-demographic data such as age, marital status, educational level, Nationality, name of college, and department. (6 items), Human rights (3 items), Assessment of perception about Risk assessment methods, management (9 items), and Training (5 items) questions in the form of yes or no and MCQ questions. The Scoring system was done as follows: each question had a group of answer points, one point was awarded for each correct answer; incorrect or I don't know answer took zero. Correct responses were summed up to get a total perception score for each participant. The perception scores were categorized as:

Poor perception: less than 50%
Fair perception: 50 -< 75%
Good perception: 75% or more

And the last part of the checklist designed to measure knowledge of the participants about infection prevention

control measures and the symptoms of COVID-19-affected patients (10 items) Responses ranges from rarely to always. Sufficient time was given to participants to read, comprehend, and answer all the questions.

2.3. Data analysis

The obtained data were coded, validated, entered, and analyzed using SPSS (SPSS package version 22). Descriptive analysis was applied to calculate the frequencies and proportions. The chi-square test was used to investigate the level of association among variables. A p-value of less than 0.05 was considered statistically significant.

3. Results

A total of 100 from academic and non-academic employees at Inaya medical colleges (IMC) participated, They completed the study checklist survey, including 52 (52%) men and 48 (48%) women; The majority of participants were employees (n= 100, 51%) other IMC qualifications (n=100, 49 %), Table 1 shows the socio-demographic data of the participants. Almost all participants agreed that they had heard about COVID-19 (60%), Standards of health care available for people in Academic institute similar to those in the outside community were 89%, The percentage of basic living standards detected (enough space, fresh air, light, and sanitation) were 89% and for the people in an academic institute allowed at least one hour of outdoor activities per day were 52% to protect themselves from COVID-19 [Table 1].

3.1. Assessment of perception about Risk assessment methods for COVID-19

Over 90% of the IMC participants exhibited a positive perception of COVID-19. A high majority of the participants knew that sick patients should share their recent travel history and information collected on recent contact with possible cases (over the previous 14 days) (55%).

All the information on travel restrictions and the emergence of symptoms provided to staff and Employees, so that they can inform the designated Infection Prevention and Control and Quality Units in the Institute (85%), A majority of asymptomatic individuals prevented from visiting if they meet any of the criteria for exclusion (i.e. contact with the symptomatic person or travel history that indicates risk (70%), Most of the Academic staff and Employees received training inside the IMC on basic COVID-19 disease, including pathogen, transmission route, signs, and clinical disease progression (86%), In addition, 90 % felt that washing hands with soap and water could help to prevent COVID-19 transmission as the Academic staff and Employees received training on hand hygiene practice , approximately (68%) of the Employees received training on the appropriate use of Personal Protective Equipment (PPEs) but never for Academic staff, (80%)of the Academic staff and Employees mainly cleaning personnel received training on environmental prevention measures, including cleaning and disinfection, However, 86% knew that symptoms appear in 2-14 days [Table 2].

Checklist items related to perceptions among all IMC participants in the research study COVID-19 were analyzed separately using the chi-square test to examine their association with sex and across different categories of people [Table 3].

Nearly 86% of the participants believed that the symptoms of COVID-19 appeared as early as 2 to 14 days; the differences among the respondent groups were statistically significant ($p<0.05$). Moreover, a significant proportion of the employees and academic staff perceived washing hands with soap and water can help in the prevention of COVID-19 transmission (90%, $p<0.05$). Sick patients should share their recent travel history and information collected on recent contact with possible cases (over the previous 14 days) (55%, $p<0.05$) and

A large number of Employees received training on the appropriate use of Personal Protective Equipment (PPEs) but never for Academic staff for the COVID-19 outbreak (68 %, $p<0.05$) compared with other participants in the respective groups.

3.2. Knowledge of the participants about infection prevention control measures and the symptoms of COVID-19

hows knowledge about COVID-19 among IMC staff and employees. We identified significant knowledge gaps between participants. For instance, approximately98% of the IMC staff and Employees confirmed that there is routines and facilities that allow hands to be washed with soap and water and alcohol sanitizer are available in the area for COVID-19 (86% vs. 14%, $p<0.05$).

A high majority of the IMC workers (85%) agreed that maintaining hand hygiene, covering the nose and mouth while coughing, and avoiding sick patients could help to prevent COVID-19 transmission. A majority of the staff agreed to control COVID-19 through proper following of hand, Wear the effective mask for COVID-19 (N95) control entrance, It is very important to keep Social Distancing among employees and follow directions from institute posted signs as all preventive measures protect from pneumonia, respiratory failure, and death.

(84%, $p<0.05$) from staff and employees agreed that patients with COVID-19 symptoms cheered to stay at home as necessary is the great protective measures to protect others. However, (83%, $p<0.05$) from all the participants' knowledge is correct regarding donning order of the PPE to control COVID -19 transmission. Moreover, The sets of questions assess the academic and non-academic staff practices regarding infection prevention control measures

Table 1: Sociodemographic data and human rights of the IMC academic staff and employees (N=100)

Characteristics	Participants (%)
Sex	
Male	52 (52%)
Female	48 (48%)
Qualification	
Employees	51 (51%)
Academic staff in different departments	49(49%)
Number of years of experience in IMC	
Less than 3 years	23 (23%)
from 3 -6 years	61(61%)
from 7 - 10 years	16 (15%)
More than 10 years	0 (0%)
Heard and attend lectures about Novel coronavirus	
Yes	60 (60%)
No	40 (40%)
Standards of health care available for people in Academic institute similar to those in the outside community	
Yes	89 (89%)
No	8 (8%)
I don't know	3 (3%)
basic living standards detected (enough space, fresh air, light, and sanitation)	
Yes	97 (97%)
No	3 (3%)
People in an academic institute allowed at least one hour of outdoor activities per day	
Yes	52 (52%)
No	46 (46%)
Others	2 (2%)

Table 2: Perception of Academic and Employees in IMC towards COVID-19

Statements	Yes	No
COVID-19 symptoms appear in 2-14 days	86(86%)*	14 (14%)
Sick patients should share their recent travel history and information collected on recent contact with possible cases (over the previous 14 days)	55(55%)*	45(45%)
The information on travel restrictions and the emergence of symptoms provided to staff and Employees, so that they can inform the designated Infection Prevention and Control and Quality Units in the Institute	85(85%)	15(15%)*
Asymptomatic individuals prevented from visiting if they meet any of the criteria for exclusion	70(70%)*	30(30%)
Academic staff and Employees received training inside the IMC on basic COVID-19 disease	86(86%)	14(14%)*
Washing hands with soap and water can help in the prevention of COVID-19 transmission	90(90%)*	10(10%)
Employees received training on the appropriate use of Personal Protective Equipment (PPEs) but never for Academic staff	68 (68%)*	32 (70%)
the Academic staff and Employees mainly cleaning personnel received training on environmental prevention measures, including cleaning and disinfection	80(80%)	20(20 %)*

*correct answer

Table 3: Association between participants respondents' characteristics and perceptions of COVID-19

	Sex			Qualifications		
	Male (52)	Female(48)	P-Value	Staff (49)	Employees(51)	P-Value
COVID-19 symptoms appear in 2-14 days						
Yes*	45 (45%)	41%)		44(44%)	45(45%)	0.75 <0.05
No	7(7%)	77(7%)		5(5%)	6(6%)	
Washing hands with soap and water can help in the prevention of COVID-19 transmission						
Yes*	45(45%)	41 (41%)		46(46%)	42 (42%)	0.58<0.88
No	7(7%)	7(4%)		2(2%)	9(9%)	
Sick patients should share their recent travel History and information collected on recent contact with possible cases (over the previous 14 days)						
Yes*	35(35%)	20(20%)		35(35%)	20(20%)	0.84<0.05
No	17(17%)	28(28%)		14(14%)	31(31%)	
Employees received training on the appropriate Use of Personal Protective Equipment (PPEs) but never for Academic staff for COVID-19 outbreak						
Yes*	38(38%)	30(30%)		40(40%)	28(28%)	0.67<0.05
No	14(14%)	18(18%)		9(9%)	23(23%)	

Correct answers*; Significant at P<0.05

is ranged from never, rarely, sometimes, and always are illustrated in Figure 1.

Fig. 1: Assess of academic and non-academic staff practices regarding infection prevention control measures.

4. Discussion

The number of COVID-19 cases increased exponentially, peaking at 909 new infections on February 29. But the new case has dropped significantly. Corona Virus is a global topic of discussion in all media and among the community, especially among health care facilities, schools, universities, and patients. COVID-19 spread and transmission is currently mounting raising tensions for everyone, including academic medical universities and health systems, an important question arises regarding how we manage information to help frontline academic staff and employees in times of health crisis. For this reason, the researchers investigated academic staff and employees in the IMC in perceptions and knowledge of the control of the novel Corona Virus during a worldwide pandemic. Perceptions and Knowledge of COVID-19 varied across IMC workers. The present study showed positive perceptions of the control and prevention of COVID-19 spread, moreover, the study revealed that IMC both academic and employees have inadequate knowledge about COVID-19. Trusting on reliable sources is a key factor in believing transparent information about the emerging coronavirus infection and is essential for academic institutes especially the medical institutes for preparedness and response for virus spread mitigation. Presently, the massive variety of information available through the Internet, The new news can spread quickly and can misguide people. In particular, health authorities and scientists have warned that widespread misinformation about COVID-19 is very dangerous causing worldwide xenophobia.[4,14,16] In this respect, all academic institution staff and employees should wisely appraise COVID-19-related information and should use authentic and scientific content as information sources.

Most of the IMC participants had a positive perception of the prevention control of COVID-19. Nevertheless, the recognized discrepancies were in the perceptions of participants. Two third of the participants believed that the symptoms of COVID-19 appeared as early as 2 to 14 days (p<0.05). Approximately 90% of the staff believed that washing hands with soap and water can help in the prevention of COVID-19 transmission. Additionally, 70% of the participants agreed that asymptomatic individuals prevented from visiting if they meet any of the criteria for exclusion. Lastly, a massive of participants strongly agreed that maintaining hygiene activities, reporting recent travel history when individuals are sick, and decontamination of the tools used in different areas and institute laboratories are strongly recommended.

The majority of the IMC participants had inexact knowledge that COVID-19 can be treated with antiviral developed drugs. This is unsuccessful because the flow of COVID-19 is globally devastating, and resources are provided by healthcare authorities to teach academic workers and improve their knowledge about COVID-19. IMC staff and Employees confirmed that some routines and facilities allow hands to be washed with soap and

Table 4: Knowledge about Novel coronavirus among IMC academic and employees (n= 100)

Questions	Staff (n=48)	Employees (n=52)	Total Correct responses	P-value
IMC staff and Employees confirmed that some routines and facilities allow hands to be washed with soap and water and alcohol sanitizer are available in the area for COVID-19	40(83.33%)	46(88.5%)	86(86%)	<0.05
Hand hygiene, covering nose and mouth while Coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission.	40(83.33%)	45(86.5%)	85(85%)	<0.05
Staff and employees agreed that patients with COVID-19 symptoms cheered to stay at home as necessary	39(81.25%)	45(86.5%)	84(84%	<0.05
COVID-19 leads to pneumonia, respiratory failure, and death	39(81.25%)	45(86.5%)	84(84%	<0.05
Donning order of the PPE to control COVID -19 transmissions.	40(83.33%)	43(82.69%)	83(83%)	<0.05

water and alcohol sanitizer are available in the area for COVID-19 ($p<0.05$). Therefore, our findings were unsatisfactory. Greater encouragement from authorities in academic medical institute and infection prevention control authorized personnel is needed to assimilate COVID-19-related knowledge among academics and employees in the institute.

5. Conclusion

The study revealed a significant gap in the source of information, unfortunate knowledge levels, and discrepancies in perceptions of COVID-19 among participants. As the global threat of COVID-19 continues to emerge, Educational efforts through that target all academic staff and employees and the population beyond borders are targeted.

5.1. The preparedness and mitigation guidelines are as the following;

1. Review emergency preparedness and response plans, legal framework, and regulatory requirements for providing health services to academic institute's workers, visitors, and students against infection by COVID-19.
2. The academic institute should be assessed for readiness, policy, response capacity, and protocols using the readiness checklist prepared by WHO for COVID-19.
3. Accelerate progress towards achieving health coverage to all suspected and infected academic workers that can be ensured by providing free testing and referrals as an emergency procedure.
4. Improve preparedness to public health crises, and adapt all-hazards approach in prioritizing the preparedness, prevention, and control of COVID-19 for all academics and employees. This should ensure comprehensive risk management.
5. Strengthen partnerships as well as interagency coordination, as part of the overall COVID-19 response. Coordination of workers' community networks with local authorities should be strengthened.
6. Prevent human-to-human transmission and reduce high morbidity and mortality from COVID-19 among academic workers while rapid and effective responses are essential for saving lives, relieving suffering, and reducing further spread of the virus. Guidance on critical preparedness, readiness, and response actions for COVID19.
7. Train and mobilize staff and employees in case management and infection prevention and control measures at the institute, Operative plans should be developed and implemented for observing workers directly exposed to COVID-19 infection,
8. Infection prevention and control guidance and online training are offered. Workers reacting to COVID19 should be alert of gender-based risk mitigation,
9. Strengthen community hygiene, Community efforts to advance access to clean safe water, sanitation, and waste management, and to promote good hygiene measures should be supported. Water sanitation guidance hygiene and waste management for COVID-19[17].
10. Increase community health for the immigration of health staff. Priority locations should be identified for the implementation of public health emergency measures including the provision of essential services such as safe water and handwashing and sanitation

facilities. 10. Reinforce, develop, and implement occupational health and safety measures. Workers

11. Should have equal access to support and services in the workplace including personal protective equipment as well as to COVID-19 prevention, and care protection. This should include sick leave for occupationally acquired infections.
12. Strengthen protection systems for all concerned populations. Effective communication regarding health and safety in the workplace and the community, including between employers and workers organizations.

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8. Conflict of Interest

None.

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