

Knowledge and Attitude of Doctors Working in Pediatric Department towards Covid-19: A Multicenter Survey from Lahore, Pakistan

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Abstract

Background and Objective: The world has changed dramatically over the first three months of 2020. Children of all ages can get COVID-19, although they appear to be affected less commonly than adults. This study was conducted to assess knowledge and attitude of doctors working in pediatrics towards COVID-19.

Methods: This was an online self-administered and pretested questionnaire based survey of doctors working in pediatric departments of various public sector and private hospitals of Lahore, Pakistan from May 8, 2020 to May 20, 2020 to assess knowledge and attitude of the participant doctors. Calculated sample size was 278 however 284 respondents were included in final analysis. The questionnaire was circulated as "Google Form" with link distribution through WhatsApp. The data was analyzed on SPSS v.20. More than 70% correct responses by each participant on knowledge and attitude scores separately were considered adequate. Triage was done based on age range and level of experience of the respondents. Chi Square test was employed to check significant differences between the groups where a p value of < 0.05 was considered to be significant.

Results: The average age of the participants was 40.6 years (+12.4) with female to male ratio of 0.88:1. Generally, knowledge and attitude scores were adequate however the cohort was found to be lacking in the questions regarding hand hygiene, composition of sanitizers, breast feeding, vertical transmission and indications of N95 mask. The deficiency of knowledge and attitude did not seem to depend upon the level of experience or the gender of the participants.

Conclusion: Knowledge and attitude of doctors working in various pediatric departments regarding COVID-19 was adequate however evolution of educational strategies and campaigns at institutional and national level seem to be need of the hour.

Keywords: 2019 Novel Coronavirus Disease; COVID19; COVID-19 Pandemic; Pediatrics

Abbreviations

SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus-2; PHEIC: Public Health Emergency of International Concern; WHO: World Health Organization; MERS-Co V: Middle East Respiratory Syndrome-Coronavirus; SARS-Co V: Severe Acute Respiratory Syndrome-Coro-

navirus; CDC: Center of Disease Control and Prevention; RCOG: Royal College of Obstetricians and Gynecologists; PPE: Personal Protective Equipment

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) also previously known as 2019-nCoV. The outbreak started in December 2019 in Wuhan, China from where it spread globally. It was declared a public health emergency of international concern (PHEIC) by World Health Organization (WHO) on January 30, 2020 and a global pandemic on March 11, 2020 [1,2]. In February 2020, the World Health Organization designated the disease COVID-19, which stands for coronavirus disease 2019 [3].

Coronaviruses are enveloped, positive single-stranded large RNA viruses that not only infect humans, but also a wide range of animals. Due to the presence of projections on their surface, which resembles solar corona, the virus was named as coronavirus (Latin corona=crown) [4]. The previous outbreaks of coronaviruses (Severe Acute Respiratory Syndrome-Coronavirus (SARS-Co V) in 2003 and Middle East Respiratory Syndrome-Coronavirus (MERS-Co V) in 2015 were well reported [5,6]. The understanding of the spectrum of COVID-19 is limited in children due to less number of cases and milder nature of the disease as compared to adults [7]. Relatively few cases have been seen in children thus far. Initial reports from China reported the incidence to be around 2.4% in those under 19 years of age [8]. Similar trends around 1.7% have been observed in the United States [9].

Corona virus has an incubation period between 2 - 14 days with a mean of 5 days [10,11]. Most of the children are asymptomatic carriers. Symptomatic children show typical symptoms of fever, cough and runny nose. Abdominal pain, vomiting and diarrhea have been shown by 10% of symptomatic children [12]. Children who are immunocompromised with comorbid conditions like cystic fibrosis, asthma, malignancy are at increased risk of infection [13,14].

The consequences of a COVID-19 infection during pregnancy are uncertain; to date there is no evidence of vertical transmission [15] except for a few case reports that recently suggested evidence of IgM for SARS-COV-2 in neonatal serum at birth [16,17]. There is no information to date to suggest COVID-19 is teratogenic or has long-term implication for fetal/neonatal health. COVID-19 positive mothers can breast feed their babies with precautions as per recommendations [18].

Person-to-person close contact (within 6 feet) with infected people via respiratory droplets (coughs or sneezes) or contact with an infected surface has been postulated to be the main mode of spread [19]. Hence as recommended by WHO social distancing, handwashing for at least 20 seconds is the most reliable means of prevention. Alternatively, hand sanitizers containing at least 60% alcohol should be used [20,21]. Trials are being conducted for effective vaccination against COVID-19 but till date no vaccination has been approved yet [22].

Doctors working in pediatrics are also playing their role in this war against the pandemic. This study was carried out to assess the knowledge and attitude of doctors working in pediatric inpatient settings in public sector and private hospitals of Lahore, Pakistan regarding the current pandemic of COVID-19 so that educational strategies can be updated and organized to control COVID-19 pandemic.

Material and Methods

This was a questionnaire based survey of doctors working in pediatric departments of various public sector and private hospitals of Lahore, Pakistan from May 8, 2020 to May 20, 2020 to assess knowledge and attitude of the participant doctors regarding the current pandemic of COVID-19. A sample size of 278 was calculated however 284 respondents were included in final analysis. Sample size was calculated using Raosoft Software (available at: http://www.raosoft.com/sample_size.html) keeping the presumed population of pediatricians in Lahore to be 1000 with a response distribution of 50%, margin of error 5% and confidence level of 95%.

A specialized survey form based on the current knowledge of COVID-19 was designed after careful deliberation and extensive literature review by all the pediatric teaching faculty at the primary site. Further modification was done keeping in view the information available at the World Health Organization site [23]. After an initial draft of the questionnaire was designed, it was validated in 2 steps. Firstly, the questionnaire was sent to researchers with medical background to give their expert opinion with respect to its simplicity, content and importance. Secondly, a pilot study was conducted by selecting a small sample of doctors working in pediatric department (n = 10). Participants from both public sector and private hospitals were selected for the pilot study. Amendments from the participants were considered and integrated into the questionnaire if these were in line with the published literature. Finally, the study and questionnaire were reviewed and approved by the institutional review board of Services Institute of Medical Sciences, Lahore, Pakistan on May 8, 2020 after which the questionnaire was circulated along with informed consent as "Google Form®" with link distribution through the communication platform WhatsApp®. 284 respondents were included in final analysis.

The data was analyzed on SPSS v.20. Means and standard deviations were calculated for quantitative variables and frequencies and percentages were calculated for qualitative variables. More than 70% correct responses by each participant on knowledge and attitude scores separately were considered optimal [24]. Triage was done based on age range and level of experience of the respondents. Chi Square test was employed to check significant differences between the groups where a p value of <0.05 was considered to be significant.

Results

Total number of responses were 290 however 6 responses were discarded because of incomplete questionnaire, hence 284 respondents were included in final analysis. The average age was 40.6 years (+12.4) with female to male ratio of 0.88:1. Of these 284 responders, 169 (59.2%) had less than 3 year experience, 60 (21.1%) with 3 - 6 year, 31 (10.9%) 7 - 10 year and 25 (8.8%) more than 10 year (Figure 1). 133 (46.6%) were females.

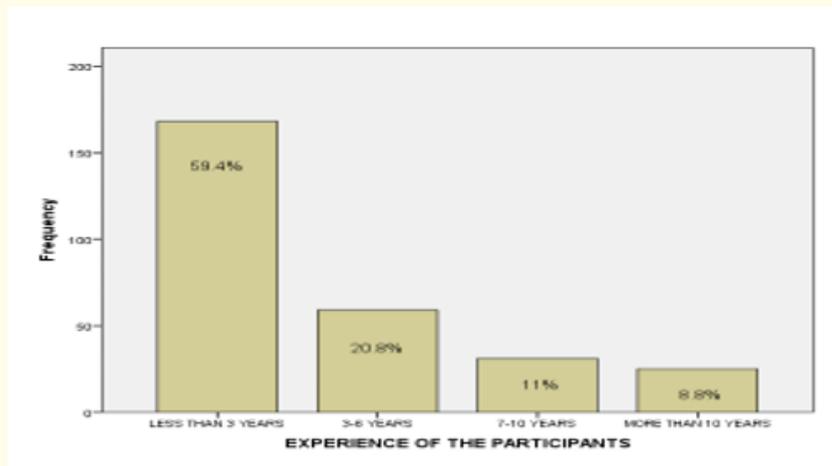


Figure 1: Distribution of cohort based on experience showing most participants were young pediatricians.

The social media was considered to be main source of information by vast majority (76.1%) followed by peer or work colleagues (57.4%), TV (45.1%) and medical journals (35.2%). medical seminar and webinars were also considered main source of information by

30.3% of the workers, while newspapers and poster/pamphlet were considered by only 10.9% and 8.1% of doctors as source of information regarding COVID-19.

Generally, the pediatric doctors had good knowledge about COVID-19. However, 15.1% were not able to identify diarrhea, vomiting and abdominal pain as symptoms of COVID-19, 12.3% were not able to understand the SARS-CoV-2 as its cause, 11.6% were not aware whether antibiotic can be or cannot be used as first line treatment, a good majority 33.5% were unaware of intrauterine transmission of virus while 57.5% of the doctors were not aware of the correct minimum concentration of alcohol required in sanitizers (Table 1).

	Answered Correctly (%)	Answered Wrongly (%)
COVID-19 is caused by SARS-Co V- 2	87.7	12.3
Incubation time for virus is 2-14 days	96.5	3.5
Fever, cough and runny nose are symptoms of COVID-19	91.5	8.5
Diarrhea, vomiting and abdominal pain can be the symptoms	84.9	15.1
COVID-19 patients can develop severe acute respiratory illness	98.9	1.1
Immunosuppressed/low immunity patients are more likely to be severely infected	99.6	0.4
Social distancing (person to person distance >6 feet) can prevent spread of infection.	98.6	1.4
Washing hand with soap and water for at least 20 secs can help in prevention of transmission of disease	98.9	1.1
Hand sanitizer should contain at least 40 % alcohol	42.6	57.4
Vaccination of COVID-19 virus is available in market	97.5	2.5
Polymerase Chain Reaction (PCR) is used to diagnose COVID-19.	97.9	2.1
Antibiotics are first line treatment	88.4	11.6
COVID-19 can be fatal.	97.5	2.5
There is evidence of intrauterine transmission/mother to fetus transmission	66.5	33.5
COVID-19 positive mothers can breast feed their newborns with proper pre-cautions	78.9	21.1

Table 1: Response of doctors to the question presenting their knowledge on COVID-19.

As regards attitude, 12.7% reportedly were not afraid of getting infected and 5.6% were not afraid even if they were a potential carrier to their family members. On the other hand 22.5% of doctors were of the opinion that N95 should be used generally while in contact with infected patients. Around 3.5% were not eager to get vaccinated if the vaccine becomes available (Table 2).

	Yes (%)	No (%)
Transmission can be prevented by using universal precautions given by Government of Pakistan, American Academy of Pediatrics, World Health Organization etc.	97.5	2.5
COVID-19 patients should be kept in isolation	98.2	1.8
Doctors must obtain all the information about COVID-19	98.9	1.1
As a doctor, are you afraid that you will probably become infected	87.3	12.7
As a doctor are you worried that one of your family members might get infected because of you?	94.4	5.6
Once a COVID 19 vaccine becomes available, will you get vaccinated?	96.5	3.5
Respirator N 95 is only to be used when providing direct care to COVID-19 patients in setting where aerosol generating procedures (intubation /CPR etc.) are used.	77.8	22.2

Table 2: Response of doctors to the question presenting their Attitude towards COVID-19.

When compared the highest knowledge score (> 90%) was observed among doctors with 3 - 6 year experience (62%), and among those with more than 10 year experience (60%). The highest score category for attitude was most prevalent in both 3 - 6 year and 7 - 10 year experience groups with more than 70% of cases. The knowledge and attitude score varied among categories with experience though insignificantly different (p: 0.1). But the variation in attitude score with change in experience was clearly insignificant (p: 0.640) (Figure 2). The knowledge and attitude scores though varied among two genders but were found insignificant (p: 0.198 and 0.183 respectively) (Figure 2).

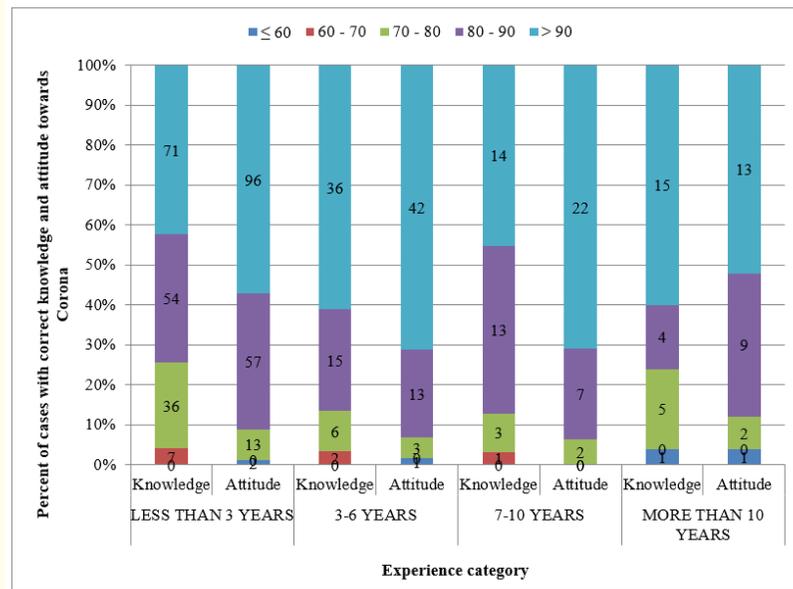


Figure 2: Comparison of knowledge and attitude scores among doctors with increasing experience levels.

Discussion

The outbreak of coronavirus disease has created a global health crisis. Research is being carried out throughout the world to fight this pandemic. Our survey revealed that source of information for the majority of doctors was social media (76.1%), rightly so as most of the information was being circulated through social media. Social media (Facebook, WhatsApp and Twitter) can be a two-edged sword since a number of unproven theories are also being circulated through it at an alarming rate. The optimistic side of the picture is that it could prove useful at a time when many of us are isolated from one another. A global survey conducted in March 2020 showed that there was a remarkable increase in internet consumption around the world with 35 percent of total respondents professing to have read more books or listened to more audiobooks at home and 18 percent having listened to more radio due to the COVID-19 pandemic, whilst more than 40 percent of consumers spent longer on messaging services and social media [25]. 57.4% of the respondents considered peers and colleagues to be their main source of information.

As per recommendations of Center of Disease Control and Prevention (CDC) and World Health Organization (WHO), handwashing for 20 seconds with soap and water is the best way to prevent spread of this infection. Alternatively, hand sanitizers can be used which should contain at least 60% alcohol. Sanitizers with an alcohol concentration between 60–95% are more effective at killing of microorganisms than those with a lower alcohol concentration or non-alcohol-based hand sanitizers [20,21]. In our study only 42.9% of participants had

adequate knowledge regarding these recommendations which is quite alarming. This emphasizes the need of better awareness programs regarding hand hygiene and use of effective hand sanitizers among doctors.

Doctors working in pediatric department are bound to encounter neonates born to COVID-19 positive mothers. As per information available at the time of the collection of data there was no evidence of intrauterine transfer or vertical transmission of corona virus and amniotic fluid, cord blood, neonatal throat swabs, placenta swabs, genital fluid and breastmilk samples from COVID-19 infected mothers were found to be negative for the virus [15]. However a few case reports since then suggest that vertical transmission is possible, although the proportion of pregnancies affected and the significance to the neonate has yet to be determined. Two reports have published evidence of IgM for SARS-COV-2 in neonatal serum at birth [16,17]. Since IgM does not cross the placenta, this is likely to represent a neonatal immune response to in utero infection.

In our survey 33.5% of participants were of the view that it is vertically transmitted. This view in favor of vertical transmission might be due to isolated case reports suggesting so, otherwise the consensus till date is that there is inadequate evidence suggesting vertical transmission. The lack of knowledge regarding the vertical transmission suggests that there is a need for further research and education for this aspect of current pandemic.

According to guidelines issued by Royal College of Obstetricians and Gynecologists (RCOG) on April 3 2020, mothers can safely breast feed their babies provided all precautions are taken [18]. As stated in the guidelines there was no evidence of COVID-19 in breast milk according to Chinese data. In our survey only 79.2% of the participants offered correct response to this question which is adequate knowledge however there is still a room for further education and training in this aspect.

Personal Protective Equipment (PPE) and its shortage all over the world has been of concern since the advent of this pandemic. It is of utmost importance that healthcare workers are not only provided adequate supplies of PPE but they should also should know when and how to use PPE. At the time of writing this article World Health Organization recommends using N 95 respirator by health professionals who are providing direct care to COVID-19 patients in settings where aerosol generating procedures are frequently done [26]. Rational use of N 95 masks and adequate knowledge and attitude regarding its use is of paramount importance to deal with its shortage globally. In our survey 77% doctors had adequate knowledge regarding its rational use which necessitates further educational training and awareness programs at institutional and national level.

Conclusion

Knowledge and attitude of doctors working in various pediatric departments regarding COVID-19 was adequate however there are certain aspects like hand hygiene, use of effective hand sanitizers and appropriate use of personal protective equipment (PPE) that need to be addressed. Doctors working in pediatric department need to keep themselves updated with ongoing research about vertical transmission and breast feeding practices. Educational strategies and campaigns at institutional and national level are need of the hour.

Conflict of Interest

The authors declare no conflict of interest.

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