

The circlet effects of Covid-19 pandemic and major crisis faced by developing nation: Now and beyond

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Abstract: COVID-19 has taken over the world as the largest viral outbreak in the past 100 years. With over 13 million confirmed cases and 0.5 million-plus people dead, it has affected the life around us. With Pakistan being amongst the top 15 countries affected by it, the government of Pakistan has started vaccination, issued SOPs on daily life and smart lockdown continues in the country, but a part of this activity developing countries are still facing even greater difficulties in handling this crisis. This paper was designed to evaluate the status of scientific literature available on Covid-19 pandemic and to relate this situation from Pakistan perspective. A detailed review of published literature was conducted from March 2020 to August 2020. Covid-19, pandemic, Pakistan, healthcare setup, psychological impact, educational activities and challenges SOPs were utilized as key vocabulary. Miscellaneous searching tools including, Science Direct, Embase, PubMed, Google Scholar and Covid-19 portal from Government of Pakistan were visited for relevant information. A total of 30 research commentaries, articles, opinions and editorial letters were selected based on the required information. This article discusses the effects of COVID-19 on society and focus on SOPs introduced and their effects on the physical and mental health of the general public.

Keywords: Pandemic, depression, COVID 19, GDP, deaths, socioeconomic issues.

INTRODUCTION

The Corona Virus (COVID-19) has been a severe reality in the recent past. It has altered the lives of millions around the world and continues to do so. After the initial period of panic, scientists and researchers started to realize that COVID-19 is here to stay and we might have to live with it for a longer duration than initially anticipated.

With an ever-rising number of reported cases, active cases and deaths, the pandemic has created havoc over the entire world. Pakistan has also been amongst the highly effected countries which are currently at 31st position in the world with respect to total cases. In earlier months of 2020, Pakistan was ranked as high as 12 overall. Considering the high numbers, it would be better to break them down and study them further (fig. 1).

As of July 15, 2020: 257,914 confirmed cases have been reported throughout Pakistan. Out of confirmed cases 73,751 cases are active, 5,426 people have died and 178,737 have recovered. Due to such spread of COVID-19, Pakistan has become the one top most affected country throughout the world.

As the number of COVID-19 positive cases is very high in Pakistan, a further research was granted considering which gender with respect to age is the most affected one (fig. 2). Males between 40 to 69 years (43%) and females

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between 40 to 49 (11%) years of age are the most affected age brackets (Sarwar *et al.*, 2020). The Health Ministries of various countries developed different SOPs (Standard Operating Procedures) to cope with the pandemic in the start of 2020. Since the transmission of this virus is via droplets expelled during cough, sneezes or strong exhales, it is difficult to control the spread of the virus (Yu and Yang, 2020). Initial SOPs introduced as preventive measures were Washing hands with alcohol based hand rub, wearing face masks, social distancing and the use of disinfectants during commute or other outdoor activities (Organization, 2020). As these SOPs contradicted the regular lifestyles, they soon started affecting people. The major effects observed were psychological impact it had on staying in one place for long periods, which is unnatural for human beings. People usually spent their time on their couches, beds, or sofas while staying home. This resulted in laziness, gaining weight, non-structured routines, low spans of concentration and boredom. Increased screen time, mostly related to the spread and deaths due to COVID-19 reflected as depression in elderly. Children who had a routine of going to school along with outdoor activities were succumbed to staying at home and exposed to a lot of screen time, be it mobile phones or television for entertainment, added to multiple disorder scenarios in children. So the overall health side effects are observed to be devastating (Waris *et al.*, 2020).

While COVID-19 affected people mentally, it didn't only stop there. Restrictions on commuting freely didn't help large and small businesses along with daily wage

workers. Besides Hospitals, Medical Services, Pharma, IT, and Online Banking, almost all other industries were heavily affected thus creating severe economic problems. Out of large commercial institutions, Education was the most affected one. Schools, Colleges and Universities were closed for a brief period and then they shifted to online methods of education (Wenham *et al.*, 2020). As the educational system was not prepared on how to handle the situation, which further added to the health problems, especially when children were introduced to 4 or more hours of online education.

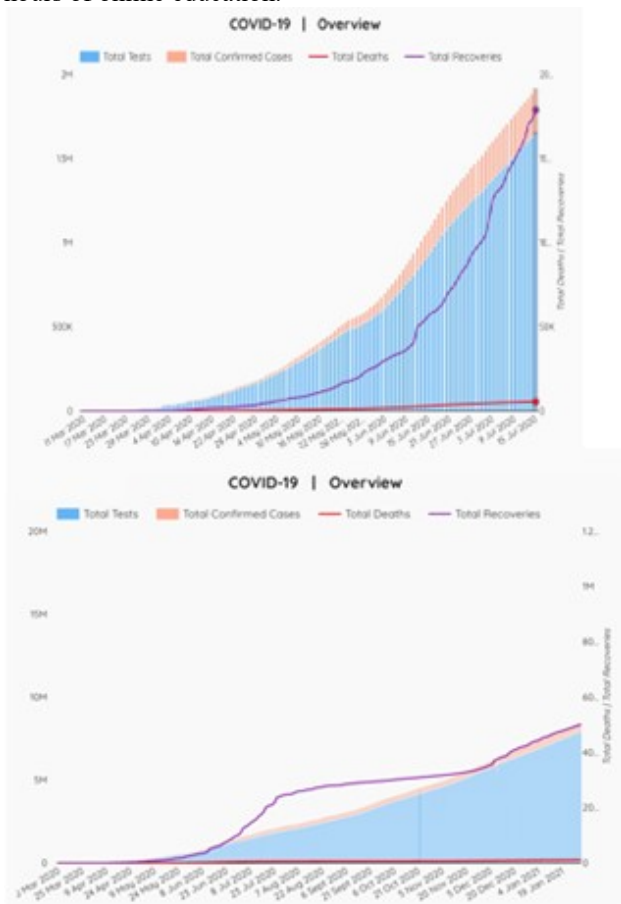


Fig. 1: Overview of Total Tests, Confirmed Cases, Deaths & Recoveries. Source: Government of Pakistan.

The situation is only going to get worse moving forward as prolonged isolation will be adding to side effects in elderly unless their routines are not modified to sustain this new lifestyle. We would have to be particularly careful about children as longer screen times in early years may lead to ADHD, Autism, or similar disorders (Ceravolo *et al.*, 2020). New solutions for daily wage workers and discontinued job opportunities would also need to be implemented so livelihood of lower SEC classes can also be restored. Private philanthropist organizations are providing support but they are also operating proper SOPs provided by WHO. The spread of the Coronavirus, its mortality rate, and the disease itself

are not the only effects of this pandemic. Based on the current situation, the future can be predicted on calculated assumptions. The issues in focus are psychological effects, impact on healthcare systems and education system. After shedding some light on these, we will gain an idea of how to understand this situation better and work on the improvements of SOPs for the future.

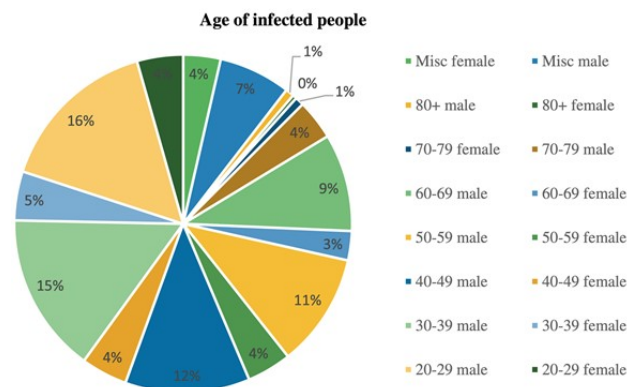


Fig. 2: Gender and Age wise distribution of COVID-19 in Pakistan. Source: Government of Pakistan.



Fig. 3: Factors causing Depression in COVID-19

MATERIALS AND METHODS

An analysis of the article was conducted from March 2020 to August 2020. The articles related to the three parameters are included in this study, which are psychological effects, impact on healthcare system and economical effect. The searching criteria for psychological effect were all the keywords related to the problems like anxiety, depression in Covid19. The strategy adopted for healthcare effects and economical effects were also the keywords related to the topic for searching and also the current data is collected from government websites. The search engines were google

scholar, PubMed, Science Direct, Medline and Embase. The comparison data is also collected from different articles of developed and under developed countries. All related data is maintained in MS Excel sheets.

Psychological effects

The new-normal and working conditions induced on daily lives of people after the emergence of COVID-19 viral disease, allowed multiple psychological issues to creep in. They are affecting adults and children in different ways which might prove to be severe issues if not controlled or handled properly. Social distancing was one of the first SOPs introduced. As Pakistan is a collectivistic society, poor implementation of social distancing had more consequences than the problems it was supposed to solve. People went into worried ness, nervousness, demotion, prejudice, stigma, and panic. (Mukhtar, 2020a)

Healthcare professionals are facing multiple issues due to a lack of seriousness in the adaptation of SOPs. Staying with effected patients for long periods, watching their conditions worsen and eventual deaths are intensifying sadness, weariness and burnouts. It is also creating fear in medical professionals that no matter how carefully they follow the SOPs, the increasing volume of reported cases will eventually put their well-beings at stake. This situation is also creating emotional distress and general prosperity issues especially in doctors and nursing staff. (Rana et al., 2020, Mukhtar, 2020b)

Constant bombardment from media and social media outlets regarding COVID-19 is an increased burden. Since families are spending most of their time consuming information from various TV channels and social media, constant corona watch streams are proving to be a big factor in depression and panic attacks. Some important factors are summarized in fig. 3. As the isolation period is extending, we will likely observe more cases of depression and anxiety. As per statistics, these issues will affect adult females more as they are already more prone to such episodes. (Latif et al., 2020) OCD (Obsessive Compulsive Disorder) and Panic Disorder patients attacks are being observed more than normal, due to self-isolation. As this situation moves forward, it will add to an already critical situation for these patients. (Hamza Shuja et al., 2020) Moreover, one more study is noted which declares 19 suicidal cases in this pandemic and half of them are because of lockdown related economic recession and other half is due to the fear of getting the infection and unemployment. (Mamun and Ullah, 2020) All these studies and researches indicate that Pakistan require an adequate system to support basic needs of its people. Also making detailed SOPs considering various illness scenarios so that people can cope up with the new-normal in this pandemic. If good measures are not taken, then the number of psychological issues will increase, which will further make the conditions much worse.

Comparison of psychological effects in developed and under developed countries

It was observed during this study that psychological effects were more or less same in developed and under developed countries despite of the fact that developed countries have better medical facilities and advance counselling support available. The fear and insecurity in the population of developed countries are greater as compared to under developed countries.

A comparison between Italy, China and USA shows similar results. In Italy, an online survey was conducted in March 18 to 22, 2020. 2,766 people participated in the survey. It was observed that females with detachment and negative affect were associated with higher level of depression and anxiety. Along with that, people who had an acquaintance infected were also found associated with depression and anxiety. In USA, a similar study was conducted online with 300 people, out of which 24.8% people were found associated with depression and anxiety. In China, an online survey among 1,210 people from 194 cities yielded that 28.8% people were suffering from medium to severe anxiety issues with 16.5% reported to have depression issues. In Karachi 19 suicide cases were reported in March 18 to April 27, 2020. 15 cases were reported around depression which was mainly due to economic recession whereas 4 cases were reported due to fear of infection (Wang et al., 2020, Li et al., 2020, Rosen et al., 2020). It was observed in the year 2021 that women who were not previously diagnosed with depression or anxiety are now taking medicines and therapies for depression. Based on the data collected, it was observed that the post COVID conditions are affecting 67.5% of women. (Ustun, 2021)

Impact on healthcare system

With an already mediocre healthcare system in place, Pakistan was bound to have severe consequences in the viral outbreak scenario. There are very few hospitals available per capita. These hospitals are also less equipped and under-resourced to handle a pandemic of this scale. There are few private hospitals following proper protocols but due to scarce resources (beds, infrastructure and ventilators) they are extremely expensive for general public.

One of the studies revealed that, in Pakistan our frontline workers and healthcare professionals are unaware of the depth of this pandemic and are not fully prepared for COVID-19. The numbers are amazing to analyze the situation, 52.63% of government hospitals are unaware on how to deal with the patients in this pandemic (Khan et al., 2020).

Under already miserable conditions, it is extra difficult for medical staff to treat patients and keep themselves protected as well. The SOPs were introduced, but most

hospitals lack basic equipment such as masks, protective gear, and measures necessary to manage quarantine. Medical staff working under such conditions is dealing with a lot of mental stress for their well-being (Urooj *et al.*, 2020). Data in researches done on transmission of COVID-19 also reveals that a person infected with this virus (with or without symptoms) can transfer it to at least two on more people on average (Emanuel *et al.*, 2020). The burden on the worldwide social insurance workforce keeps on increasing. This burden takes 2 structures. The first is the conceivably overpowering burden of ailments that burdens wellbeing framework limit and the second is the unfavorable consequences for medicinal services laborers, including the danger of contamination, this is increasing with time and will be a major issue in future (Adams and Walls, 2020). Availability of masks, sanitizers and disinfectant sprays is another major issue which is not taken seriously while implementing SOPs. This will add to problems in the future if not resolved with adequate measures. ECDC (European Centre for Disease and Prevention) recommends the use of N95 face masks, while the World Health Organization and the Public Health Agency of Canada recommend medical masks (Bartoszko *et al.*, 2020).

It is also reported that our health care workers are at high risk of this infection and almost 85% health care professionals are exposed to this pandemic while treating patients and despite taking all the necessary preventive measures, many new cases are reported daily. If more strict measures are not implemented soon then this number will increase further (Ng *et al.*, 2020). These studies prove that we should seriously think about our healthcare system and make policies for its improvement otherwise the future will have grave consequences. We will face a shortage of preventive equipment and medical staff if proper measures are not taken immediately.

Comparison of healthcare system in developed and under developed countries

Different countries adapted to different type of testing strategies based on facilities available and total population they had to deal with. We can compare countries based on the testing done and total reported cases. Up till August 19, 2020 USA reported 68.94 million including non-PCR (Population: 382.2 million) tests done with 5.57 million confirmed cases which is 18.03% of their population. Italy reported 4.55 million (Population: 60.36 million) tests done with 256,118 confirmed cases which is 7.53% of their population. India reported 32.66 million (Population: 1.366 billion) tests done with 2.91 million confirmed cases which is 2.39 of their population. Pakistan reported 2.34 million (Population: 216.5 million) tests done with 291,588 confirmed cases which is 1.08% of their population.

This shows that Pakistan's healthcare system lacked severely in testing a significant number of people as per

their population due to a poor strategy, resources and infrastructure. Cohort testing was being done instead of mass testing strategy which resulted in very low percentage of population testing.

Economic effects

The COVID-19 pandemic is being considered an equivalent of the economic situation during World War II. Businesses are reducing workforces, optimizing supply chains, and other optimizations to stabilize revenues and profits. This is causing jobs to be lost and people are suffering further with fewer opportunities. In an attempt to study the devastating effects of COVID-19 on the economic infrastructure it was observed that this negative effect was majorly brought in by the education system that affected GDP of Pakistan very badly (Nicola *et al.*, 2020).

With Pakistan moving towards a downward curve in economic growth, it is predicted that our GDP growth will be around 3.5% this year. 2020 was already impacted by this situation, we recorded a GDP of 0.5% which is considerably low than previous years. It is not only Pakistan but the entire world that is suffering a significant hit on their GDP. Lockdowns and closure of the educational system with its facilities have partly participated in bringing the economy down (Rasheed *et al.*, 2021).

Education System

Education Systems are the most affected by this pandemic. With all levels of educational institutions closed or partially operational online, has crippled the entire system. Various policies have been introduced by different boards responsible for controlling the system. The majority of the education systems around the world have tried shifting to online learning management systems such as Google Classroom. For universities some disciplines do not require physical presence, online classes have worked better. In other areas like in teaching skills, online methods haven't performed well. Practices such as medicine and applied sciences have suffered badly. As these practices require very strict checking mechanisms to vet the knowledge of the students, online mediums lack in this area. Also, online studies reduce field related psychomotor skills of students. Computer education and media science studies have thrived in this situation. (Sintema, 2020, Goh and Sandars, 2020, Rose, 2020).

Considering the use of online methods in colleges and the school have had adverse effects. Children under 7 have found it difficult to concentrate while using devices for longer periods (Westby, 2018). Excessive usage of devices already created problems in children such as Autism and ADHD. Usage of online teaching has an added disadvantage, as students were already using material which was found on various online websites and other

streaming services, therefore they lack interest in taking online classes from school and university systems. Some teachers who don't have sufficient hands-on experiences with computers are also on the losing side of this battle. Quite a few teachers have lost jobs due to this scenario. On the other hand, students who are not inclined towards tech and online activities are also suffering. Moving forward if better SOPs are not adopted, the entire education system will face devastating consequences.

Comparison of effects of education systems in developed and under developed countries

Education Systems around the world were amongst the most affect systems by this pandemic. Education facilities, teaching staff along with students all faced difficulties adapting to post outbreak period. UNESCO has estimated that 900 million students will be affected by this situation globally (Chick *et al.*, 2020). Also, there will be a huge impact on teaching jobs.

In Europe a study conducted yielded that 6-9% children neither had access to internet nor a suitable place to do homework. Also 5% didn't have access to any books or educational material at all. In USA, a similar study revealed that 5% of students didn't have a stable residence. In Pakistan a survey amongst 100 post graduate students was done in which 78 students agreed audio video quality required to conduct online classes required was of poor quality. 80 students agreed that face to face learning was better (Schwartz *et al.*, 2020, Shahzad, 2020).

RECOMMENDATIONS

The development of vaccines and provision of related information is now an ongoing process. The initial trials of multiple forms of vaccines are found to be effective in order to combat the threateningly severe illness, and may be considered as a vital factor that may avert influencing rates of mortality and intern decrease the pressure on healthcare systems. But still process of facts are under investigation, which will be ruled out over the long span of time, to demonstrate the efficacy of these vaccines in controlling the existing pandemic. However now it has been recommended around the globe to get vaccinated completely as a primary measure of prevention.

Strict SOPs should be followed while going outdoors, working in offices, or meeting people in general. The use of local government departments to ensure the implementation and regulation of SOPs is still vital. If we can ensure proper SOPs with vaccination, we can live with COVID and eventually defeat the negative effects of it now and in the future.

CONCLUSION

In the evidence of shared researches and views, the current SOPs are immature and will need to evolve

quickly. The aftermath of the first wave were devastating, pushing Pakistan in top 10 of the effected countries. If SOPs implemented are not fine-tuned based on existing data, the already worse condition is headed towards an even deadlier future. Moreover, as numerous re-infection cases are reported in different regions of the world, the second and third episodes of COVID-19 are still a threat for developing nations that are in phase of recovery from initial incidence. Government of Pakistan should take a focus on economic and mental health management system, Early and timely interventions may stave off economic and mental health crisis. It is high need of time to relook into healthcare and economic reforms to battle these challenges in effective management of post corona trauma.

REFERENCES

- Adams JG and Walls RM (2020). Supporting the health care workforce during the covid-19 global epidemic. *JAMA.*, **323**: 1439-1440.
- Bartoszko JJ, Farooqi MAM, Alhazzani W and Loeb M (2020). Medical masks vs N95 respirators for preventing covid-19 in healthcare workers: A systematic review and meta-analysis of randomized trials. *Influenza Other. Respir. Viruses* **14**(4): 365-373.
- Ceravolo MG, De Sire A, Andrenelli E, Negrini F and Negrini S (2020). Systematic rapid "living" review on rehabilitation needs due to covid-19: Update To March 31st 2020. *Eur. J. Phys. Rehabil. Med.*, **56**(3): 347-353
- Chick RC, Clifton GT, Peace KM, Propper BW, Hale DF, Alseidi AA and Vreeland TJ (2020). Using technology to maintain the education of residents during the covid-19 pandemic. *J. Surg. Educ.*, **77**(4): 729-732.
- Emanuel EJ, Persad G, Upshur R, Thome B, Parker M, Glickman A, Zhang C, Boyle C, Smith M and Phillips JP (2020). Fair allocation of scarce medical resources in the time of covid-19. *Mass Medical Soc.*, 2049-2055.
- Goh PS and Sandars J (2020). A vision of the use of technology in medical education after the covid-19 pandemic. *Mededpublish*, **9**: 244-249.
- Hamza Shuja K, Aqeel M, Jaffar A and Ahmed A (2020). Covid-19 Pandemic And Impending Global Mental Health Implications. *Psychiatry Danubina.*, **32**: 32-35.
- Khan S, Khan M, Maqsood K, Hussain T and Zeeshan M (2020). Is Pakistan Prepared For The Covid-19 Epidemic? A questionnaire-based survey. *J. Virol.*, **92**(7): 824-832.
- Latif F, Bashir MF and Komal B (2020). Role of electronic media in mitigating the psychological impacts of novel coronavirus (COVID-19). *Psychiatry Res.*, **289**: 113041.
- Li S, Wang Y, Xue J, Zhao N and Zhu T (2020). The impact of covid-19 epidemic declaration on psychological consequences: A study on active Weibo Users. *Int. J. Environ. Res. Public Health.*, **17**(6): 2032.

- Mamun MA and Ullah I (2020). Covid-19 suicides in Pakistan, dying off not covid-19 fear but poverty? The forthcoming economic challenges for a developing country. *Brain Behav. Immun.*, **87**: 163-169.
- Mukhtar MS (2020a). Mental health and psychosocial aspects of coronavirus outbreak in Pakistan: Psychological intervention for public mental health crisis. *Asian J. Psychiatr.*, 102069.
- Mukhtar S (2020b). Mental health and emotional impact of covid-19: Applying health belief model for medical staff to general public of Pakistan. *Brain Behav. Immun.* **87**: 28-29.
- Ng K, Poon BH, Kiat Puar TH, Shan Quah JL, Loh WJ, Wong YJ, Tan, TY and Raghuram J (2020). Covid-19 and the risk to health care workers: A case report. *Eur. J. Intern. Med.*, **172**(11): 766-767.
- Nicola M, Alsafi Z, Sohrabi C, Kerwan A, Al-Jabir A, Iosifidis C, Agha M and Agha R (2020). The socio-economic implications of the coronavirus and covid-19 pandemic: A review. *Int. J. Surg.*, **78**: 185-193.
- Organization WH (2020). Risk communication and community engagement readiness and response to coronavirus disease (Covid-19): Interim guidance, 19 March 2020. World Health Organization.
- Rana W, Mukhtar S and Mukhtar S (2020). Mental health of medical workers in Pakistan during the pandemic covid-19 outbreak. *Asian J. Psychiatr.* **51**(2020): 102080.
- Rasheed R, Rizwan A, Javed H, Sharif F and Zaidi A (2021). Socio-economic and environmental impacts of covid-19 pandemic In: Pakistan an integrated analysis. *Environ. Sci. Pollut. Res.*, **28**(16): 19926-19943.
- Rose S (2020). Medical student education. In: The time Of covid-19. *JAMA*.
- Rosen Z, Weinberger-Litman SL, Rosenzweig C, Rosmarin DH, Muennig P, Carmody ER, Rao ST and Litman L (2020). Anxiety and distress among the first community quarantined in the us due to Covid-19: psychological implications for the unfolding crisis. *PsyArXiv Preprints* 10.31234/osf.io/7eq8c
- Sarwar S, Waheed R, Sarwar S and Khan A (2020). Covid-19 challenges to Pakistan: Is GIS analysis useful to draw solutions? *Sci. Total Environ.*, 139089.
- Schwartz AM, Wilson JM, Boden SD, Moore Jr TJ, Bradbury Jr TL and Fletcher ND (2020). Managing resident workforce and education during the covid-19 pandemic: evolving strategies and lessons learned. *JBJS Open Access*, **5**(2): E0045.
- Shahzad S (2020). English language teaching. *English Language Teaching*, **13**(9): 1-9.
- Sintema EJ (2020). Effect of covid-19 on the performance of grade 12 students: implications for stem education. *Eurasia J. Math. Sci.* **16**(7): Em1851.
- Urooj U, Ansari A, Siraj A, Khan S and Tariq H (2020). Expectations, fears and perceptions of doctors during covid-19 pandemic. *Pak. J. Med. Sci. Q.* **36**(COVID19-S4): S37.
- Ustun G (2021). Determining depression and related factors in: a society affected by covid-19 pandemic. *Int. J. Soc. Psychiatr.*, **67**: 54.
- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS and Ho RC (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (Covid-19) epidemic among the general population in China. *Int. J. Environ. Res.*, **17**(5): 1729.
- Waris A, Khan AU, Ali M, Ali A and Baset A (2020). Covid-19 outbreak: current scenario of Pakistan. *New Microbes and New Infections*, 100681.
- Wenham C, Smith J and Morgan R (2020). Covid-19: The gendered impacts of the outbreak. *The Lancet*, **395**(10227): 846-848.
- Westby C (2018). Why children with autism are more at risk for the negative effects of screen time. *Word of Mouth*, **29**(5): 9-13.
- Yu X and Yang R (2020). Covid-19 transmission through asymptomatic carriers is a challenge to containment. *Influenza other Respir. Viruses*. **14**(4): 474.