

APRIL-MAY 2020

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PAKISTAN



BEING A PROFESSIONAL IN THE PANDEMIC

PROF DR. SABIEH ANWAR

Sabieh Anwar on molding the challenges of online Education into opportunities

DR. ASAD HUSSAIN, CLINICAL PSYCHIATRIST

A Psychiatrist's consent on the mental toll of Lockdown and Quarantine

ZEESHAN HAIDER, BROADCASTER

Adjusting to the exigent life of a Broadcaster under Coronavirus Lockdown

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On the sensitivity and need to continue research in space and other sciences after the pandemic

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COVID-19 Special Edition



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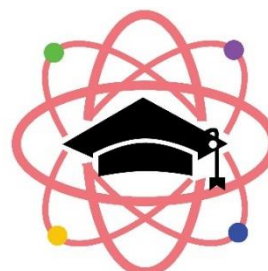
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Keeping alive the tradition of discoveries under Quarantine

By Saadeqa Khan

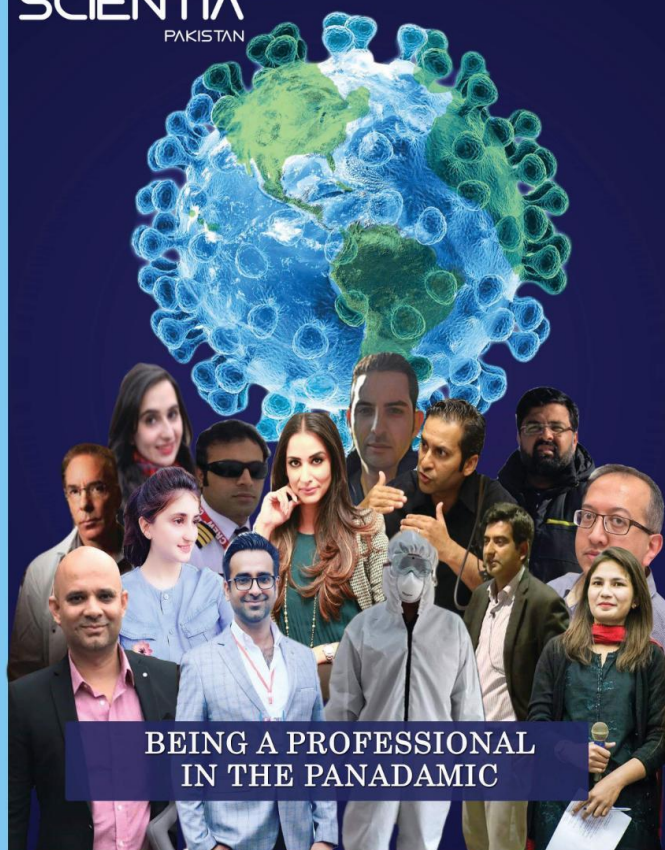
Adieus, farewell earths blisse, This world uncertaine is, Fond are lifes lustful joys, Death proves them all but toys, None from his darts can fly, I'm sick, I must dye: Lord, have mercy on us:

An excerpt from "summer's last will & testament", by Thomas Nashe. Nashe wrote it in 1952 when Bubonic plague hit London, and he fled to the English countryside to avoid infection. The passage reflects Nashe's experience of living through the pandemic.

In July 1665, a five years old boy found dead in his hometown, Holy Trinity, in Cambridge, England. While examining his remains, the town officials noted some black spots on his chest, the indubitable signs of Bubonic plague. This was the first confirmed death due to the plague in Cambridge that year. Almost at once, the town residents rushed to isolate themselves in the countryside and premises of London. Among those the run, there was a young scholar of Trinity College London, named Isaac Newton, who fled to Whoolstrophe, a small town about sixty miles away from the Cambridge

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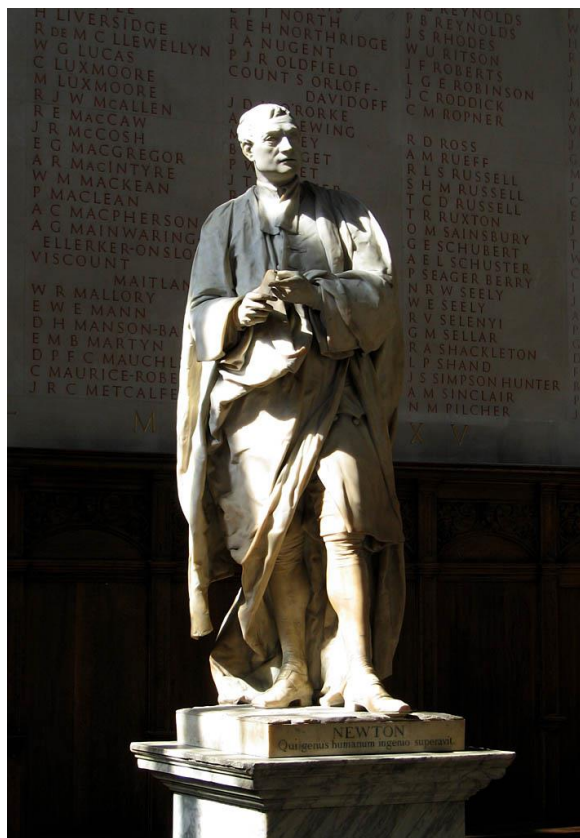
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University. Here, in complete solitude, Newton produced an unbelievable number of exceptional ideas of Calculus, Analytical Geometry, Gravity, Science of motion, optics, and more. It was these days under quarantine when Newton experimented on measuring gravitational pull and came across his grand idea of universal gravitation.

While skimming through 'Never at Rest', the meticulously documented biography of Isaac Newton, by Richard Westfall, I realized that what's specious was the idea that Newton unleashed his mind on these problematic experiments when the bubonic plagues had accidentally provided him complete

isolation in Whoolstrophe. However, the concept of the-apple-falling-on-his-head and that the plague woke the brilliance in Newton has been proved misleading long ago. Actually, Newton started thinking about these mathematical problems in 1664, a year before the plague outbreak in Britain.



Statue of Isaac Newton in the chapel of Trinity College, Cambridge.

In the meanwhile, the scream painter, Edvard Munch didn't only witness the Spanish flu pandemic in the early 19th century, that entirely changed the world around him, but he also contracted the disease in 1919, while he was residing in Norway. He spent many months convalescing after the plague attack, but instead of becoming one of many victims, Munch consistently worked on making great

art. One of his most notable paintings was a self-portrait with thinning hair and Gaunt face sitting in front of his sick-bed.

These famous fairy tales of geniuses give us a clue that great ideas don't require tedious work of sustained attention and hard thinking. They arrive in the lightning bolts of inspiration, which in turn come only in the right circumstances. Like these giants, we can be productive in this enforce isolation due to coronavirus pandemic. In a matter of days, almost all of us had our workday completely turned upside down. It could be jarring, but it is the exact time to look back at our lives, strategize the trajectory of what we want our life to be, and above all, realize the fragile nature of our existence.

At the end of February 2020, when Coronavirus cases started ticking in Pakistan, the team Scientia Pakistan Magazine immediately realized the severity of the situation and decided to cover virus-borne diseases in our next edition. Since our Governments have been neglecting Education, health, and scientific research for decades, people are ignorant of precautions that are necessary to prevent the spread of coronavirus. By the grace of God, we got an overwhelming response by national & international media/organizations on our Virus-borne diseases edition. Initially, The Independent Urdu UK, GEO News, BOL News, Dawn.com, and Technology Times published stories and appreciated our efforts in bringing such

a piece-of-art edition in a short period. Later on, **The United States Library of Congress** has selected our website for inclusion in their web archives. They consider our website to be an important part of this collection and the historical record.

Now the super-excited team Scientia is bringing another special edition on "Being a professional in the pandemic." For this edition, we reached out to national and international experts, journalists, strategist, futurist, Doctors, Paramedical staff, Psychiatrist, scientists, Astronomers, Astrobiologists, Pilots, and Senior teachers/professors to know about how life twisted and how they are staying productive under quarantine

despite the chaos that is surrounding us. We also approached the students of local and international Universities, housewives, and laymen to know how they are keeping their momentum high in these days of trouble.

The Covid19 pandemic has highlighted the state's responsibility to pay to the daily wagers during the lockdown, but it was saddening that most of the relief efforts came from philanthropic fundraising. Don't forget needy around you and try to help them as much as you can. Remember, God has blessed you with two hands, one is to help yourself, and the second is to help others. Have a safe quarantine. CHEERS!



Interview

Prof. Dr. Sabieh Anwar on Molding the challenges of Online Education into Opportunities

By Maham Maqsood

The current crisis has gripped every possible area of human life. All spheres of life have not just been significantly touched but will be greatly altered once this pandemic is over. One such important area is education.

These unprecedented times have made us transition to the experiment of online learning which is novel for many teachers and students. It is being done on a very large scale all around the world. In Pakistan, the challenge is even greater. With limited resources and access, educational institutions are trying to establish learning systems that can be efficient for both sides. To delve deep into this matter, I had the honor of interviewing Prof. Dr. Sabieh Anwar about how our education system is coping and what we can expect in the future.

Dr. Muhammad Sabieh Anwar is an Associate Professor of Physics and the Dean of LUMS' Syed Babar Ali School of Science and Engineering. Sabieh, a Rhodes Scholar, did his Ph.D. in Physics from Oxford University and Post-Doc in Chemistry and Materials Science at the University of California, Berkeley. He is also the General Secretary of *Khwarizmi Science Society (KSS)*, a non-profit organization founded by his father Dr. Saadat Anwar Siddiqui, that works for creating a science culture and science popularization across Pakistan and has been organizing one of the biggest science events in the country; the Lahore Science Mela, every year since 2017.

Here is what he said on the Coronavirus pandemic and specifically how deeply the education sector in Pakistan has been affected.

Maham: The COVID-19 crisis has shaken us to the core and is affecting every sector. What is the impact of the pandemic on the education sector, local and global?

Dr. Sabieh: This crisis has a big economic and social fallout. Growth rates will take a nosedive. This has also influenced our economy, social fabric, and lifestyle.

As far as the education sector is concerned, the complete drawn out closure of educational institutions is a big test. There are frantic efforts everywhere to develop an online learning system. In Pakistan, even though we do have widespread internet connectivity, there are severe quality concerns and some areas are totally blacked-out. A far severe problem is access to computing devices like laptops and computers. For the latter, households need to make an economic investment, which is again, not readily available.

Maham: How can we implement efficient distance learning in Pakistan?

Dr. Sabieh: I think the medium that can be more useful than the internet is Television. PTV has started the channel 'Taleem Ghar', which is indeed an excellent initiative. It needs to be further enhanced, as TV has a wider reach than the internet. On the other hand, higher education will be completely refreshed and reenergized. Remember, the new modality is a big shock for universities. Their outdated systems of communication are highly paper-oriented, Emails are not the

norm. If the administration needs to do some communication, everything is done on paper. The current situation enforces our universities to take this challenge as an opportunity for introspection and improving the system, though this is not something that will happen overnight.

There was also uproar on social media. Students have already raised slogans against online education. The reason is the existing poor quality of instruction in general. Migrating to online medium does not automatically solve the quality problem. Teachers who used to teach poorly in the classrooms will do the same in online classes. Hence the online medium, which is more transparent, accessible, large-scale, and can be recorded, will accentuate weaknesses in teaching. Hence, the need for a general uplift in the quality of instruction exists.

Maham: What about your institution? What steps are being taken at LUMS?

Dr. Sabieh: In LUMS online classes have commenced, as the spring semester is currently underway. In the first three weeks after the lockdown we conducted webinars for faculty training, collected resources, did surveys, and are still collecting data from faculty as well as students. As all these things are data-driven we can't rely solely on anecdotes. There is the requirement to collect data for this whole process in real-time, such as which tools you are using, how many students have access, whether student learning is improved or not, what is the percentage of attendance, do people prefer

asynchronous or synchronous modes, etc. and some metrics to capture learning instead of mere quantitative metrics of instruction.

Decisions can be made only when constant empirical data is collected. In LUMS, and the faculty has largely taken ownership. The key is to trust the Faculty and empower them to make their own choices in the backdrop of broad guidelines, instead of harsh dictates from authoritarian circulars. Another aspect will be the changes in student evaluations. The evaluation will be formative in telling us what mistakes we made and how we can improve.

Dr. Sabieh: Education is not just the name of the classroom; it is bigger than that. For example, you cannot do your chemistry labs online. It does not matter how many virtual and remote experiments you design; the live experience of a laboratory just can't be created elsewhere. There are aspects of certain educational disciplines that are not possible online. MBBS is impossible without a live clinical experience. The same is with laboratories, scientific enterprises, technologies, engineering; they can't be done in this way. Then, you need to conduct field surveys and there are many instances where human interaction is a must. Hence the online system has a limited scope, and certain exceptionally promising outlooks, but it can't completely supplement or replace learning and education.

The biggest benefit of an online system is that it can be upscaled and can reach wider audiences. Student interaction can be increased from scores to hundreds to thousands, statistics can be gathered, three-dimensional multimedia experiences can be incorporated into instruction, discussion forums can be initiated, and intelligent modes of instruction can be engrained. However, one keeps in mind the scope. You can't learn sports online; you can't do experiments online and learning from peers is limited.



Dr. Sabieh demonstrating the motion of a pendulum to keen visitors. According to him, there are aspects of certain educational disciplines that are not possible online.

Maham: Are online classes comparable to classroom learning? Can it be an alternative to the traditional methods?

Maham: Can we expect significant increase in the usage of resources like online classes in the future? What could be the expected changes once this pandemic is over?

Dr. Sabieh: Well, I believe that there will be a different life after the pandemic. The experiment being done right now will have its aftereffects. Many people are convinced about this union between technology and education and hope that it will move forward. And development is not just expected in education, but other sectors as well as in health, where there will be innovation, entrepreneurship, and development. From biochemical testing to PPE to medical assistance devices used in hospitals like the ventilators, all of this will likely become center stage.

The healthcare management of the country might witness a revolution. New questions will arise like how to handle public health issues, build models, for disease progression, and how to manage healthcare networks from rural health centers to big hospitals. Remember dengue, floods, earthquakes which require national scale efforts which redefine how we cope with calamity. If our response is scientific and intelligent, we can lessen the burden and worries of millions of people.

The fault lines of science and technology in our country have been once again exposed. Local innovation system isn't well developed since the ecosystem is overly bureaucratic and based on regulations and excessive centralization by intuitions who lack

modern training. Now is the time to address all of these things. Even though this pandemic is a challenge, it is also providing new opportunities and opening new doors.

Maham: In Pakistan, there are many different education systems. How can one channel be used for teaching when there is such a wide range of curriculum? Is this the time for a homogenous education system?

Dr. Sabieh: Diversity is a good notion. A Homogeneous education system is a slogan which I don't think will ever be implemented. I think there is no need for homogeneity, there is a need for equivalence and mutual respect across systems. What we need to have, is excellence and equivalence. For example, millions of children in our country study in madrassas which follow a specific curriculum, forcing them to follow a different system, is hard and can result in worsening social patterns.

Likewise, we need equivalence and glorification in that and in technical education as well.

Take for example Khan Academy. It does not follow any system. It is providing appropriate content material, teaching in a good way so as to bring up to speed students in different subjects.

So, the material, teaching style and content is developed sequentially. I cannot regard this mode of education as belonging to a "system".

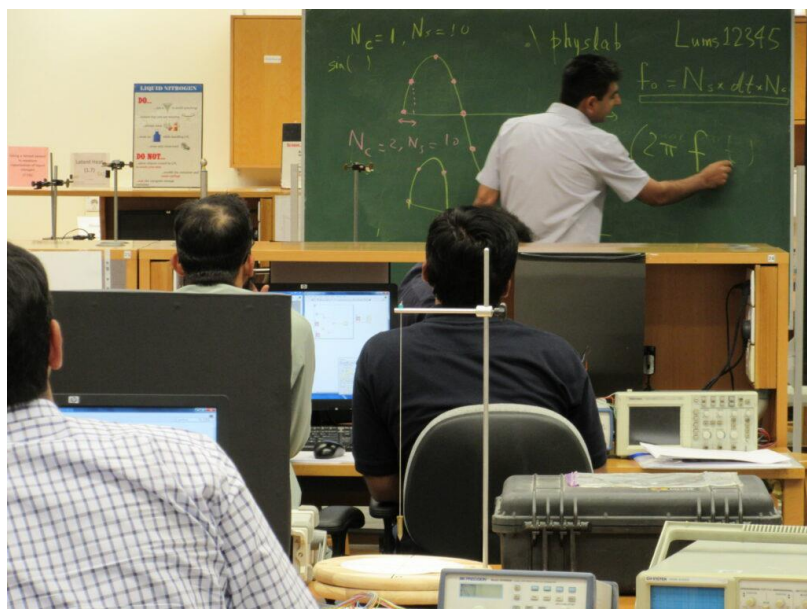
Maham: What about the assessment of students?

Dr. Sabieh: Now that can't be done by the medium TV. Different mechanisms have to be created which is quite a daunting task. Many countries have finished exams for smaller classes; in Singapore, they have no assessments till high school. And the Punjab government has also decided that in these conditions, students will be promoted to the next grade without exams. So, assessment is very hard as it is a two-way process. You also need to have feedback from the students. The biggest trap of online education is that it might become unilateral. Content may be delivered but there is no feedback. There is a lack of discussion mode, the opportunity for interactions is limited. A student must interact, ask questions, do peer learning and that also needs to be incorporated into the system.

Maham: Pakistan has some of the leading research institutes in South Asia. But why are we not seeing them actively participate in this crisis in terms of vaccine development? If we are not well equipped to, do we deserve such titles?

Dr. Sabieh: It is because our universities are a slave to the process, especially the public sector universities where enrollments outnumber private institutions. There is a lack of basic things, from chemicals and reagents to infrastructure, biosafety labs, the protocol, and equipment. Though, we never have a lack of ideas. Many peoples are generating research ideas,

we have individuals coming from very amazing places after training, and we do have amazing faculty.



Dr. Sabieh in a classroom. He is of the opinion that there is a need for equivalence and mutual respect across educational systems.

But the work is slow-paced. For instance, one needs to buy chemical isopropanol, which is a solvent that is also used for cleaning and dissolution, a basic requirement just like water.

For someone who doesn't know the system, it may take months to buy a liter. Because the process is so hard, we don't have the budget or even if we do, we need to have the permissions of layers and layers of people to make simple purchases. If one spends whole life just completing that process then how could he manage time for the research work? Ease the process, trust the scientist, invest in infrastructure, and let the scientist govern oneself, not someone who has the self-glorified air of controlling who scientists work.

Funds are scarce. Bureaucracy is not trained. Then there are various rules for

so-called procurement. We are obeying rules that have been made for the development and management of dams and roads for the science development projects.

For instance, one can't buy used equipment, we need to purchase through middlemen, modes of payment are outdated and the entire system is hostage to a book of rules made by bureaucrats with little or zero understanding of the scientific enterprise.

All of this is a trap and has crippled development, but no one is willing to change that. Then the selection criteria of the heads of the scientific institutions is outdated. If there is no leadership then things can't move forward.

Maham: UNESCO has launched a Global Education Coalition that seeks to "facilitate inclusive learning opportunities." Will our local institutes be willing to join such an initiative or prefer to work it all out on their own?

Dr. Sabieh: The Internet is a global paradigm. It would be really odd if we don't take benefits from the global landscape.

We should avail and collaborate with global initiatives, but at the same time, we should also consider local realities and local nomenclature.

Staying mindful of the local learning process, our languages, and learning behavior patterns is very necessary.

Maham: This is the time of the year when many students are nearing graduation. Students are generally very concerned about their future by this disruption in the academic schedule. What advice do you have for them?

Dr. Sabieh: There is no need to be afraid of these problems; such big calamities happen after 100, 150 years. Those students who are at such stages should know that universities are also facing difficult times. This is a global crisis, there is no need to worry. Things will change, and compensation will be there in different ways. Usually, this feeling happens when some get ahead and some are left behind, but everyone is at the same mark in this break. Things will get better. But students should get the most out of this time. It shouldn't be that when the lockdown ends, and life gets back on track, we stay at the same spot; we forget to do any personal training, or increase in knowledge, readings, or we fail to think about the big realities of life. So, my advice is to fully use this opportunity. This time is precious; use it for self-introspection, and learning.

Maham: Finally, Sir, what's next for you?

Dr. Sabieh: Let's keep learning!

On the Sensitivity and need to continue research in space and other Sciences after the Pandemic

By Saadeqa Khan

Compiled by Aniq Mazhar

Dr. Nozair Khawaja was born in Wazirabad and completed his Master's degree in Space Sciences and Astronomy from the Punjab University, Lahore, and the University of Turku, Finland. Later on, he did Ph.D. in Geosciences from Heidelberg University, Germany. He also worked as a postdoc scholar at the Institute of Earth Sciences, Heidelberg University, and is currently working at Freie University, Berlin.

Dr. Khawaja did his research on life beyond Earth and continue to lead his cutting-edge research work in association with several space exploration programs within our solar system. In 2019, he got a Group Achievement Award for Cassini's Cosmic Dust Analyzer from the National Aeronautics and Space Administration (NASA).

He is a recipient of the first prize of the Horneck-Brack Award, at the European Astrobiology Network Association in



2018. He has also received the Short-Term Scientific Mission (STSM-2010) Grant from European Cooperation in Science and Technology, ECOST – action chemical cosmos. His work has appeared in highly cited peer review journals like Nature, Journal of Royal Astronomical Society, and Science. He is the founder of the Astrobiology Network of Pakistan (ABNP)-a volunteer network to promote astrobiology in Pakistan.

Here is the brief conversation of Dr. Khawaja with our EIC Saadeqa Khan on the situation in Germany and future of space exploration amid this global economic recession.

Saadeqa: The effects of the Coronavirus on social, moral, and ethical aspects of life will be everlasting. Before the virus outbreak, most of the nations were taking environmental threats for granted. As a planetary scientist, do consider the pandemic to be a curse or a blessing?

Dr. Khawaja: We know that in history, there were several episodes of epidemics that changed the course of history and Coronavirus in another of

them. So, it has many aspects including ethical, religious, social etc.

You are right that the environmental impact of Coronavirus has overall not been taken seriously in all nations. Among those environmental threats, one was that, since we are not caring about the environment, we may disturb such ecosystems which can result in harm to humans all their lives on this planet. So, if you see it from this view, I believe we have been punished for ignoring these environmental threats by Mother Earth.

The pandemic is a curse from mother nature. With the advent of science and technology, we are capable of understanding different natural phenomena and have knowledge about different physical and biological processes. Despite that, we harmed the environment and did not care for its natural system. It is a blessing in the sense that now we are aware that one of the reasons for this pandemic is causing disturbance to some living being or some environmental conditions, and finally we will now focus and look into these environmental threats more seriously.

But if you're talking in the sense that it is a blessing or curse from God, I would say it is difficult to guess. Our response to this situation is basically to get closer to Allah, to take care of people, and to keep a check on our morality. So, it turns out to be a curse turning into a blessing!

In another way this epidemic could be a blessing for individuals and on a

bigger societal level as well. People now understand that we should be thankful to mother nature as she provided us basic necessities: air to breathe, water to drink and much more for free. Another aspect is that people realized the importance of small things around them which they took for granted. One advantage of this pandemic is in the form of rebuilding and reconstructing of a global society with a sensible behavior towards Mother Earth.

Dr. Khawaja is a recipient of the first prize of the Horneck-Brack Award

Saadeqa: Scientific communities and laypeople have long criticized astrobiology or search for extra-terrestrial life. What is your point of view on the current situation, whether spending trillions on space exploration missions would be a sound decision or not when people here on Earth are unemployed and starving to death?

Dr. Khawaja: Many people criticize that the search for extraterrestrial life is a waste of money when on Earth we face problems as dire as starvation, death, and lack of resources. So, why invest in an unseen object (alien life) of which we're not even sure? Shouldn't we invest on Earth, where people live?

This is a very valid question, but people ignore two facts here. If humans don't change their outlook about the existing resources, then our future becomes difficult. It doesn't matter how many trillions you invest on space exploration and ignoring poor conditions of people on Earth. The quality of life on Earth does not fully



depend upon materialistic resources. Firstly, I ask you, how are we humans utilizing our existing resources? So many factors affect the usage e.g. political instability, difference in status and minds of people, discrimination between different sectors of the society etc. In Pakistan, a very backward mindset prevails in society. So, is the famine and lack of resources here because of the fact that the rest of the world is

searching for life in space? Most certainly not!

In fact, problems are occurring due to unequal distribution of available resources to different components of the society. I think these issues are related to proactive planning as to how we manage our resources. There should be no objection on life exploration. As a human being, the basis of our mind's evolution is curiosity. When we follow the few glimpses sparked up in our mind, we discover. These discoveries, in the end, are used for human benefaction.

People don't understand whether finding alien life may have benefits or disadvantages in the long run. Nothing can be said about it at this point. A benefit is that we humans want to find out our own origin and what the future holds for us. If we find life elsewhere, we can ultimately understand our past and can predict our own future.

We can say that in a situation like COVID-19, we could shuffle the resources from one sector to another temporarily but to fully abandon one area of research for another task is not logical. The main thing is the allotment of resources that should be properly managed. The mirage of man is in his thoughts, working to make them better and to care for the people around us.

Saadeqa: Being a person with a diverse range of interests, I am a keen observer of the environment as well as the latest news in astrobiology. During the lockdown, I observed that Mother Earth is breathing with contentment. We

human beings cannot manage without Nature, so, should saving Earth be our priority rather than further space exploration missions?

Dr. Khawaja: This question is somehow connected to the previous one. During this lockdown, Mother Earth is breathing through such components that, we feel, were not witnessed before. In the lockdown, there are indications that environmental conditions are improving because of the low emission of poisonous smoke from man-made utilities and decreasing trends in global warming in general. Definitely, Nature is prospering.

It is true that humans can't live without Nature. To explore nature is in their blood, I would say. However, if affiliation with Earth is to the point of obsessiveness, it will create problems. Here, I want to direct your attention towards a deeper perception. I ask you to imagine that human beings are aliens on this planet. They came

from another place. Why did they leave their place or planet? Maybe it was not suitable to live anymore, which resulted in the migration onto Earth.

Mother Earth regulates itself e.g. circulation of air according to temperature. Earth regulates its own processes, but there must be a threshold present that would have been reached by the previous planet where human beings lived before Earth. Mother Earth may reach its breakdown point. If we are not careful enough, these regulatory processes may lose some of their efficiency and as a result Earth is not anymore mother in its very nature.

What should humans do in that case? Simple: change their attitude. Or else look for a new home. This does not at all mean that they make it a trend, ruining their old home in anticipation of the next one. If humans care, this Mother Earth can regulate itself again.



Exploration is the name of a continuous process. We should allow the basic instinct of exploration to let us carry on this journey. Mother Nature has some ethics regarding the environment, and these should be implemented to the maximum level possible in societies in order to minimize damage to the environment. Movements which support this cause should be immediately begun.

As an example, if you stop all space exploration and utilize all the resources on Earth, does that mean you would close factories, stop cars for reducing the dangerous gaseous emission and put a limit on technologies? No! it means that these resources will only be useful when our mindset changes. So, to shift resources from one department to another, it is only useful temporarily e.g. we have 20 trillion for space exploration. From that, if we take, say, 1 trillion and invest it in building schools and educational institutes under special circumstances, then that's okay. But completely banning space exploration and thinking that we are on the road to betterment on the basis of the utilization of that money for some other purpose is not right. Rather, it is against human logic to completely ignore one aspect and put all effort into another. We need to improve the typical thinking habits and perspective of our society.

Saadeqa: To what extent has the pandemic affected future space exploration missions like Europa Clipper? How are your colleagues at NASA and ESA coordinating and corresponding with each other with no

conferences and workshops happening?

Dr. Khawaja: Just like the other components of society, activities related to space exploration have also been affected, I think. Regarding ongoing space missions, I believe mission-control at different space agencies is carried on as normal as possible because control rooms already have limited access, which should be absolutely fine according to the rules of social distancing. Furthermore, all these activities are tech-based, so most things can be done remotely.

A positive aspect is that people who have huge data from space missions accumulated now have surplus time to analyze it since no office timings are observed. They can concentrate on their 'home office', which is a normal trend in the West, with the whole setup easy to switch. Online meetings are attended and focus on data analysis in-depth is possible.

Another effect is in laboratories. They are closed all over Europe with the exception of bio-labs but now it is being thought to reopen and make them functional with a minimum of 1-2 people working at a time only. The pace of future space missions might be affected as well because private industrial sectors are normally involved heavily in such missions. Because of industries being dysfunctional at the moment, or, not fully operational, the preparation time of space missions could have lengthened.

There has been one major effect on the scientific culture, which is in-person meetings between experts on different scientific problems. This culture in the field of science is halted at the moment, which is normally done via conferences in order to communicate science. The commencement of new science culture through online conferences has already been in the process. As you would know there was one of the largest conferences on Geosciences in Europe in April that has to be canceled. Similarly, there were other big conferences planned in America. Abstracts had been submitted; schedules were finalized. But then the pandemic hit and now the situation is that whatever abstracts have been accepted, the organizers have settled the conference online.

They will invite the person online and he or she will make a chat room on the website and people can interact and ask questions over there. This is indeed a quick change of set up on behalf of conference organizers. I can envision that there will be no physical conference in the coming year, but technology is already in action and I think virtual conferences will be the future of science. Here, I would like to mention that the Astrobiology Network of Pakistan (ABNP) under my leadership is also planning to organize a first international conference in Pakistan on the subject, and of course, that would be an online conference.

Saadeqa: Before the Coronavirus outbreak, the US was planning its back-to-the-moon mission, the Artemis. Do you think the US will be able to kick-

start this mission now while it is going through a historic economic recession?

Dr. Khawaja: You are right, it is understandable that since we could have an economic recession and we are forcing an economic instability, and also the big powers are coming forward, a blame game will start as soon as this epidemic rise is flattened all over the world. This blame game between the powers may further disturb the future of humans on Earth. In this situation, the US man-mission for space could also be affected. It will have to be seen to what extent it is affected in near future. In my point of view, it can't be postponed on a long-term basis, but a new schedule could be given.

Anyone can easily foresee that the terms on which the man-made mission was already planned may possibly be a bit changed and extended. It is possible that space agencies prioritize space missions as soon as the situation of COVID-19 is settled. I hope you do know that planetary space missions normally require gravity assistance and multiple flybys of different bodies in the Solar System to reach the destination. This process ultimately needs a particular time frame to launch a planetary space mission and if we miss it, we may not get it again for the next many years. If for economic reasons, space exploration is disturbed, the man-made missions should be the first ones, in my point of view.

But I would like to direct your attention to another point here. Man-made space exploration may become more

important because we may become more active and diligent in our search for a new home and there are definitely more chances of it. We should seriously think about not only the betterment of Earth but also where else human acceptability is possible. e.g. subsurface colonies on Mars. Another place could be Saturn's moon Titan as well, which can provide perfect protection to humans from extreme radiations. So that's why man-made missions and their importance will increase in this scenario.

Saadeqa: Germany and other European countries became the next epicenter of Coronavirus. How is the situation in Berlin and how long will it take to complete the lift-off of the lockdown?

Dr. Khawaja: Yes, definitely. Germany and other European countries have been the epicenter of this virus. The situation in Berlin compared to other cities and countries is similar in principle. When the German government did lockdown, a lot of the private sector had already shut down to a greater extent. Workers were asked to set up 'home-offices'. People are obeying rules and regulations announced by the government. There are some irregularities, which are quite understandable as you can see in almost all societies. People here in Berlin are behaving sensibly as compared to people in Pakistan but you cannot find the ideal situation in the world. Being a scientist and academic, like many others in the state of Berlin, I stay at home because there is no way to take the courses in person

at the university. However, everything is managed online now.

At the same time, I would say, the German nation is a very broad-minded and independent one, in matters of living, society, culture, etc. capturing that culture in homes is proving to be very challenging. So, in Berlin also, some people did not obey government instructions of lockdown. This disobedience was more in the beginning, but later the government pushed and emphasized them to be locked down. People are now keeping social distancing very effectively, I would say. When people go shopping, a line is maintained with 2m distance between two persons, which is quite commonly observed in Berlin. Only a particular number of customers are allowed inside at one time. Similarly, in schools of Berlin, work is being managed very effectively. Children are getting regular homework at home; schools have developed educational apps and give a lot of homework to make children busy.

Now, the government is slowly going towards lift-off, manually, though. For example, at the beginning of May businesses are being opened with strict rules and regulations. Schools are going to open in shifts. The public-private sector is putting a lot of money and effort into finding the cure of coronavirus. It is in the news here that companies started testing some cure on humans. I hope that all these efforts and care Berlin could go towards gradual lift-off.

Saadeqa: What were the reasons behind the massive death toll in European countries due to the Coronavirus? Do you think that Pakistan is dealing with this situation effectively or the situation could be worse in the coming weeks or months?

Dr. Khawaja: One apparent reason for the increased number of deaths in Europe is the accurate data collection in these developed countries as compared to Pakistan where diagnosing the cause of deaths and then tracking them to COVID-19 is very difficult due to the lack of resources. Another reason for such a high death toll is due to the fact that Europeans and other developed countries, probably, underestimated the spread and severity of Coronavirus in the beginning when the epidemic was contained in China. Probably, they considered this epidemic as a local phenomenon.

As I have told you above that as free nations European countries did not do border control efficiently and also they did not implement social distancing in the early time of this problem. Probably, this is the biggest reason for the increase in the epidemic in these countries. The question, whether Pakistan is handling the situation seriously has two aspects: First how the matter is handled by the government and second, how is the response of the society to those measures of the government. In my opinion, in such conditions as we observed in Germany, it would be necessary that both (the government & the society) should work together. Only then we can face the

situation in a better way. In Berlin, the situation became under control because the government and society both are behaving sensibly and society (with some exception) is following the rules set by the government. However, in Pakistan, there are many factors that make the lockdown relatively unsuccessful. For example, the bad/poor economic condition and the religious discrimination are some of the reasons, which make government's steps inefficient to tackle the situation. The lack of education and unemployment are also reasons which make COVID-19 issue as a serious threat in Pakistan.

Governments in developed countries, like Germany, announce billions of Euros as a relief package to its people and so far the situation is under control. In my opinion, the government in Pakistan is doing its utmost to tackle the situation and have announced a package for poor people so that they could stay in their houses during this lockdown. In this scenario, we cannot compare Pakistan with developing countries not only at the government level but also at a societal level. I think the Pakistani government is trying to do its best, in this poor economic condition, according to its capacity and economy, but the main concern is that the people of Pakistan are not taking appropriate steps.

This may be problematic and prove to be worse for the coming months due to the attitude of the people.



A conversation with Dr. Michael Gale Jr. on coronavirus vaccine development

By Fawwad Raza

Since January 2020, when Coronavirus started spreading in Wuhan, China, and later massively trapped the U.S. and European countries, researchers around the globe, have been racing for an effective cure. By the First week of May 2020, more than 90 vaccines are being developed against COVID-19 by the researchers in pharmaceutical companies and universities across the world. Researchers are trialing different technologies, some of which haven't been used in a licensed vaccine before. At least six groups have already begun injecting formulations into volunteers in safety trials; others have started testing in animals.

Scientia Pakistan Magazine has interviewed Dr. Michael Gale, Jr., Ph.D. Director of the Centre for Innate Immunity and Immune Disease (C.I.I.I.D.), in the U.S. The C.I.I.I.D. is a research center for immune responses, and viruses and infectious diseases, including coronaviruses. Our senior

team member Fawwad Raza and Dr. Michael discussed how the pandemic has catalyzed the development of novel coronavirus vaccines across the biotech industry, both by pharmaceutical companies and research organizations.

Below are some excerpts of this conversation.

Fawwad: What are the biggest threats of Covid-19 right now?

Dr. Michael: One of the biggest questions to understand is how the virus is physically recognized by the body and then how it functions to drive the innate and the adaptive immune response in infection.

We found in the patients that they have a very aggressive immune response that is overwhelming and, in the worst cases, debilitating in that the virus turns on immune processes that are actually contributing to disease.

So, we need to know what those processes are, how they are triggered, and how we can intervene with this type of outcome. So, I think those are the biggest questions that we are facing right now.

Fawwad: How is Coronavirus different than the other coronaviruses, such as SARS and MERS? How about the flu?

Dr. Michael: Coronaviruses are physically different from the flu due to the following specific reasons.

1. The Coronavirus family consists of viruses that have one long genomic piece of RNA and influenza viruses have multiple parts of nucleic acid, in their genome. That is just one of the significant differences.
2. Physiologically, the coronaviruses, as a family, circulate around the globe and typically cause what we consider to be the common cold. In any given year, people get infected with what we will call contemporary coronaviruses that cause a cold, runny nose, maybe a slight fever, and some aches and pains for a few days. But people recover from that.

So, the severe acute respiratory syndrome coronavirus is SARS that spread out in 2002-2003, now this new SARS-Cov-2 is different due to some reasons as it causes very severe and fatal respiratory disease. The current Coronavirus differs from all the other coronaviruses genetically, which gives it its own name.

It is different from SARS-1 because there are multiple genetic distinctions

across the genome, and importantly, the spike protein, that gives the Coronavirus its name because it sticks out around the edge of the virus, and makes it look like the corona of the sun if you look at it under an electron microscope.

The spike protein is what attaches to cells and the spike protein from Covid-19- versus previous SARS viruses are unique. It is subtly different, in infection properties. It could be physiologically different, so this current virus has a spread much more extensive and disseminates more rapidly. So, the infection behavior is quite a bit different from the previous SARS virus.

And then, of course, the syndrome: The respiratory disease syndrome that it is linked to that we now call Covid-19, that syndrome is different because it is slower in progress. Some patients die. Most people recover just fine.

So, the previous SARS was a very aggressive acute infection that was not as widely spread and physiologically created an acute and often devastating disease. Therefore, the two viruses are similar, but they have very clinically different behaviors.

Fawwad: What are some misconceptions about this virus and its spread? And how science addresses them?

Dr. Michael: Well, the biggest misconception, I would say, is that people are safe, and the virus can't be transmitted that easily. But what we are learning is that it is transmitted very effectively. Science has epidemiology. I

think we have, in our own experiences, already proven that the virus is very effectively spread among groups of people through social contact.

So, we had some of the behaviors here in the United States where people were not adhering to social distancing and actually facilitated the spread of the virus when these people should have been staying home and containing the virus on their own.

But we must observe social distancing and use it to stop the spread of the virus because it is very efficiently spread.

Science has shown that the virus can persist on surfaces for specific amounts of time. Science has also demonstrated how we can inactivate the virus through sanitizing procedures. Hand washing is mandatory, Social contact control is very crucial.

If we can stick to those protocols for social distancing, and decontamination adherence personally, and on surfaces, it will slow and even contain the spread of the infection in the population.

Fawwad: You study innate immunity. What do you think is the role of innate immunity for this infection? And why is it important to understand the Coronavirus better?

Dr. Michael: Yes, a good question indeed. Well, innate immunity is a process that protects us daily, we go throughout our lives. Innate immunity can be considered an immune response on the molecular level that can take place inside of any cell of your body.

If you happen to be out in the public one day and you get exposed to influenza virus, or this Coronavirus, or measles, or mumps, or some new virus that is circulating in the environment, the first thing that is going to happen inside the cells that get infected with that virus is that it is going to induce what we call an innate immune response. When this response works appropriately, it will restrict the virus's replication at that exact site of infection. The virus won't get a chance to spread throughout the body and to infect the rest of your tissues and your other organs. Innate immunity is vital for daily protection against viral pathogens in addition to protection against bacterial and parasite pathogens.

Without innate immunity, we become very susceptible to virus infection and an innate response plays a crucial role in controlling virus infection at the site of infection and prevents it from being spread throughout the body.

But when the innate immune response gets turned on too much, it can become dangerous and often turned on when it should not be turned on.

This also forms the basis of several different auto-immune diseases that we are familiar with, like lupus, probably multiple sclerosis, and other diseases that can be debilitating.

So, we know that innate immunity is crucial to control of infections. But innate immunity itself also has to be controlled.

So, what could be happening, we don't know this yet, because we need to do more research. But the clinical data suggests that what is happening in [the] SARS COV-2 infection, that underlies Covid 19 disease is an innate immune response. In parallel, the inflammatory response triggered by the infection seems to propagate out of control, and it could be contributing to disease and the lethality of the infection.

So, this could be a situation where we may need to find ways to shut down the innate immune response, or a closure to the inflammatory response, to mitigate Covid-19 disease.

Fawwad: Why are certain people at higher risk of developing a worst [case] disease outcome, than others?

Dr. Michael: What we are learning is that, with SARS COV-2, affected the elderly most, people over 65 years old, is very susceptible to the infection and is an adverse outcome with the Covid-19. Typically, the aged individuals versus young individuals, there are distinct differences in the capacity of immune response to respond to and control infectious disease pathogens.

We understand this process as part of an aging program in the immune system called immune senescence. It is probably more complicated than that. But what we know is that in aged individuals, the immune response is tuned down, or it switches over more to immune regulation response than a response capable of fast response to an infectious disease. Those people

end up being much more susceptible to an adverse outcome than youngsters who have a robust immune response capable of swift action against this virus.

Fawwad: How much can this virus travel in [the] air? And for how much time can it be active to infect human beings?

Dr. Michael: Yes, the aerosols of the virus are a significant concern. It can survive inside the fomites, and saliva droplets elicited from people when they talk. The virus is probably viable, we think, for several hours in fomites. Fomites get deposited on the surfaces of tables, on your hands, on doorknobs, and anything that you touch. And the virus can survive in that environment, for 30 minutes, to 3 hours, maybe even longer.

That is why it is crucial to decontaminate surfaces and to control the aerosol spread of the virus. You see many people walking around with a mask on their face, to control the spread.

We think that it is essential that people who are actually known to be infected, if they are around other people, to wear a mask.

If you are not infected, the important thing is to make sure the surfaces you touch are clean, or you are maintaining social distancing to reduce exposure to aerosols coming from someone infected.

Fawwad: As some research published in the Journal of the American Medical Association, warns that the current guidelines are based on outdated models from the 1930s. How much distance is safe from one person to another? 3, 6 feet, or 20 feet?

Dr. Michael: Yes, this is right, it can be risky. So, the best data suggests that six feet of distance, or about two meters, is better than three feet. This is the distance by which fomites: again, the aerosol droplets that would contain a virus, travel when people talk.



Some people talk louder than others, so when they speak louder, they expel more air. And that is why maintaining a six-foot distance is better than three feet. Now, on the other hand, when people sneeze, or if somebody is talking underneath an airshaft ventilator that pumps air into the room, then that air can spread several feet, much more than six feet. In that case, social distancing beyond six feet, as

you mentioned, 20 to 27 feet, is worth considering.

As I sit here today, there is an air vent above me, blowing air into my room. When I talk, somebody who is sitting across the table would be more apt to be exposed to aerosols that I am exuding. If I were infected, this act could be hazardous, and that air vent above me would blow the air past me many feet, greater than six feet.

That is why it is mandatory to maintain a distance, depending on the configuration of your room, six feet or higher.

Fawwad: Some researchers claim that COVID-19 has mutated. And it can mutate from one person to another. Is that true?

Dr. Michael: Well, there could be some truth to that, so, what happens with viruses that have RNA genomes, when they replicate they don't proofread their genome, which is very different from viruses with DNA genomes.

The genome of humans is a DNA genome; we make RNA from that DNA genome as we turn our genes on. But these RNA viruses have an RNA genome. When the cells in our body replicate, our DNA genome undergoes proofreading. And if there are mistakes in it, we have repair mechanisms that correct those mistakes, typically.

RNA viruses don't proofread, they don't have much proofreading capacity that DNA viruses have. So, they make a lot of mistakes when they replicate.

The coronaviruses have other ways to select for maintaining genome integrity. But overall, they don't proofread when they replicate. So that can lead to the accumulation of mutations that eventually could drive the outgrowth of a new virus strain.

Now there is not a lot of evidence right now; that what is happening in real-time with Coronavirus. Although from patient to patient, there could be new mutations that accumulate to make the virus more fit for that particular patient.

We don't fully understand that yet because we haven't done enough experiments to sequence the genome from different patients across this outbreak. But we know from other RNA virus pandemics including HIV, Hepatitis C. virus, for example, that there is a lot of genome mutation that takes place as the virus replicates and adapts to a new person that it infects.

So, we should expect to see some genetic variation in Coronavirus across the globe as it propagates across populations.

Fawwad: Can blood plasma treatment helps to boost the infected patient's immune system, to fight against Covid-19?

Dr. Michael: Yes, such treatment is called Passive Antibody therapy, in which we collect blood plasma that contains antibodies from somebody who survived infection and controlled infection eventually with their own antibodies. We transfer that plasma into another infected individual to treat

their disease using the previous person's antibodies.

Passive antibody therapy can be a very effective treatment. It is experimental still. We don't know how well it works for this SARS-Cov-2. There are clinical studies that are being developed that directly address whether or not passive antibody therapy will be a viable option for treating Covid-19 disease. So, I see this as a potential therapeutic that holds a lot of hope for treating people. But it has yet to be tested.

Fawwad: What are some vaccines and therapies that are being investigated at the University of Washington or other laboratories in the U.S.?

Dr. Michael: In the University of Washington, several groups focused on developing therapeutic antibodies that are cloning antibodies from patients who have a successful antibody response. They are attempting to produce them in mass quantity for the treatment of infected patients; those are called human monoclonal antibodies.

Besides, the University of Washington is testing two new vaccines. One of them is already in the phase of clinical trials in the local vaccine trial evaluation units. Another one is undergoing testing in a lab. We will soon be requesting approval from the F.D.A. to go into phase one trials. And these are vaccines that can generate rapid antibodies that have the therapeutic benefit of neutralizing the virus upon first exposure. So, we are super excited about these.

Across the country, there are also several different vaccines in the pipeline to be tested in humans.

Fawwad: How much time will it take for a vaccine to be approved for mass production?

Dr. Michael: Unfortunately, it is going to take at least a year or so, and we are probably looking more like at 18 months before it finishes all the trials and gets human approval. Then it has to be mass-produced and shipped around the world. So, it could be 18 months or two years before starting to see a benefit from the vaccine. Let's hope it comes earlier.

Fawwad: What does the Centre for Innate Immunity and Immune Disease, do?

Dr. Michael: The Centre for Innate Immunity and Immune Disease, at the University of Washington, is working very closely with a variety of researchers and also our colleagues throughout the world and in the pharmaceutical industries.

One crucial practice we are doing right now is testing drugs that already have clinical approval for other indications. We are testing them for their ability to inhibit virus replication. The center has got active research going on where we are growing the virus in the lab. And we are taking these pre-approved drugs and treating cells with them to identify those pre-approved drugs that can stop the virus.

Once we identify these drugs, the information will be given back to our

pharmaceutical partners, and they will rapidly take that information to the U.S. F.D.A. to request fast track approval for treating SARS-Cov-2 infection.

This process will also take time. But it is much faster than getting a vaccine approved. We hope that the work that is going on at our center will facilitate the delivery of anti-viral therapeutics to the population.

Fawwad: What are some of the opportunities provided by the C.I.I.D., and how could Pakistani researchers and physicians get benefit from them?

Dr. Michael: C.I.I.D. has several training opportunities. We have over sixty member labs that bring international students, physicians, and post-doctoral scientists onboard for 3 to 6 months, one or two years to work in the labs and conduct clinical research, basic science research, and interactive, collaborative science. We facilitate them with our research agenda for international partners and of the Centre for Innate Immunity and Immune Disease, itself.

In the past, we have had students and post-doctoral scientists, from Taiwan, who studied Enterovirus 71, Enterovirus 68 infection those commonly spread across Asia.

We have had scientists from Brazil, who studied emerging infectious diseases. More recently, we had a scientist from France and joined us for a whole year on a Fulbright fellowship to study the Zika virus's innate immunity.

This leads to a vibrant interaction which is loaded with training opportunities in infection and immunity, emerging infectious disease, and in translational medicine to identify therapeutics and bring them into the clinic. These opportunities are available through international partnerships in our center. We are currently working with the Zika virus, Enterovirus 71, SARS-Cov-2,

and other contemporary coronaviruses, along with HIV, SIV, Hepatitis B., Hepatitis C., Influenza A virus. We have previously completed some projects on Hantavirus. And we have an ongoing study developing the HIV vaccine that ideally will be in clinical trials soon, with colleagues at Oregon Health Sciences University. So, these are fascinating studies that are ongoing.

Adjusting to the exigent life of a Broadcaster under Coronavirus lockdown~

Zeeshan Haider

By Saadeqa Khan

Since March 20, 2020, most of the cities in Pakistan have been in government-ordered lockdown, including Capital Islamabad. Amid this global crisis, journalists are working round the clock from their homes. The Coronavirus is molding up to be a multifaceted crisis for journalism and media industry, globally.

Public health restrictions, including newsroom closures, have imposed limitations on the practices of reporting, and along with the global economic recession, some fresh doubts are casting on the financial viability of several media outlets.

To uncover how International Media is effectively dealing with this situation, our editor-in-chief Saadeqa Khan reached out to Mr. Zeeshan Haider, a senior broadcaster and media professional at BBC World and BBC Urdu.

He has working experience of 16 years in digital, radio, and TV journalism and has worked in management, strategic,



and operational roles in Pakistan and UK. Currently, Haider is serving as a senior News Editor in BBC Urdu, Islamabad.

“Being a professional in the Pandemic” is Scientia Pakistan’s series of interviews we conducted around the globe to explore how ‘life twisted and how experts/professionals from each field of life are tackling with Quarantine?’

Below are some excerpts of Haider’s recent conversation, “Being a journalist in the Pandemic.”

Saadeqa: It is not easy to work in pandemic days when there is an outburst of fake News and myths about the virus. I can realize that News editors are playing harder. How lockdown and work-from-home have affected your life

being a journalist/broadcaster? Have you felt anxious or overburdened?

Zeeshan Haider: Safety concerns amid the coronavirus pandemic are quickly creating a 'new normal' for media workers. For me, this is by far the biggest story I've worked on in 16 years at the BBC, and while it's thrown up personal and professional challenges for all of us, I think it's one of those career-defining moments that I hope we can all look back on with pride.

As a renowned Indian Journalist, Shekhar Gupta said, common people, are enormously more fearful and less protected than us journalists. They expect us to be around, watching, reporting, editing, recording this for posterity, and blowing the whistle to draw attention to injustices and state failures in the handling of the matters related to Coronavirus.

If I think about the experience of Work from Home, it is an interesting one for me till now. In an office, there are a limited number of distractions, but in a familiar environment like one's home, it is easy to let yourself get distracted. Initially, it happened with me too, but it's all good now.

For me running a team digitally is an experience that has been made very easy by the latest tech available to us though, as an editor, what I have learned is that it's imperative to be realistic about the day to day goals and expectations from my team while working from home.

On BBC Urdu, we are doing our part in the shape of fact checking & reality check stories & myth-buster videos for our audiences along with our regular output. ~Haider

Saadeqa: The growing ecosystem of misinformation has led the WHO to declare an infodemic as a large number of conspiracy theories about the outbreak of Coronavirus are affecting public trust in media worldwide.

Why theories like Coronavirus is a biological weapon or pre-planned by Bill Gates on behalf of pharmaceutical companies are getting so much attention, and how could international media cooperate people for not being drawn in such theories?

Zeeshan Haider: In times of uncertainty and worry, it is clear that people are turning to conventional and unconventional News Sources for information, but the question is whatever they are getting is accurate or not or can they trust it.

Social Media is becoming the first source of News for lots of people all over the world, including Pakistan and the rest of South Asia.

In the age of News based on 'Forwarded Messages,' the issue of unauthentic and unverified News is of grave concern for us too.

I think It is the responsibility of Media to bust the myths and conspiracy theories in times like this, and on BBC,

we are doing our part in the shape of doing fact check & reality check stories & myth-buster videos for our audiences along with our regular output. We try to make this stuff, especially for younger audiences, as they are the prime users of Social Media.



information from the public on the pressure of govt or other parties.

Keeping the audiences ignorant of the scale of the problem can be counterproductive in times like this. In fact, the current situation is a unique opportunity for the media to play its part in a medium to

Saadeqa: The coronavirus anxiety is getting viral worldwide, and we all are feeling that at a larger scale. What is the role of print and electronic media to descend this overgrowing sense of fear in public?

Zeeshan Haider: Media coverage sets the agenda for public debate. While the News doesn't necessarily tell us what to think, it tells us what to think about. Contagious diseases are scary, and they frighten common people easily. The ongoing outbreak of covid-19 has received extensive media coverage, and the flow of information without proper filters can be a double-edged sword.

In these testing times, media, whether its print or electronic, should refrain from sensationalizing the issue by not using frightening language, and the prominence of fear should not be the primary theme in reports on the virus. Having said that, it is also essential to present the facts and do not hold

educate people.

Saadeqa: The UK Govt. announced in Feb 2020 that it would increase the Television license fees from 154.50 pounds to 157.50 pounds for British households. Amid the coronavirus scare and a global recession, how will it impact the BBC viewership and people's right to information in times of crisis?

Zeeshan Haider: I am not in a position to answer this question. You can contact the BBC Press Office if you need a detailed answer.

Saadeqa: Fran Unsworth, a BBC correspondent, outlined several changes in BBC Newsroom in light of rapidly evolving situations due to pandemic. What changes in BBC Urdu (Islamabad) have been made so far?

Zeeshan Haider: This is a highly dynamic situation, and we have adapted our business continuity plans. We've made changes to the workplace to keep our output open and also have

pioneered new ways to broadcast from home. Some of our team members perform essential roles that can only be carried out within BBC premises. Other jobs (while no less important) are being carried out remotely.

Vulnerable people who work for the BBC and those directly caring for anyone who is susceptible work from home. This also applies to those who are pregnant. Our aim is to maximize the number of people who can work remotely.

Instead of physical meetings, we are encouraging greater use of video/phone conferencing through apps such as Zoom. We have also arranged special sessions arranged on mental health and resilience in the unprecedented time of this outbreak.

Saadeqa: As per my observation, BBC Urdu always encourages and relies on its local reporters around Pakistan. How lockdown affected reporters' contribution and how News editors are

managing this situation?

Zeeshan Haider: Reporters, whether they are full-time staff or freelancers, did struggle to hit deadlines in the circumstances like these as the sources become a lot harder to pin down, but none of what we do for audiences would be possible without our reporters who are working in challenging circumstances.

Now a days though reporters are mostly working from home, everyone has gone the extra mile and beyond to provide correct and verified information to our audiences. As a News editor, I know that we are in this for the long haul, and with the pressure and reduced staffing levels, we have had to adapt. Further adaptation may be required, and I am continuously looking at the different options – taking account of the views of my seniors in London and my team here in Islamabad as well as the needs of our diverse audiences.

A Psychiatrist's consent on the Mental Toll of Lockdown and Quarantine

By Faryal Qazi

Dr. Asad Hussain is a clinical psychiatrist who has been in practice for a decade. He has done his MBBS from Pakistan. Dr. Hussain is a fellow of Royal Psychiatrist College and has completed MRCPsych from the UK. He received a Certificate of Completion of Specialist Training [CCT], from Royal College of Psychiatrists, UK, a Diploma in Mental Health from the University of Kent, UK. Dr. Hussain is a qualified Educational Supervisor [QESP], Kent, Surrey, Sussex Deanery, UK. He is an expert in PG Module: Leadership in Clinical Context HEKSS, UK. Currently, he is serving as a Consultant Psychiatrist, Quaid-e-Azam International Hospital Islamabad.

Below is a brief conversation of Dr. Hussain for Scientia Pakistan's "Being a professional in the pandemic" interview series with our team member Faryal Qazi, on mental health crisis under lockdown and Quarantine.

Faryal: As a clinical psychiatrist do you feel any behavioral difference in how Pakistani reacted to Coronavirus outbreak in contrast to the people in the rest of the world?



Dr. Asad Hussain: There is definitely a difference in how Pakistanis reacted to the COVID-19 outbreak. This is due to a multitude of reasons. Pakistan has low literacy rates. It's more difficult to spread awareness about the outbreak and measures to control it, as people are not able to understand the level of importance of prevention, control and treatment measures being introduced and continuously updated. If you just go on the road, you will still see food being prepared, items being sold, and people buying and dealing with them. This is the case in large urban cities of Pakistan, so just imagine what would be going on in rural areas. There are unscrupulous people taking advantage of this and spreading misinformation about the COVID-19 and its apparent treatment to make money. Government

control over such activities is challenging due to the violent nature and mentality of a lot of Pakistani citizens.

Religion in Pakistan plays a major role. It's very difficult to convince people about preventative measures, the authorities introduce. One example is social distancing. No doubt many pockets of communities have adopted the measures as introduced by the authorities but unfortunately, for the most part, it's dismissed. People don't understand that we as a nation need to play our part and no one person can just think about him or herself.

The concept of greater good unfortunately is lost in our society. I see patients who outright state that they are not afraid of COVID-19 and do not need to follow the guidelines. These are actually the educated ones. They fail to realize that it's not only them they are placing at risk but countless others as well.

Faryal: Why do the lockdown and Self-Quarantines disturbing people's mental and physical health especially of youngsters?

Dr. Asad Hussain: In my years of practice, I have noted that most Pakistanis don't have interest, hobbies etc. The common activities are usually going to meet friends or going out to eat. During lockdown and Self - Quarantines, it becomes a challenge for people to productively utilize their time. People working from home or in Quarantines very quickly lose their day to day routines. They may start

sleeping late, eating more, mostly watching TV and News which is constantly filled with Pandemic updates. Anxiety levels start to rise. Lack of physically activity leads to fatigue and as days go by people start to get depressed.

The biggest impact on Youngsters is due to the behavior of adults. Isolating means living in a small area like your house and it has been going on for a significant amount of time. As adults deal with their own issues, rather than supporting, guiding, and helping youngsters, they are unable to help their children. The youngsters need guidance that how to stick to their routines and work on hobbies and interests, but as I mentioned earlier, as adults don't have any concept of such guidance.

Youngsters may spend their time using unhealthy mechanisms like watching things they should not. Excessive energy in young ones gets expelled in an unhealthy and, in extreme cases, violent way. At times they rebel and do activities which may also place other members of the house at risk, like going out meeting other people without the knowledge of household members. We need to understand that the brain develops in a way where the pleasure center develops first and the area, which helps us understand the consequences of our actions much later. Keeping this in mind, youngsters need guidance repeatedly. We also need to understand youngsters and pretty much everyone, have never gone through a situation like this before. If not appropriately educated and

guided, they are prone to anxiety and depression as they may interpret the current situation in a much different way than adults.

Faryal: When it comes to social distancing not everyone reacts the same way esp. in Pakistan where most people do not seem supportive of physical distancing. What do you think, how can we make people aware of the severity of this situation keeping in mind the mental health of people?

Dr. Asad Hussain: I would point to my statement about literacy above and, of course, to the mentality of most people, unfortunately in Pakistan. These people do not have mental health problems. If a person understands the reasons why social distancing is in place and the dangers if it is not followed, then an illiterate person may comply. It may be that repeated guidance is needed, but the message will get through. Then there is a section of our society who just, unfortunately, look after themselves. They are educated and do not have any mental health problems but still choose to ignore the guidance and place others at risk. In these scenarios, authorities need to be given powers to use the law to make people comply. This has been the case in the U.K, U.S, and other countries as well, where police have been granted more powers to make public comply with proper guidance.

Faryal: What are the primary mental damages people are facing due to Panic being unfolded by the coronavirus?

Dr. Asad Hussain: Most people are worried about the Pandemic, about the uncertainty, which is natural. People with existing mental health issues putting others at risk, if they do not look after themselves, this may succumb to mental disorders like Anxiety or Depression.

Faryal: The recovery rate from COVID19 is 98% but still people are in panic and anxiety and focus more on the death toll. I think it's more about human being nature that negativity attracts them more. How do we make people optimistic about this situation?

Dr. Asad Hussain: Easier said than done. There is no doubt that people all over the world are panicking and making irrational decisions in the process. The mortality rate is around 1-2%. But we also need to understand that globally, the number we know is only because they were tested. There is no practical way of testing everyone so that the number could be much higher. If the number is more elevated, and those people have had mild symptoms or no symptoms, then theoretically, the mortality rate could be even lower. It's not a question about negativity attracting more, but what information or News, people are bombarded with 24hours a day by the News channels just focus on the number of cases rising and the number of deaths. Newspapers are printing the number of deaths of people who had COVID-19 on a daily basis like they are showing a Cricket Score. I would argue, in the current scenario, people are looking for something positive.

The first step is to advise people to stop watching and searching News about the COVID-19. As I mentioned above, many people have COVID-19 but have mild or no symptoms. Even the deaths recorded globally; we are not sure that the person died of COVID-19. Many such patients had other medical problems, so it could be that the reason for death was something else, but the said patient just had COVID-19.

As a doctor, I try to counsel my patients to understand the perspective I mentioned above. I guide them to authentic websites if they want to be updated with the latest guidance on how one can help oneself and others. I emphasize the importance of following the advice by proper Authorities and not whatever is being sent by anyone via social media.

At times I even advise patients to block people on social media who constantly spread misinformation, raising the anxiety level of patients unnecessarily. There are certain counseling techniques I have mentioned below which I find really help patients feel calmer and more optimistic.

Faryal: The complete isolation till recovery and cutting of social contacts during Quarantine is harder for patients. How doctors on duty can keep patients' hope alive and most importantly how patients in hospitals can stay positive?

Dr. Asad Hussain: To answer this question, we first need to understand that many factors are contributing to

the discomfort of patients in Quarantine. Anxiety about what is going to happen to them, the idea of being in a hospital setting with so many other unwell patients and seeing patients worse than them, not being able to see face to face loved ones, etc. Given the factors involved, it is not an easy task to manage such a patient's mental health. As I have mentioned earlier, avoiding patients looking at unnecessary News is pretty much harmful these days, providing them with activities of mindfulness. This could be entertainment in the form of dramas, movies, books, etc. Doctors should give access to patients so that they can continue to remain in contact with their loved ones via video chat or audio if possible. If noise is a concern, then texting loved ones is another way to go.

It is easier said than done, but doctors need to be patient with these patients, and counsel them to stay optimistic, be honest on what their management plan is for the patient's complete recovery. A lot of anxiety stems from not knowing how a patient's treatment is going and why tests are being done etc. A doctor, who has a good rapport with his or her patients, can help the patient remain calm just by reassurance and I can't emphasize this enough.

Faryal: Do you think that our youth is under-estimating the importance of Quarantine? How can we convince our youth for constructive activities instead of boredom?

Dr. Asad Hussain: I don't think all youngsters are under-estimating the

importance of Quarantine. The question is why not all youths are feeling the importance of Quarantine? I did make some comments on other questions regarding this to some extent. Youths need to be guided. As I mentioned before, there is also the element of how the brain develops; the part where we start to realize consequences at a later age. Parents and caregivers play an extremely important role in this. The guidance by respective authorities is in a language meant for adults and not all youths are the same.

It boils down to the Parents how they act themselves and how they explain the importance to the youths. Adults and youth have different routines, and I think the keyword here is “different.” Adults cannot just expect youth to follow their every direction. They need to connect with the youth on their level, explore their interests and then guide and encourage them to pursue those activities which can be done while keeping one safe.

The Quarantine could be taken as an opportunity to learn new activities, like learning a language, improving computer skills, etc. The “routine” need not be all learning as youths need to blow off steam as well. This could involve board games, computer games, etc. It could also be a chance for the family to become closer to each other. Walking, jogging or cycling in a safe area, going for a drive with the family, playing in the garden, reading a book or listening to music in private. Cooking at home or playing games or watching a movie is also one way for healthy

activity. As the day goes by, try and change the routine so that the interest remains intact and try to keep a routine that involves healthy eating, exercising, and keeping you hydrated.

Faryal: Do Social and Electronic media have a role in uplifting anxiety level and mental disturbance among masses? And how can we overcome this phenomenon?

Dr. Asad Hussain: As I have mentioned in my earlier answers, unfortunately, social and electronic media mostly portray negative News, and I do agree with you that this causes more anxiety. If people receive any information, they should stop sharing and think for a while about its authenticity and search the source of the data. There is a possibility; the information could be fake if, in doubt, delete the information. Be very careful of the post in social media, which plays on your emotions as that is exactly what they are meant to do. The increase in anxiety level, making people make irrational decisions.

There is the rampant use of social media, and the best way is to go old school, I mean, picking up a book, listening to something relaxing, going for a walk where it's safe. If feeling unusually anxious, then acknowledges that there is uncertainty around the Virus. Try not to react and take a pause. Take a step back and accept that this is just anxiety driving fears. Tell yourself the need for certainty is not necessary. Accept that whatever thoughts going through your mind are not facts and

thoughts may not be accurate or real. Try and let go of the thought.

Explore the present by actively noticing what you are seeing, hearing, touching, smelling, and then moving onto some activity to distract yourself.

Faryal: Mental and emotional stability of health care workers is crucial. What do you advise them about keeping their mental and emotional stability?

Dr. Asad Hussain: Health care workers are our first line of defense in this war against the coronavirus. We must not forget they, too, are human and have families like all of us. They go home each day worrying, whether they are infected and if they will put their families at risk as well.

Health care workers should be provided with adequate equipment and safety gear to perform their jobs. They need to take regular breaks and not work long shifts as chances of mistakes or errors increase. Regardless of the organization they work for, they need to know the organization is doing everything to keep them safe as well and is there to support them. Health care workers should not be thrown in the deep end without any training and gear and be expected to do their job by placing themselves at risk. In summary, if the health care workers know they are protected and supported, it will go a long way in keeping them stable emotionally and mentally.

Be the change you want to see

By Khola Abid

Nadia Bukhari is a British academic pharmacist, and the youngest female fellow of the Royal Pharmaceutical Society: a privilege granted to those who achieve excellence and distinction in their pharmacy career. Further, she was the first Muslim female and the first woman of Pakistani origin to be elected onto the National Pharmacy Board for England. She has authored various titles with the Pharmaceutical Press and mentors' students globally.

This interview was originally conducted by an Editor of Scientia- Khola Abid, and lately drafted out by both Khola and Mehwish. We sat down on Zoom with Nadia Bukhari to discuss the role and importance of Pharmacists, and what are the key ingredients that distinguish her from the rest of the crowd.

Tell us something about yourself?

Nadia Bukhari: I am a very proud pharmacist and have quite a portfolio career.

I am an academic pharmacist at the University College London, UK, global lead for gender equity for workforce development at the *International Pharmaceutical Federation*, and I am the Chief Pharmacist for Pakistan's leading Telemedicine company *DoctHERs*. In addition, I am an executive committee member for the Indus Health Network



UK, and a trustee for a Pakistan based strategic organization *Pakistan Alliance for Girls Education*; always wearing lots of different hats, but this is what keeps my career journey interesting.

Can you tell us what has been the biggest influence on your career journey?

Nadia Bukhari: When we think of someone or something that has influenced our career journey, we often think of positive influences. However, for me, not only have the positive influences driven my success, but the negative ones also. So, for my positive influence, I would like to thank Catherine Duggan for being my mentor and CEO of the International Pharmaceutical Federation. She guided me through every major step that I have taken in my career; the one piece of advice that I give to all is that *having a good mentor is integral for shaping your career to the road of success*.

On the flip side, there are many negative encounters that occurred in my life and career path. Those negative experiences really made me focus on myself and pushed me to develop skills of inward reflection which in turn has given me a lot of determination and motivation to focus on myself and my career. So, I also like to thank the negative influencers in my life as well because they inadvertently, also drove me towards success.

Can you give us an example where you influenced and created an impact in the pharmacy profession?

Nadia Bukhari: Yes, I am honored to mentor quite a number of young pharmacists.

During the Corona pandemic, Pharmacists have been feeling unmotivated and un-recognized despite being on the frontlines. This was highlighted to me through various pharmacist platforms in Pakistan; I then decided to take this to the media and to use their platform to highlight the important work that Pharmacists are doing during this whole pandemic to the public.

I was interviewed on PTV, News24, ARY and Radio Pakistan where, I spoke about the role and importance of pharmacists and highlighted the role that pharmacists are playing during this pandemic. This was highly appreciated by the pharmacy community in Pakistan; I received many lovely messages of appreciation. My message to our pharmacists in Pakistan is that I will try my very best to support

pharmacists and our profession by ensuring their voices are heard and listened to.

You are the first Muslim female to be elected on the Board for Royal Pharmaceutical Society of Great Britain and you are also the fellow. Can you tell us about this amazing achievement?

Nadia Bukhari: A lot of things in my life have been unplanned; if you took me 5 years back, I never thought I would be where I am today. So, a lot of things happened organically; being at the right place at the right time. Being a fellow for Royal Pharmaceutical Society (RPS) is an honor that RPS bestowed to the members who give exceptional services to the pharmacy profession, and there are many things that I have done during my career which culminated to the fellowship, e.g., promoting pharmacists on the global platform, quite a bit of media work, and again around the globe advocating the pharmacy profession.

I am so passionate about being a pharmacist as I always wanted to be one from a young age. Usually, people think that pharmacists are medical school dropouts; they didn't get a chance at medical school, that's why they are studying pharmacy. But, I always wanted to be a pharmacist, and I feel so proud to represent my profession and the passion for the profession always shines through.

Earlier in my career, I practiced as a community and hospital pharmacist. Now, being in academia, I love every single interaction that I have with my



students. and am pleased to be a role model for young aspiring pharmacists.

You also have a philanthropic side and you are a strong advocate of women education. Why do you spend the biggest portion of your time on women's education and community service work? What does it give you in return?

Nadia Bukhari: I am sure we all have heard about *UN sustainable development goals*. These 17 goals help any nation develop a sustainable future for all. Two of them that spring to mind: *access to good quality education and access to quality health care*.

"In my opinion, health care and quality education are the two things that lead to the prosperity and sustainability of any nation."- Nadia

Pakistan is my country of heritage, though I was born and raised in London, I always wanted to give back. Unfortunately, Pakistan has the second-highest number of out of school children in the world. I was approached to join as an ambassador for Pakistan Alliance for Girls Education. I came on board as I really believed in the work PAGE was doing

in promoting gender equity and increasing access to education for girls all across Pakistan. I visited one of the schools, and that visit changed the whole perspective of philanthropy for me. Whilst there, I interacted with the girls and saw how grateful and motivated they were about receiving an education- that just made my drive and determination to come on board as a trustee, deeper. We have 144 schools all across Pakistan which we have opened mostly by fundraising here in the UK.

My second philanthropic project is my work with the Indus Hospital: the only hospital in Pakistan that has no cash counter. I visited the hospital and have also done some training sessions with the pharmacists. I am now an executive committee member for the Indus Health Network in the UK advising on our advocacy and fundraising for the hospital.

My advice to anyone who wants to engage with any philanthropic initiatives:

"One should visit and see the work that has been done first hand, engage with the people that are affected because that really stays with you forever, and it

gives you a lot more motivation to fight for that cause."

During this whole Corona Pandemic, how are the Pharmacists playing their role?

Nadia Bukhari: Pharmacists are experts in medicine. Whenever there is any involvement with medicines, you must always have a pharmacist involved; that's the bottom line.

With COVID-19, every country is pretty much affected. During the lockdown, the public has restricted access to shops except for grocery stores and pharmacies. Now, pharmacy is considered an essential service, and who is delivering these services? Of course, *a Pharmacist*. Pharmacists always have been, not just in the corona pandemic, at the front line of health care. One doesn't need an appointment with a pharmacist, and they are easily accessible.

Right now, during this pandemic, doctors are completely stretched, and the already strained health systems are breaking. Patients and the public are turning towards pharmacists. Apart from medication safety and safe dispensing, pharmacists are advising and supporting patients when it comes to the coronavirus.

During COVID-19, pharmacists worked at the frontline to save lives despite it, WHO couldn't consider them among health heroes. I wonder if we could discuss the most probable reason?

Nadia Bukhari: This is a very contentious issue, unfortunately, and

the problem is we are absolutely on the front lines, but not getting the recognition we deserve, and this is what leads to the de-motivation of our profession. For this very reason, I took to the media to advocate for our pharmacists in Pakistan.

Here in the UK, our health secretary gave gratitude to pharmacists, and this was a great boost for the profession. In Pakistan again Dr. Zafar Mirza- the state Minister for health-also mentioned pharmacists through social media which was highly appreciated by the profession; recognition goes a long way.

The hierarchy within the health system is still there but more so in Pakistan where doctors sit on the top of the pyramid and all other health care professionals come below, and even now in 2020, we haven't been able to change that mindset in Pakistan. In countries like the UK, we are moving towards more of a seamless integrated care approach where the patient is at the center of everything you do-but when you move towards the lower-middle-income countries you still don't have that integrated approach.

So, there is still a lot of work to be done and my advice really is that:

Every single pharmacist, no matter where they are in the world, needs to be ambassadors of the profession and make some noise and advocate about being experts of medicines and of the value, we bring to the healthcare team; we need to be the change they want to see.

Use your contacts, your network to start advocating and campaigning on what pharmacists are capable of as we are an integral part of the healthcare team.

According to Dr. Nadia, pharmacists are absolutely on the front line, but don't get the recognition they deserve

Why did you choose Pharmacy Practice for your Post-grad years? There are loads of other pharmaceutical Sciences as well. How did it become the point of the center?

Nadia Bukhari: I have always been in the pharmacy practice domain. I worked in a community pharmacy and hospital pharmacy. Those years in practice really shaped my career. I was working in a very busy community pharmacy for over a year. That was my first job as a newly qualified pharmacist. It was a very busy pharmacy where I learned a lot from that first job; I met such a broad range of patients. It was a very high paced pharmacy that I worked in, and then I moved on to a hospital as a clinical pharmacist in

surgery and musculoskeletal as a ward-based pharmacist going on ward rounds with the clinical teams. So, I worked a lot on my clinical skills when I was working there for three years before I came into academia.

The whole purpose of coming into academia was to bring my practice experiences to the students.

What was the basic motivation behind building a foundation for women in

Pharmacy? I am pointing towards National Alliance for Women in Pharmacy?

Nadia Bukhari: 70% of the health force is of women but we don't see those kinds of representation in leadership positions.

I have been going to Pakistan for about three years now in the work capacity where I am engaging with pharmacy professionals. Whenever I have gone there, I have been received very nicely and very hospitably as well. But, I have only seen the men and the incident that really sparked the question in my head was that photo, I had two years ago, where we had all the predominant pharmacy leaders on the stage and I was also invited on the stage for that picture. I posed the question, *where are your women?* The numbers that we see as I have just given numbers for the global work health force, that numbers can be translated into the pharmacy workforce as well and in Pakistan, we actually see that anecdotally 80% of the workforce are women. I spoke to Pakistan's Pharmacist Association- who were very forthcoming, and I want to thank them as they have been very supportive in the whole process of launching the National Alliance for Women in Pharmacy. *We need something for female pharmacists in Pakistan to help mentor them, support them, and give them some sort of leadership direction so that they also become leaders. Hence, this notion became the heart for the development of the National Alliance for Women in Pharmacy.*

What would be your advice for emerging pharmacy students and for young researchers?

Nadia Bukhari: There are lots of things that I can say, but I think the biggest take-home message is:

“Never give up, set yourself goals and try to reach those goals. Celebrate the small and big wins, because when lots of small wins come together that contributes to the big win. Be proud of yourself.”

‘Take a step back and celebrate your wins. You are so busy in just moving on to the next goal that you forget to say:’

‘You know, I actually did a really good job there. Well done!’

‘Give yourself a pat on the back. So never give up, appreciate yourself. Also, have a good work-life balance that’s something we tend to forget and get yourself a mentor that is truly important.’”

COVID-19 makes the benefits of Telework obvious~Issam

By Saadeqa Khan

The Coronavirus pandemic is an extreme test of the necessity of many parts of our daily routine. From education to office work and to the business, it hit hard every sphere of life and highlighted the importance of alternatives to traditional ways of communication. With physical distancing, employers' transition to telework is poised to remake all of those assumptions, both for the current

crisis and beyond. Though this surge in teleworking raised many questions about whether the technologies that enable telework like video conferencing, desktops, etc., can scale the enormous traffic. Still, we are bound to depend on telework as it is the only solution to significant problems we all are suffering through after lockdown.

As journalists across the U.S. scramble to cover the impact of coronavirus, while they are grappling with bitter irony. The devastating sweep of COVID19 is the biggest story for this generation that hit hard the U.S., and media outlets are facing a massive drop in advertising due to the global economic recession. To know more about how much the pandemic affected Journalists across the U.S. and how



they are figuring out the significant challenges, team Scientia Pakistan had an online conversation with renowned journalist Issam Ahmad.

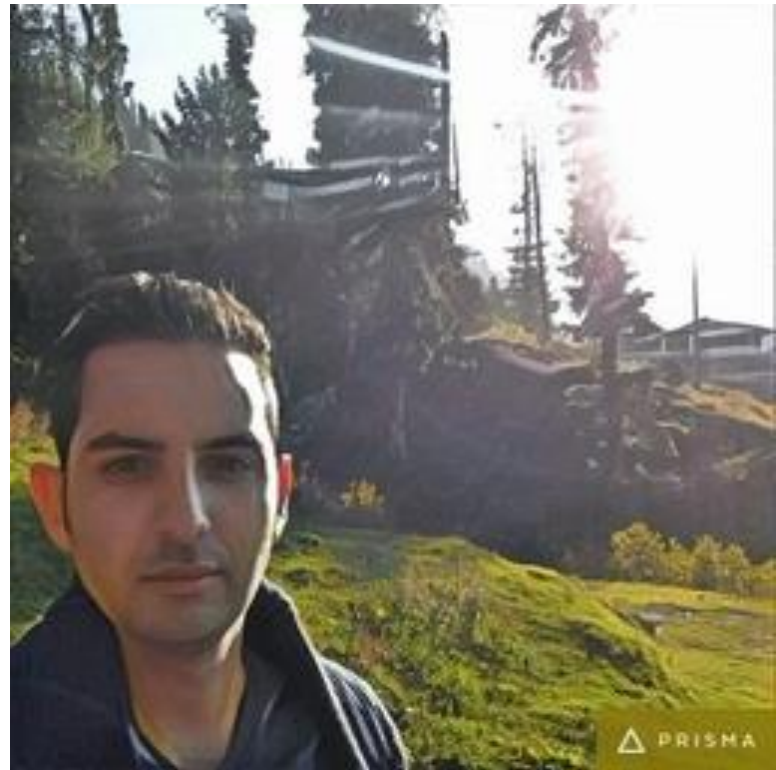
Issam is a Health, science, and environment reporter for Agency France Press (AFP), resides in Washington D.C. He has been reporting for the Christian Science Monitor, Guardian, Business Insider, Chicago Tribune, Times of India, and many other prominent international media outlets. Below are some excerpts of his recent conversation with our EIC, Saadeqa khan.

The science and health reporters have a far greater workload these days, and our beat is center stage. ~ Issam

Saadeqa: It is not easy to work in pandemic days when there is an outburst of fake news and myths about the virus. I can realize that media persons are playing harder. How lockdown and work-from-home have affected your life being a journalist? Have you felt anxious or overburden?

Issam: It's true that science and health reporters have a far greater workload these days, and our beat is center stage, but that the same time it's good to keep busy during the lockdown and feel like you're helping in some small way keeps the public informed. I'm glad to be productive!

Saadeqa: At the moment, global coronavirus cases pass 1.8 million amid fears of the second wave in the U.S. Many U.S. officials, including President Trump, ignored early warning of WHO released in January about the



pandemic and now suffering its consequence. Did U.S. media intentionally neglected the severity of the situation, or were they unable to realize initially?

Issam: Actually, I think the WHO was partly responsible for downplaying the outbreak — they first said asymptomatic carriers weren't an issue, they said there was no need for travel bans, and they didn't criticize China at all for its early cover-up. The U.S. media was preoccupied with domestic politics well until late February, as I think was media around the world.

Saadeqa: There are a whole bunch of conspiracy theories circling about coronavirus pandemic like death toll in the U.S. has been overstating, often claims right-wing media. We know that Johns Hopkins coronavirus resource center is releasing accurate data, but

how can media and U.S. officials adequately deal with such conspiracies?

Issam: This is a significant problem, as you noted, it appears to come more from the political right. At least the major conservative outlets belatedly changed their tunes, even if more fringe voices haven't. But on the whole, I'm encouraged by the public's response to lockdown guidance and orders. Then again, my view might be skewed by living in Washington DC, not a rural Republican state.

Saadeqa: The coronavirus anxiety is getting viral worldwide, and we all are feeling that at a larger scale. What is the role of print and electronic media to descend this overgrowing sense of fear in public?

Issam: Reporting the facts as accurately as possible and mediating the plethora of scientific studies and data that are emerging — sifting through them, placing them in their context, explaining it well so that it can be understood and acting on. Also, its key does not overhype preliminary work, such as studies that promote or 'debunk' one drug or the other based on small studies.

Saadeqa: Public health experts in the U.S. have widely been criticizing Trump administration for the severe lack of planning for such pandemics for the U.S. becoming the global hotspot of coronavirus. What flaws do you locally witness in management while living in Washington, DC?

Issam: The White House downplayed the crisis for too long, overriding the advice of top officials from the CDC. Testing was too slow to get off the mark because of regulatory delays and technical issues. Then the U.S. federal system of governance meant that the states were too late in coordinating their mitigation actions. The President belatedly shifted his tone, but we still see him doing irresponsible things like promoting hydroxyl-chloroquine as a miracle cure. It might work, but we need to listen to the scientists who tell us we need more data in the form of Randomized Control Trials to be sure.

Saadeqa: How lockdown and self-isolation affected reporters/journalists' contribution to their media outlets and how News editors are managing this situation in the U.S.?

Issam: There were teething issues early on due to coordinating while teleworking, but honestly, I think if anything this period has shown us that teleworking is feasible, especially for text reporters. For our photographer and video colleagues, it's another story. A might be a good thing to emerge from the crisis might be greater faith in telework, which is overall better for the environment.

Saadeqa: International media outlets have specific science desks, but here in Pakistan, science still never consider as a genre in journalism. Do you think that institutions like CEJ IBA, LUMS, or Karachi University should kick start science reporting courses specifically for WEB/NEWS editors on an immediate notice?

Issam: Yeah, I think that's not a bad idea. But I think the broader reason for a lack of science reporting in Pakistan is that there isn't much scientific research happening in Pakistan. It's practically a non-entity as far as original research is concerned. Even when compared to, for example, neighboring Iran.

The problem won't change until the Pakistani government gets serious about STEM higher education — not just for undergraduate courses but real research. That takes time and money and would need to find ways to stop/reverse the brain drain.



By Muhammad Abdullah Khan

Dr Salman Hameed is Charles Taylor Chair and Associate Professor of Integrated Science & Humanities in the School of Cognitive Science. He is also the director of Center for the Study of Science in Muslim Societies (SSiMS). He holds a Ph.D. in astronomy from New Mexico State University at Las Cruces and a B.S. in physics and astronomy from the State University of New York at Stony Brook.

His primary research interest focuses on understanding the reception of science in the Muslim world and how Muslims view the relationship between science & religion. His other research interests include analyzing reconciliation efforts over sacred objects and places of astronomical importance. His past astronomy research focused on understanding star formation in spiral galaxies.

Dr Salman has taught courses on “Evolution, Islam, and modernity”, “Science in the Muslim world”, “Creating science fiction short films using real science” (with Dr. Jason Tor), “Science & Religion: Biological evolution in the public sphere”, “Aliens: Close Encounters of a Multidisciplinary Kind” and “History and Philosophy of Science & Religion” (with Dr. Laura Sizer) at Hampshire College.

We got a chance to have a conversation with him during this lockdown. Following are parts of the conversation:

Abdullah: You were born and raised in Karachi. Let us know about your academics?

Dr. Salman: I did my Matric from Bai Virbaji Soparivala Parsi High School (B.V.S.P) and then my Intermediate from D.J. Science College. I did not know I will be pursuing astronomy later on, but my interest was always towards the sciences. After my Intermediate, I

got into N.E.D. Engineering University in Mechanical Engineering program. I only spent a month there before leaving for the State University of New York at Stony Brook. I was admitted into the Computer Science major, but I soon discovered that I was spending all my time in the Earth and Space Sciences Library.

To the consternation of my parents, by the end of my first year of undergraduate, I switched my major to astronomy and physics. It was tough, especially the physics part, but my love for astronomy encouraged me to accept this challenge. After my bachelor's, I moved to New Mexico State University (NMSU) in Las Cruces for my Ph.D. The night sky in New Mexico is amazingly dark, and it was perfect for doing astronomy.

For my doctorate, I looked at how stars form in spiral galaxies. To do this, I was lucky to use some of the world's best telescopes in the US, Chile, and Spain. It was awe-inspiring to visit these stunning places to explore questions about galaxies millions of light-years away. I should mention that when visiting these places, I would mostly be listening to Nusrat Fateh Ali Khan, and his music in my mind is now inextricably tied to these places.

Abdullah: How did you get interested in Astronomy?

Dr. Salman: I was always interested in staring up at the stars. But what reshaped my life was the airing of Carl Sagan's "Cosmos" on PTV in 1984. I was in 9th grade at the time. Before



that, I did not know that one can go with astronomy as a profession. Just imagine: Working full time on your favorite hobby! At the end of the first episode, I had decided that I want to be an astronomer. And 17 years later (!) I got my Ph.D. I never got a chance to thank Carl Sagan as he died in 1996. But I did meet his widow, Ann Druyan, and conveyed my thanks to her.

Abdullah: You were among the pioneer astronomers who established Amateur astronomers' society of Pakistan (Amstropak) in 1987. Let us know about its achievements?



Amstropak conference in 1988

Dr. Salman: Today we have a thriving amateur astronomy scene in Pakistan. At the time, however, we starved even for basic astronomy information. This was the reason why a few of us – all under the age of 17 – formed an amateur astronomical society in Karachi. We started a newsletter that provided astronomy basics and hosted symposia on Mars, Supernova 1987A, and Voyager spacecraft's encounter of Neptune. The symposium on Mars included a live teleconference by one of the leading Mars experts, Chris McKay. This was relatively special as this was a time well before the ubiquity of the internet and Skype chats. Apart from the general public, professors and students of Karachi University and the members of SUPARCO attended these symposia. Even though Amastropak ceased to exist in the mid-1990s, I

hope that its existence has played at least a minor role in the later blossoming of amateur astronomy societies in Pakistan.

Abdullah: In 1989 you moved to the US for higher studies, how was that experience? Would you like to share your thesis that triggered the research of star formation in spiral galaxies?

Dr. Salman: This is a brief question; I will sum up it in two main things that I want to highlight. First, I learned quickly that you have to submit your homework on time. In Pakistan, we were used to cramming for exams at the end of the year. But in the undergraduate program at the State University of New York at Stony Brook, I realized that missed assignments even at the beginning of the semester can cost you your grade. This was a good lesson as deadlines are essential for telescope and grant proposals as well. You cannot submit a proposal even a second late. Secondly, because of graduating requirements, I was forced to take courses in sociology, art, film, etc. At that time, I resented these non-science classes, as I absolutely loved astronomy and felt that this was taking precious time away. However, some of these classes have had a huge impact

in making me the person I am today and for that, I'm extremely grateful!

My PhD. thesis at *New Mexico State University* in Las Cruces focused on how stars form in spiral galaxies and I used telescopes in Chile, Spain, and of course the US. I was looking at particular types of galaxies that are defined by their "bulge" of old stars. Compared to other spiral galaxies, it was thought that these have relatively few new stars forming. However, my advisor and I suspected that in many cases their star formation may be hidden from view by this bulge of stars. We used a technique to subtract out the light from the old stars to reveal substantial star formation in an insignificant number of these galaxies. I still had to explain why some of these galaxies are going through this high rate of star formation and I suspected that we are catching them in the act of cannibalizing small galaxies (our own Milky Way has also cannibalized many small galaxies over its history). I found the smoking gun by tracing some leftover signatures of such cannibalization using the Very Large Array radio telescope in New Mexico. I continued this work during my post-doctorate fellowship at Five College Astronomy Department (FCAD) in Massachusetts.

Abdullah: What were the causes behind your keen interest in the way young Muslim scientists view biological evolution and modern science?

Dr. Salman: This has to do with encountering students in my astronomy classes who believed in UFOs. To me,

this was surprising and fascinating. These were smart and educated students, and yet they believed in alien visitations. I started to get more interested in how social, political, and cultural factors shape our beliefs. Biological evolution is interesting from this perspective. The idea that species have changed over the past 4.5 billion years of our planet is a fact of science, and natural selection is the accepted mechanism for this change. I learned that in the 9th-grade biology textbook in Pakistan as well and did not see any conflict with religion. And yet, evolution is controversial in the US, but not in most Christian majority countries. In fact, in the US, political affiliation correlates with one's acceptance or rejection of evolution.

While a lot of research has been done on evolution attitudes amongst Christians, very little research has done for Muslims. Given the diversity of Muslims in the world, from South Asia and Saudi Arabia to Albania, Senegal, and African-American Muslims in the US, it is a fascinating question. It would come as no surprise that there is no monolithic Muslim position on evolution. Even the word "evolution" means different things to different people. From a research perspective, I'm fascinated by the political, social, and historical factors that shape these responses.

Abdullah: Your primary research work focuses on understanding the reception of science in the Muslim world. During the current coronavirus pandemic, Muslim countries like Pakistan and Iran show a severe lack of

scientific knowledge even for health and general precaution awareness from an epidemic. There have been problems enforcing lockdowns and a lack of understanding of concepts of social distancing and quarantine. What do you suggest Muslim countries should include in their educational curricula so that the general populations are more receptive to science rather than myths and conspiracies?

Dr. Salman: There are a couple of things to say here. This is not just a Muslim society's problem. Look at the protests currently going on in the US against social distancing. The problem is that people are looking for certainty in an incredibly uncertain time. This is understandable. There are also real economic concerns for a large segment of the population who do not have the luxury of being isolated and work from home. What you need in this time is

strong leadership that trusts science and has an underlying understanding of the process by which scientists are trying to understand Covid-19 and create its vaccine. It would be unfair to bring the Chancellor of Germany into the mix because she has a PhD. in quantum chemistry. But just look at the fantastic leadership shown by the Prime Minister of New Zealand, Jacinda Ardern. In a time of such global uncertainty, we need good leaders.

But what should be included in science curricula that can be helpful? I think the key would be to understand the methodology of science, including concepts like double-blind tests and the difference between causation and correlation. But most importantly, to appreciate uncertainty. Unlike the popular perception, science thrives when we don't know the answer. Scientists (at least the good ones) are quite comfortable saying, "we don't



Dr. Salman also hosts astronomy video series on his YouTube channel, Kainaat Astronomy in Urdu

know.” After all, this is precisely the place where exciting research is done. It will be quite dull to work on a problem that has already been solved. Therefore, we get trained to appreciate uncertainty. But we also learn how to solve problems methodically and how to be critical of our results. It is these things in the curricula that can help the public understand and appreciate the process of science.

Abdullah: I have a keen interest in astronomy since my childhood, and I do believe that seeking knowledge of the heavens helps us to understand the grand mechanism of this universe and universal laws of nature. Do you think that pandemics like Bubonic plague, Spanish flu, and now COVID19 are part of nature’s grand plan to find the “survival of the fittest”?

Dr. Salman: If we go by that logic, then we should not take antibiotics or do any surgery that can save lives. After all, are we not interfering in nature by saving lives via medicine and technology? Second, we are part of nature. We cannot take ourselves out of nature. Whatever we do, by the very definition, would also be part of nature. All of this does not mean that we should not take care of the planet. Humans are the only species in the history that now can wipe out most species on Earth. Our destruction of Earth’s ecosystem can lead to a lot of misery and can potentially lead to our extinction as well.

Abdullah: How would you explain to a layman that Coronavirus is not a curse of Almighty?

Dr. Salman: I think the first thing would acknowledge why people would want to see this as a curse. This is a significant global tragedy, and humans wish to seek explanations and certainty. Unfortunately, a scientific explanation currently provides neither. Instead of a discussion of a ‘curse,’ I would turn to the issue of benefits to humanity. If we can find the vaccine and a cure, then that would save a large number of lives, and this is something consonant with the teachings of Islam and all other religions as well. Second, I would compare plagues to earthquakes. Traditionally earthquakes have been interpreted as ‘punishments’ for ‘sin’ as well. Some of this was brought up after the tragic 2005 earthquake in the northern regions of Pakistan that killed over 80,000 people. But humans now understand how the movement of continental plates causes these tremors. The location of earthquakes strikingly matches the boundaries of these continental plates.

This particular knowledge saves thousands of lives each year, as buildings in many of these earthquake-prone areas are designed to withstand the shaking of the Earth. Sure enough, we cannot argue that the punishment from Almighty is only concentrated on people where continental plates meet and onto those countries that cannot afford earthquake-proof buildings? If we can argue that earthquakes are part of natural processes we can possibly extend that analogy to include Coronavirus as well. Not everyone will immediately change their minds and that is okay. But some (many?)

probably will. We should not alienate or mock those who do not agree with this viewpoint as some will change their minds tomorrow.

Abdullah: After worldwide lockdown, NASA released very clear satellite images that showed decreasing levels of air pollution across the globe. These clear skies are an amazingly awesome chance not only for astronomers but for amateur stargazers too. Are there any fun ways astronomy lovers can spend their time indoors keeping themselves busy observing the cosmos? How are you spending your time in this lockdown?

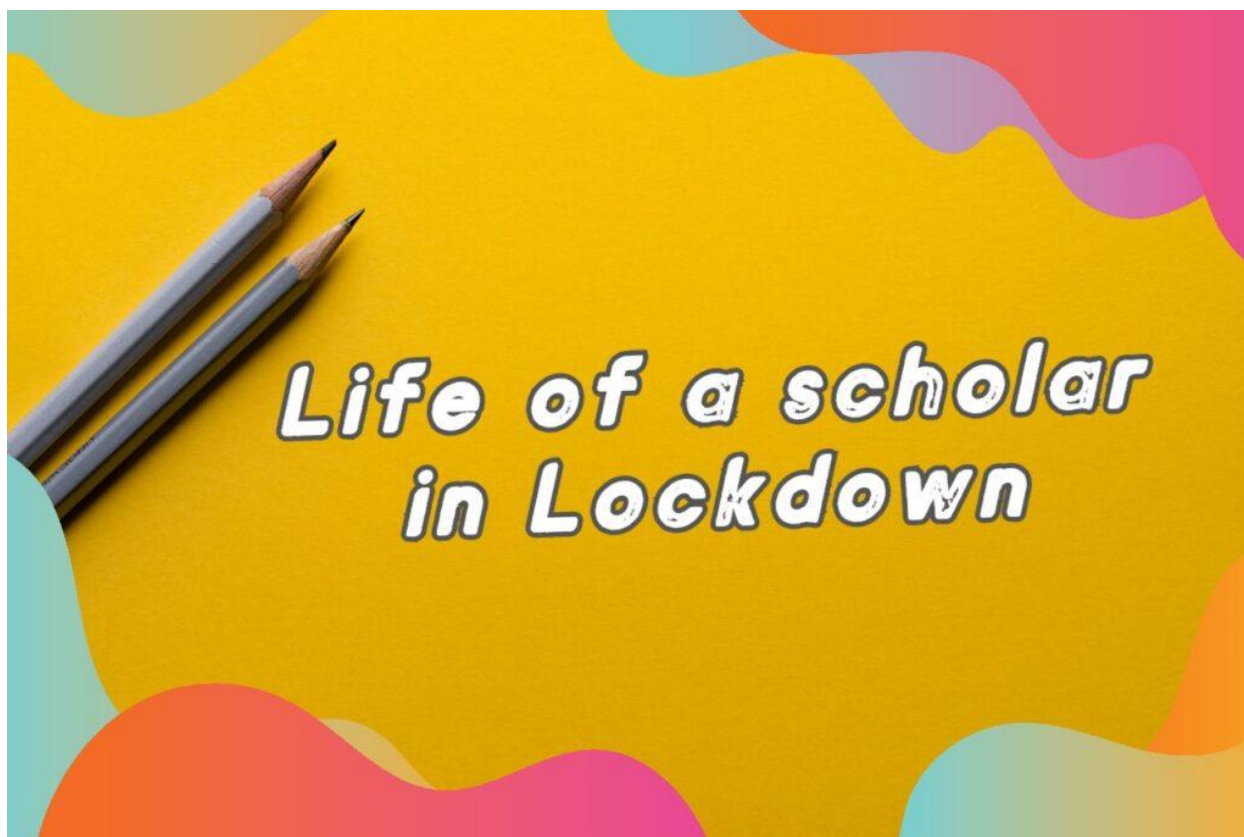
Dr. Salman: I think this is a fantastic opportunity to learn about the stars. Even a global lockdown cannot keep the stars out. You can use any basic app (such as Stellarium or Star Walk or Night Sky, etc.) about the location of planets and stars each evening and learn about the objects as well. Venus is bright in the evening sky, and Mars, Jupiter, and Saturn are putting up a show in early morning skies to the east. With your naked eye, you can spot a cluster of stars called the Pleiades and know that you are looking at a collection of a few hundred stars (you can only see the brightest seven with the naked eye) that are all relatively young and are located about 400 light-years away.

Our Sun, a long time ago, formed in a cluster like the *Pleiades*. We do not know where the Sun's siblings are today. But the Pleiades is a reminder of our own Sun's youthful days. If interested, you can watch my video on how to identify stars and planets in the night sky.

Abdullah: You have been hosting astronomy video series on your channel, *Kainaat Astronomy, in Urdu*. What is the philosophy behind this initiative?

Dr. Salman: The primary purpose is to create curiosity about the universe in a language that is understood by most people in Pakistan. With the internet, you can find hundreds of videos on any topic. But your language makes a difference. The goal of these videos is not to lecture for a course. Instead, to inspire individuals to think and appreciate how we have come to know so much about our universe and how much more there is to know! Please come and visit Kainaat Astronomy in Urdu.

Link: <https://www.youtube.com/KainaatAstronomyInUrdu>



By Fatima Zahra

The COVID-19 crisis has unfortunately forced us to stay at home. This is an essential step to stop the spread of the virus and limit the contagion. Each of us is living a little differently during the lockdown. Students and scholars are also trying to adjust to this life and looking for ways to use their time productively. Scientia has caught up with a scholar to talk about the lockdown/quarantine days.

Rubab Raza is a Ph.D. research student currently enrolled in Quaid-i-Azam University, Islamabad. She is a gold medalist in the MPhil program from QAU Islamabad. She likes singing, fine arts, and sketching during her free time. She is on the way to serving society by volunteering her services.

In 2016-2017, she served as a joint secretary of the Biochemist association of Quaid-i-Azam University, Islamabad (BAQI). Currently, she is serving as the President of the Biochemistry association of Quaid-i-Azam University, Islamabad (BAQI). Moreover, she is also a member of Music society and Quaidian Christian society, QAU, Islamabad. She shared with us her life during the lockdown.

During quarantine, we are all forced to stay at home. So, what are you doing to make yourself active and busy?

Where quarantine has paused our lives, it has added positivity in our lives too. I start my day with a morning prayer, then I have a very healthy breakfast and spend some time with my family, which was impossible otherwise due to our busy routines. I love to sing and draw

as well, so I also spare some time for these activities. Due to quarantine, practical work in my lab has been affected a lot, but these days I try to keep me up to date about my research work by reading articles and watching videos related to my work, thanks to the internet. Also, I live in a joint family system, so I keep myself and other kids of the family busy by doing drawing competitions with them, artwork, cooking, etc.

When you first heard about the lockdown/quarantine, how much did you know about a viral disease like COVID19 and *Pandemics*? With each new day, the situation is getting worse. What do you think, how can nations fight effectively against Coronavirus?

At first, I knew a little about Coronavirus, but with each day, I read more about it so that I can learn and guide others about the concerns, safety measures, and effects of this disease. As there is no treatment known for Coronavirus till now, so every individual should fight on its own only by taking necessary actions and preventive measures such as wearing gloves and masks, washing hands, proper isolation and avoid meeting others. Pakistan's government has also taken anti-corona steps. The best way for the nations to fight this virus effectively is that they should ensure a complete lockdown where people should avoid meeting each other, and mass gatherings should also be avoided. This will markedly reduce the spread of this disease.



How would you think that students can contribute to serving the nation during these tough times?

Being students, we should learn about the virus and the disease and then correctly educate others about it as well. We should also highlight the importance of vitamin C and food that boost immunity, should guide people that how vital the precautionary measures are. We should also do volunteer work by sharing food with the needy.



Rubab with her family in a Car House made during the COVID-19 Quarantine

How institutes can avail this time as an opportunity to make their students think on one's feet. Any suggestions?

University authorities should do online competitions to keep their students busy and linked to universities. The match includes drawing competition, photography, essay writing competition, etc. Research students should be given articles to study and present it through an online presentation.

The lockdown can leave some impacts on the students may be in the form of anxiety. Are you fearful about your career due to the current situation? How could someone combat these issues?

A Ph.D. is a long-term commitment, and it takes a lot of years. Being a Ph.D. student, I am worried about it as this whole situation will add more time to the completion of my degree. It has caused anxiety as well, but we should need not panic and combat stress by taking a healthy meal, good sleep, and exercise. We should also take care of our mental health by accepting the

situation and acting accordingly by taking a break and talking about your feelings, by staying active and by helping and caring for others. I am hopeful that this situation is temporary and good days will come.

You are a Ph.D. researcher. How are you leading your projects online? What problems are you facing in your research work?

Being a biochemist, my research is lab-based. Quarantine has affected it a lot. I am facing a lot of problems during this period as I have to continue my research project in the lab. I can only read articles at home that are related to my research. Freelancing is an excellent platform and has a lot of benefits, so I am inclined towards it as well, through which I can polish my abilities.

An online instructor cannot gauge the mood, involvement, and engagement level of his/ her students the way he/she can in a traditional lecture-based classroom. What do you think is an effective way to deal with these problems?

Lack of self-discipline, communication barriers, unavailability of the internet, and loss of interest are the significant problems faced in an online learning system.

The online instructor should do the following things to deal with these problems.

- Design the course in such a way that it will motivate students, as motivation will lead to engagement and active learning.
- Create open communication channels for students.
- Identify and use the best tools to achieve learning goals
- Promote an enthusiastic exchange of ideas and information among the online students.
- Diversify the assessment methods.

In Pakistan, most educators aren't expertly trained to handle the technical details of an online class, and therefore students are complaining hard. We cannot train teachers in a short time, so how can we improve the standard of online learning?

There are several parameters that may help such as,

- Institutes should ensure that adequate technical, administrative, and peer support is available to teachers during online education.
- Online seminars should be conducted to train teachers about online classes.
- Easy online software should be introduced for teachers.
- Teachers should be allowed to decide which technology they can adopt and which software they can use.
- Teachers should realize the importance of online learning and should step forward, clearing all the barriers, learning how to use the technologies, and improving the standard of online education.

How Covid-19 is impacting air travel with Captain Jahanzeb

By Kaleem Ullah



Coronavirus pandemic is a humanitarian crisis and there are drastic restrictions designed to minimize the spread of the virus. They may vary from continent to continent, but there is one thing that has been affected in the same magnitude everywhere: a large part of commercial air traffic has come to a standstill.

Normally, a pilot's life remains on a wheel; apart from their strict duty schedules, they go through flight simulators recurrent every six months which are rigorous training sessions to keep everything in check. In these sessions, pilots go through almost all common emergencies and polish their skills. These refreshers keep the crew up to date and ready for every situation. But ever since the lockdown has been imposed in Pakistan and elsewhere, all such training sessions have also been postponed.

And also, travel is restricted more than ever. It is speculated that major industries associated with it such as tourism and transport are going to

receive major setbacks in the coming months. Scientia talks with Captain Jahanzeb, a first officer in *Pakistan International Airlines (PIA)*, about how the recent crisis is impacting air travel and its future.

Kaleem: COVID-19 has been wreaking havoc everywhere. How have you, as professional pilots, been personally affected by the spread?

Capt. Jahanzeb: I agree that the recent pandemic has created many unforeseen situations that have now become a global issue, the same is with the aviation world as well and pilots are at the core of it. Many of the airlines are closing down or shrinking worldwide due to instability and pilots are either being furloughed or losing their jobs altogether, luckily Pakistan has not been as hard hit as the US or UK, although the operations have been seriously affected but we as pilots and aviation community are trying to resiliently hold on. Practically now, the flying has reduced and few of the flights that are being operated are high



risk due to biohazard involved and one needs to be one their toes for it.

Kaleem: Every leading airline around the globe resorting to lay-off due to disruption in the flights caused by the pandemic. How much it affected the employees of private airlines in Pakistan, especially pilots?

Capt. Jahanzeb: I may not be the best person to respond to it but, as far as I know, airlines like Serene have really taken care of their staff and are also showing flexibility by looking forward to some cargo operations as well for the time being. Whereas another airline that I have heard of is looking into cutting the employee's salary, which is again going to hurt not only the pilots but a lot of households that are associated with the employees.

Kaleem: As a pilot, you interact with many people around the globe. You have the know-how of people's social interaction before the outbreak. What type of change do you expect in people's socialization?

Capt. Jahanzeb: I believe it all depends on the outcome of the Pandemic. If there is some drug or vaccine that works then I do not expect a major change in how we socialize, but if the cure is not simple like taking a pill or intravenous medicine and complications persists then distances would increase, not only physical distances while greeting someone but psychosocial as well.

Kaleem: All of the major airlines across the world have announced cuts to their schedules, and there is a considerable amount of uncertainty in the global airline industry. So, what does all of this, as a pilot, mean to you?

Capt. Jahanzeb: Well, it's not just what and how it would affect me as a pilot but as a common man it does sound very difficult to cope up with such a situation. All those who are seeing financial implications, that may be indirect such as government policies changing due to the pandemic and its hit on the world economy, it will be hard for them to persist a similar lifestyle as they were leading before the global outbreak. Besides, as a pilot, I would definitely bear in mind that the Company that I am working for may get hit badly financially and that might be effects on the quality of available resources.

Kaleem: Will Pakistan go from a pilot shortage to a pilot surplus due to coronavirus?

Capt. Jahanzeb: As I said earlier that it depends on how we come out of Coronavirus. If it is an easy solution and

people don't have to worry about it anymore, they would definitely start air travel and that would be on the rise. However, domestic air travel which directly affects most Pakistani airlines' major finances would presumably be the same if not better than before. But again, depends on what is the world scenario after the Virus is gone or managed. So, more air travel means more opportunities for the business and more pilots wanted in the market.

Kaleem: The life of a pilot used to be very busy. After staying at home, even it might have prolonged, do you feel any psychological discomfort or enjoying a stay at home?

Capt. Jahanzeb: As individuals, be it the pilot or other professional, we are

taught and we self-learn to be flexible, that is what we are being at this moment and hoping for the things to normalize. Besides one should make the best of what is available.

Kaleem: The federal government said limited flight operations would resume soon, and Pakistanis stranded abroad will be brought back home. Do you think that bringing home the stranded citizen is a wise decision?

Capt. Jahanzeb: Yes, I would say that our compatriots shall be brought back home. That's not only our social but also a moral responsibility. However, managing their entry and ensuring biological safety for them and from any infections that may have traveled along is altogether a different issue and beyond my expertise.



International Relations in the wake of COVID-19 crisis

By Faryal Qazi

The corona virus has disturbed our daily lifestyle to a great extent. It has also immensely burdened health care systems. Countries are striving hard to find a balance between health-driven lockdown and economies. The sole superpower of the world is alleging that China deliberately released and spread the virus while the third world is endeavoring hard to get some financial benefit out of it in the form of debt reliefs. These macro questions encompass the working of actors in the international system. To understand the development in the world Dr. Afsah Qazi answered these questions upon our request.

Dr. Afsah Qazi is serving as the Assistant Professor at the Department of International Relations, National Defense University, Islamabad. Dr. Qazi is a Ph. D in IR from the School of

International and Public Affairs (SIPA), Jilin University, Changchun, China.

Below are some excerpts of her recent conversation with Scientia's team member Faryal Qazi.

Faryal: The U.S alleged China for deliberately spreading this virus. What political and economic benefits would China get on the political chessboard of the

world if the virus stays in Europe and the U.S for an extended period?

Dr. Qazi: First, as far as the US allegations vis-à-vis China regarding the deliberate spread of Covid-19 are concerned, these continue to appear grossly ill-founded despite President Trump's consistent effort to label it as Chinese or Wuhan virus; no logically coherent and scientifically correct trail of Chinese involvement has so far been identified. Second, the very understanding needed to fight this pandemic globally is to internalize the fact that it does not benefit anyone, either in short or long run.

When considering that a particular state might have knowingly spread the virus to the rest, it must also be realized that in an intensively interconnected and interdependent world that we have today, what goes

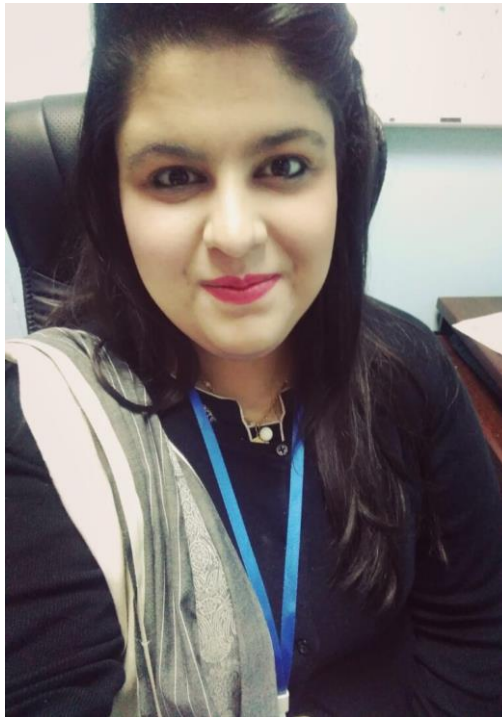
around comes around even faster. That said, looking at what in common parlance is known as the Chinese miracle, had been achieved by getting China integrated into the world markets, especially with the developed ones in the U.S and Europe.

Therefore, even if China wishes to get back to normal (as businesses and industries in China reopen) after having controlled the spread of the virus, it would be hard given the double-edged demand shock that market is bound to face due to a decrease in global demand (lowering Chinese exports that might continue if western economies do not get back to normal) and a contraction in domestic spending (due to record high levels (6.2%) of unemployment and psychological stressors inside China). The only political advantage for China might be a better global image for dealing efficiently along with helping others fight the pandemic – again which the war of narrative being led by the US continuously tries to hinder.

Faryal: Fighting this global pandemic measures taken by autocratic countries like China, North Korea, and Russia were better and Speedy. In fact, China is a role model during this crisis, but it wreaked havoc in Europe and the U.S. Does this mean that autocratic regimes

are better to deal with such crises, can it be called a failure of democracy?

Dr. Qazi: The observation that non-democracies have dealt more efficiently with the pandemic in comparison to democracies might be correct to some extent, but the generalization is still



hard since countries like South Korea, Japan, New Zealand, etc. are on the list too. Rather than having an either-or approach regarding the preferred political system, what needs a mention is the state capacity to have the best possible utilization of the resources at its disposal in the times of crises, which in turn depends largely on how states behave/act in times of relative

peace when no imminent threats/pressures exist. For example, China's efforts to transform its huge population or cheap labor into an asset/skilled labor have lasted over decades – this huge skilled workforce, in addition to governmental control and the will to implement policies aimed at delivering public goods (for the sake of sustaining the ruling party's legitimacy) is what has allowed China to avoid the worst possible outcomes.

Contrarily, the U.S and many of its developed democratic allies in Europe have failed to curb both the spread and mortality rates not because

democracies are theoretically or conceptually faulty, but due to the irrational spending preferences of the regimes in-charge, despite the general public desire for better health-care and social security policies across the world.

Faryal: Do you think the U.S is fulfilling its role as a hegemon considering it did not provide any sort of help to affected countries instead it withdrew its pre coronavirus funding from WHO? Whereas China appears to be fulfilling the vacuum that is left by the U.S. Does the U.S appear as a viable hegemon in the future?

Dr. Qazi: US' ability to achieve its desired outcomes from emerging situations is for sure on the decline and China is indeed enhancing its image and influence by targeting the areas where the U.S lags. In this context, Chinese proactive engagement and material aid come amidst a lessened American potential for global engagement due to a worsening domestic situation. China's image and its influence as an alternate public goods provider might improve due to this, however, this is just one of the multitudes of public goods that the U.S has appeared to be providing globally for decades.

To what extent China is willing to go for seizing the moment if it really intends to replace the incumbent hegemon (the idea which 'peaceful development' narrative tries to negate) will determine who keeps the place at the apex of the system. A hegemonic state is both capable and willing to lead the system;

Chinese capability and willingness are both not definitive so far, and how strong or weak the U.S comes out of the ongoing crisis would help find clearer answers to the question.

Faryal: Do international monetary organizations provide debt reliefs based on humanitarian considerations as liberals propagate. Or is it again interplay of power politics that drives the condition of these relief packages? What is your IR expert opinion based on the debt reliefs provided by IMF?

Dr. Qazi: Two aspects need to be clarified to gauge the work of international monetary organizations. One, they are not philanthropic entities guided by benevolence; instead, they do business with the broader agenda of containing any major upheaval that might turn the interconnected world financial or economic systems upside down. Even if a bail-out is given to rescue the fate of a country's population, the state bears responsibility and has to pay the price for such favor – so bail-outs always have a give and take involved. Second, IMF has a reserve currency pool that consists of funds deposited by states; the larger a state's reserve in the IMF, the greater its quota and greater the voting share, thereby making that state's stance important to deciding for or against a requested bail-out.

This is where power politics might have an influence, but again, decisions are not taken unilaterally. As far as the issue of conditions on relief packages are concerned, the IMF being a formal organization follows a rule-based

approach in this regard rather than following any particular state's preferences. This is to say that several categories of relief packages have been defined and mandated under IMF – the general rule follows that more substantial the amount being requested and weaker the economic credentials of the requesting state, stricter the conditions.

So, conditionalities have something to do with the track record and economic performance of the states asking for bailouts. However, since the member contributions make up the IMF's reserves, when the USA, having the largest reserve withdraws them, there are cuts on the organization's overall reserve, thus constraining its capacity to bail-out.



How the pandemic alters the lives of Doctors & Health workers

By Sabeeka Zafar

In this time of perplexity, when a sense of foreboding is prevailing everywhere around the globe, it is not an easy task to step ahead and work as the frontline fighters. Amid this coronavirus pandemic, healthcare professionals are serving humanity at the expense of their own lives. Pakistan, with no exception, is also facing the same crisis, with less than minimal resources and an underfunded healthcare system. Amid the chaos, the ones leading from the front are our caregivers, our national heroes. This not only demands to risk your own life but also the life of your loved ones in honor of the commitment they made to their profession, undeniably this requires huge sacrifices and courage. With more than 1000 health professionals tested positive for corona, these doctors still are doing extraordinary service even without the protective gear and the essentials needed to minimize their exposure to the virus. With our health

care system being extremely fragile, sloppy and not able to resist havoc like this- having less than 15000 ventilators in total, and not enough space to accommodate the patients, these warriors not only make themselves vulnerable to the virus by stepping out but also make tough calls deciding who gets a chance to live and who will be left to die; taking a toll on their mental health.

Dr. Zahra Jaan, is one of our white cap heroes, serving in Hayatabad medical complex in the Gynae department. Peshawar being the epicenter of this pandemic outbreak in KPK, Dr. Zahra, has volunteered in the combat team for COVID-19 too. In this dire situation, being responsible for not one but two lives demand an exceptional level of vigilance; we cannot overlook her tremendous courage to take this burden on her shoulders and stand steadfast in the face of this calamity. To get an insight into the actual situation in KPK, we had a candid conversation with Dr. Zahra Jaan, a qualified doctor and a brave lady. She is serving her people with no fear amid coronavirus breakdown. Here are some excerpts of the conversation:

Sabeeka: During this pandemic, where everyone is freaking out being caged in the houses and gazing empty streets from their windows. Take us into what it is like for a frontline warrior who is potentially putting his life as well as of his loved ones at stake in this fight to combat the disease?

Dr. Zahra: Everyone is scared, and it's quite natural. But for us being at the

frontline, this is our job to be in hospitals. Initially, when the cases were not spiked up, we did not have an absolute idea of how things will unfold, but since I am married, I was scared for my family too. After my first duty, I was in quarantine for 14 days, I could not meet my family, and I did not even see my husband for 21 days. They sent us to the hostel near the hospital, so we didn't use to come home. So yeah, we miss our family, we are scared and fearful.



the demands with the increasing number of patients?

Dr. Zahra: Initially, during the pandemic, our elective surgeries and OPD- everything was open, but when the cases increased, only the batch that got duty on a particular day used to come. We used to go for two days a week to limit our exposure. But to meet the needs with the increasing number of

patients, they needed volunteers from every ward for the combat team; that condition was entirely different. We have ordered to stay in the hostel for seven days. During this week, we had consecutive duties of 6 hours at different timings-early morning or evening, depending on the schedule. They sent us buses for pick and drop, and then we were self-isolated in those rooms in the hostel, we were not even allowed to meet our colleagues.

After this week-long duty, we were allowed to go homes, where we were in quarantine for 14 days. After that, my regular duty started in the gynecology department. Still, when we return home from our regular duty, we are supposed to remove our shoes, overalls, or any extra thing we have at our gates. Even the essentials we have like stethoscope and phones; we sanitize them regularly with the alcohol swabs, take a shower, and then meet our families. And we don't take any extra accessories to the hospitals, including our purses.

But even then, this strength comes from within us when we see people suffering in pain, and we realize that we are the only ones after Allah who can relieve them, pacify their pain. It also reminds us of our oath, the commitment to our profession. With the mindset that this is the time the nation needs us, and it makes us strong enough to put our lives at risk to save others. And after they recover, the blessings they give you, that feeling is something out of this world, totally unmatched, jubilant is a small word for that, but that makes you give your all to your profession. Having said that, inevitably, it is a difficult task to step out as a warrior in this whole fiasco full of risks.

Sabeeka: During this hour of crisis, how is your typical day now different from the one before? Do you have to perform "out of hour" service to meet

Sabeeka: As a leading health expert, how do you see the COVID-19 different from other viruses like Ebola, Zika, HIV, and SARS? And what makes an individual vulnerable to the virus, and how can one generally catch the virus?

Dr. Zahra: The significant difference is that it's very contagious, as we speak of HIV, it is transmitted through body fluids, though it is more fatal than COVID-19. Similarly, when we look at the transmission of influenza, it is one to one. The problem with COVID-19, it is extremely contagious, another distinct feature is its viral load, the one getting infected will have the same viral load as that of the transmitter. It only depends on your immune system, whether it is capable of fighting the provided viral load or not. And the primary means of its transmission are droplets though it's not an airborne disease, if you sneeze, cough, or even breathe closer to a potential carrier of the virus, you are likely to get it.

Sabeeka: Being a trainee in the gynae department, you are aware of the vulnerability of pregnant women to this virus. What extra precautions is your department taking in this regard?

Dr. Zahra: We make sure that every patient we deal with is wearing a mask and taking all the precautionary measures. On our end, we neither allow more than one attendant with the patient nor do we check more than two patients simultaneously. We have minimized the use of a stethoscope; we monitor fetal heart through machines. Other than that, we prioritize patients if it seems that a patient has come for an

antenatal checkup, and there is not anything serious. We can keep them from entering the ward and recommend them home treatment.

But, when it comes to the labor room, we can't do much as everyone out there is in a critical condition, and there is havoc, but we have tried to distance the beds and everyone in the staff wears PPE when they enter there. The most we can do right now is to ensure their safety and this is what we are doing.

Sabeeka: We have witnessed that the doctors compelled to compromise their safety. With your hospital, are you in the same predicament? How well are you people equipped with the PPE?

Dr. Zahra: With our hospital, our seniors made sure that everyone got their PPE. Although PPEs are not disposable, we have to wash them daily, yet this is the most they can do for us with limited resources. Our buses for pick and drop and our hostels where we used to live were decontaminated regularly, and everything is government-funded. But I don't think the conditions are as favorable as our hospital in the surrounding hospitals.

Sabeeka: What is the potential protocol for testing the patients? Any vital signs? Have you witnessed any asymptomatic patient?

Dr. Zahra: Initially, we didn't have our PCR machine here in the hospital. We got our PCR last week, but obviously, we can't test all of the patients. Our first priority is any faculty member who

develops symptoms- we treat them as the suspect of COVID-19, and the next priority is the patients who are vitally unstable with high respiratory rate and shallow oxygen saturation rate like below 96.

Initially, we used to consider their travel history too, but now as the cases in the community are increasing, travel history is not that important. Instead, we test the elderly having any other comorbidities or underlying illnesses. The ones with mild symptoms or no apparent signs having a travel history are registered and recommended to a private hospital for the test, later, the reports are checked. In the case of mild symptoms, we only recommend them to self-isolate in their homes.

Sabeeka: What would you suggest to the potential COVID-19 patients with mild symptoms at-home treatment?

Dr. Zahra: They can take Steam inhalations, Panadol for fever, cough syrup, or spray for throat soreness and incorporate colored vegetables in their food and fruits with a high content of vitamin C like oranges and do exercise to boost their immunity.

Sabeeka: How many tests are you guys conducting per day at HMC Peshawar? Is the government satisfying the needs of the hospital concerning testing kits?

Dr. Zahra: Here at HMC, we used to conduct almost 30-60 tests per day. The testing rate is slower in KPK, which is one of the main reasons that the fatality rate of COVID-19 is higher enough in KPK.

Sabeeka: Are you worried that it is a matter of time that the hospitals will run out of the equipment, masks, ventilators, PPE? Are you seeing the coming days leading us to a catastrophe and the trajectory only going straight uphill? What is your opinion regarding the idea of a partial lockdown?

Dr. Zahra: People have no idea how delicate the situation is, if they keep on with their non-serious, irresponsible behavior, we will no longer be able to control the situation. Talking of our health care system, we have 3-4 ventilators in a hospital. Even in times of normalcy, we don't have a free bed in ICU in case of an emergency, and we have converted 2 wards into intensive care units already. Where all health care units have come down to their knees, what will we do with meager resources and ill-equipped system?

Due to ease in lockdown, we are all set to open our gates to a more severe catastrophe. With the stroke of the curve going upward every day, the coming 15 days will be crucial for us, and unfortunately, people are not dealing it the right way. At the moment, we don't even know the exact number of potential COVID-19 patients and not even the precise mechanism of this virus- nothing is definite. And unfortunately, we don't see the trajectory getting flattered anytime soon.

Sabeeka: Many conflicting ideas go viral about the portion of the population this virus is targeting. In your opinion, and from what you see,

are the elderly or those with some sort of sickness more prone to the disease?

Dr. Zahra: The coronavirus doesn't spare anyone irrespective of age, we have even seen cases of newborns infected with the virus. Nothing is going to protect you regardless of your age. You may get mild or no symptoms if you are young and contract the disease, but you will infect the elders in your home who may lose their lives. Yes, you can say that if you are young and you don't have any underlying illness, you have high chances of recovery as the fatality rate is meager in such cases.

Sabeeka: Several things are being exchanged on social media regarding dugs and treatment to cure coronavirus without any authenticity. What will you say about this self-medication people are practicing and the threats it can pose?

Dr. Zahra: I cannot emphasize enough how dangerous this self-medication can be. People are taking a high dosage of antimalarial drugs for COVID-19 without knowing the side effects they can have like Hydroxychloroquine disturbs heart rhythm. You can have a heart attack while the excessive dosage of Panadol can cause kidney failure.

You do not have an idea about any underlying disease or allergy you may have, and any of the ingredients in the medicine you are taking can cause a shock or trigger a reaction in your body.

Sabeeka: Is there any message for the people on civil responsibility they should show to curb the spread of this disease?

Dr. Zahra: Social distancing is the only way to curtail the spread of coronavirus. If you don't go outside to get the virus, it's highly unlikely to reach you in your home, so please stay at home. Especially for the young lot, if you won't practice social distancing, you may not be affected this much, but your elders won't be able to survive if they contract it. Our health system has already started to cripple, doctors in our fraternity have started getting affected- we are at the cusps of an unmanageable crisis. Take it seriously and follow the precautionary measures. Don't hide your history, be honest with your health care providers, and don't hoard as there is an apocalypse waiting for you out there. To take care of others, start taking care of yourself.

Dr. Shagufta on how nutrition can help to combat Coronavirus

By Aniq Mazhar

Dr. Shagufta Feroz graduated in 1984 and kick-started her career later in 1988 as a private medical practitioner. She was inclined towards healing with nature from a very young age, and therefore, she specialized in Family Medicine, Holistic Nutrition, Lifestyle, and Integrative Medicines. She is the founder of the Synchronized Lifestyle Modification Program and author of “Living as Nature Intended.”

After 15 years of clinical practice, Feroze recognized the role of a healthy lifestyle in the prevention and reversal of diseases. That realization forced her to switch from drug-dependent medical practice to drugless integrative medicine. Now, for the past 16 years, she is managing a variety of patients through Synchronised Lifestyle Modification (SLP). She uses her knowledge to convert table foods into a remedy by applying her 8-Rules of correct eating.

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medicine. Now, for the past 16 years, she is managing a variety of patients through Synchronised Lifestyle Modification (SLP). She uses her knowledge to convert table foods into a remedy by applying her 8-Rules of correct eating.

She is a regular speaker at various academic institutes, health forums, doctors' forums, and training institutes. In 2015 she spoke at TEDx Lahore on the importance of a healthy lifestyle for the young. She utilizes the power of print, digital, and social media to spread awareness for healthy eating. She has also appeared in over 100 TV health shows.

Team Scientia Pakistan caught Dr. Feroze and interviewed her for its special edition, “Being a professional in the pandemic.” Below is her conversation with Aniq Mazhar on

how a healthy diet and nutrition can help control COVID-19.

Aniqa: Can Covid-19 spread from food? If so, which foods should be avoided during the virus outbreak and which should be specially taken? Are dietary supplements of any use against the virus?

Dr. Feroz: It is not proven that Covid-19 can directly spread from the food until and unless the food is being used or is being transported or carried by someone who is Covid-19 positive. Still, all those foods, which are processed foods or food with naked calories, can suppress immunity and make a person more prone to Covid-19.

Dietary supplements are not very effective, but yes, Vitamin C is good, and the best supplement is that one gets Vitamin C from fruit.

Aniqa: Having a proper balanced diet can substantially help a person from not contracting the virus. To what extent is this true?

Dr. Feroz: I never use the word 'balanced diet.' It is actually how the person is taking the food. So, I talk about 'correct eating,' 'dietary discipline' etc. If your food is not balanced but is taken correctly, it helps and supports immunity. So, indirectly, a person becomes secure against viruses, and there is less risk of contracting Covid-19.

Aniqa: It is the month of fasting, and people prefer cold beverages in Suhoor and Iftar. Does it increase the risk of

getting infected? Or does fasting help us against Coronavirus as it does against certain other diseases?

Dr. Feroz: I strictly inhibit the use of these cold beverages. By taking these cold drinks, you drop your core temperature, which is crucial regarding the maintenance of immunity. There is a research done by Leeds University which says that if the internal body temperature drops from 37 to 33 degrees centigrade, there are strong chances of growth of various viruses. So, it is not specifically against Coronavirus but against viruses generally.

I don't think that fasting will help get rid of Coronavirus or it will have a protective role. Coronavirus, I have seen, affects those who are already carrying comorbidities or who carry poor immunities. So, a weak person cannot fast, and if a vulnerable person is fasting, he or she might get more risk towards Covid-19.

Aniqa: What do you suggest for the diet of the people who have contracted Coronavirus and are undergoing symptoms?

Dr. Feroz: I suggest them to take *yakhni* (broth or stock) and warm drinks like black tea with some sugar and lemon, green tea or warm water, soups, half-boiled *desi* (organic) eggs, or toast with *shorba* (soupy) type of *salan* (curry).

Aniqa: Most restaurants and food suppliers have taken strict measurements regarding hygiene and

social distancing and reopened. Is it safe to order from them?

Dr. Feroz: Regarding

restaurants and food supplies, I

can't comment because there are so many factors involved while we put an order for home delivery of food. So, I don't think that it should be so frequently practiced.

Aniqa: What has increased more during lockdown, malnutrition, or obesity?

Dr. Feroz: Lockdown has had people develop the tendency of putting on weight because they are under stress, and there is no discipline. They are sedentary; there is less physical activity, so they are *adding* weight.

Aniqa: Have you had more or fewer patients since the pandemic? What are some of the most common queries?

Dr. Feroz: My specialty is integrative medicine and lifestyle medicine, and food is one of the components, so I am dealing with already complex or complicated or terminal patients. But definitely, I do get patients who want me to tell them about preventive or immune-enhancing foods. Their queries are about the foods that should be taken to enhance our immunity.



In 2015, she spoke at TEDx Lahore on the importance of a healthy lifestyle for the young.

Aniqa: Regarding public nutrition during the lockdown, which country is managing the best, and how?

Dr. Feroz: I believe China is managing the best preventive measures because they follow the basic principles of Traditional Chinese Medicine (TCM).

I have done a small diploma in this branch of science also and its approach is entirely different. They work on the correction of basic chemistry, core temperature and immunity enhancement.

So, the Chinese have the best knowledge. None of the other countries even have a sense of describing the right food to the patient or coronavirus prevention.

Aniqa: What effects have the pandemic put on the food industry and agriculture globally?

Dr. Feroz: I believe that the pandemic has some positive effect on the food industry in terms of better control of these junk foods and people are now forced to take home-cooked meals.

So, there is less consumption of food from outside. Regarding agriculture globally, I'm not very sure, but I think definitely, because of other restrictions, agriculture would have been affected.

Aniqa: Do you think that the awareness and prevention campaigns on media against Covid-19 are highlighting the importance of nutrition?

Dr. Feroz: Definitely! I have been using my social media and the most hit post which got viral, the marketing people say, had 60 million views. This was about the prevention and awareness of Coronavirus.

So, not only nutrition but we have to advise people on how to organize their daily routines as well. People need to utilize this time to do family bonding and give much time to religious and spiritual aspects of life. We need to let people know that they have to incorporate nutrition and to integrate exercise into their routines. People basically have to *modify* their routines.

A Student's life in Wuhan under lockdown

By Faryal Qazi

Amid Coronavirus crisis when everyone advises making this quarantine a quality time with your family, but not everyone is blessed to have such moments with their loved ones. One such example is Pakistani students who have been stuck in China and other European countries for months, their courage and patience for bearing such a crisis must be appreciated. Below is an exciting conversation with Ayesha Khan, which not only shows how the international students managed crises without families but also tells how they spent their days staying positive. Ayesha Khan is a student at Wuhan University pursuing her M.S in economics. Currently, she is in Wuhan along with other Pakistani students, where after many months of severe lockdown, life is getting back to normal.

Faryal: It's been months now that Pakistani students have been stranded in China when the lockdown was imposed in Wuhan. How did Students manage the crisis and survived in such a strict quarantine?

Ayesha: The word quarantine was entirely unfamiliar to me when we were locked in our dormitories. At first, we thought that it would be no more than a week, but later on, we came to know more about the epidemic many



students were in panic and their families were worried about their safety. To stay under one roof for more than two months without seeing the sky was very disturbing. Then students started playing, cooking together, and do some indoor fun activities, but somewhere inside, everyone was afraid of being affected.

It was the time when everyone was mentally disturbed so many were gone through anxiety and depression and other psychological issues even many students were afraid to express their normal fever or headache for not being panic to others. But we were told to take strict health precautions like wear masks, use disinfectants in our rooms and wash hands with sanitizer frequently and immediately after coming in contact with anything out of our dorms, and drink more water and

inform the hostel management about daily body temperature.

I have some friends, so many other students who were already graduated but still stuck here even their visas were expired flights canceled. Universities didn't allow anyone to go out from hostels. so many people had many issues that were delayed because of lockdown hence still the lockdown is not wholly lifted for international students. They can just get out to play daily for two hours but even cannot go out from the university campus. It is strict, but it is safe.

Faryal: How much life changed in Wuhan after lockdown has been lifted? Do you feel like a new life or a new beginning?

Ayesha: Officially lockdown is lifted on 8th April 2020, but not entirely, and international students are still not allowed to go out from the campus. People with written permission and health code can go out for their duties and even only they can take public transport and enter any public place that has health cards. Now the Chinese Government has also started this health code service for foreigners. I already get my health code, but many students still didn't get health code, so overall, we don't have any experience now of the outer life in Wuhan.

Faryal: How did the Chinese government help you and what assistance did the Pakistani Embassy provide during a lockdown?

Ayesha: During the lockdown, our university and Chinese government

support us in a very positive and helping way by providing necessities Such as vegetable fruit, oil, rice, and sanitizer. Anything halal like chicken and meat, there was a delivery service to the room of every student, which was a great relief to stay safe in quarantine in our hostels. Meanwhile, the Pakistani embassy gave us a helping hand and transferred 3500 RMB to each student account who was stuck here in Wuhan. Some focal persons were sent from the Pakistan embassy to Wuhan to meet with Almost every university student group and listen and try to solve their problem and assured all students to assist whenever they need. Besides, the embassy also provided 750 RMB to each student as a package for Ramadan.

Faryal: What do you advise to other overseas Pakistani, how to manage the Crisis during Quarantine?

Ayesha: This crisis is not the same in all countries; the situation is worst in other countries as compared to Pakistan, so don't be panic. It is an art to live a balanced life and consumption of goods in low resources, which will enhance more creativity, productivity, and polish the will power of individuals. For example, on regular days if we eat food from a restaurant which costs pretty high but if we make the same food at home, it will cost much lower and also can learn the art of healthy cooking. So stay positive and have proper rest at home; spend some precious time with the family together with its an opportunity to know each other intimately.

Faryal: What would you like to suggest /advise to your countrymen who are still facing Lockdown in Pakistan? How can they manage the stress of complete isolation and work-at-home peacefully?

Ayesha: I would like to suggest, take good care of your health and follow precautions and the instructions of WHO and local governments which can help them stay safe. They should wear masks, avoid social gatherings, keep social distances, and wash hands frequently, don't go outside if not necessary. Pakistan has an entirely dependent family system like an extended nuclear system, that can result in a disaster. You can spend your time with your family members, watch good movies, do some indoor fun activities like cooking, reading books preparing kids lessons in a fun way to teach them at home. It's a break from a busy, stressed life enjoy it calmly.

Faryal: What are the greatest challenges you are facing now in Wuhan especially for education?

Ayesha: Now the situation is better in Wuhan, but there are restrictions on

people's movements yet, and there are no such problems related to education, they are delivering online lectures and providing everything to students online.

Yes, those students who have to complete their research work in labs as a requirement for their graduation till June, are facing research issue, they need to do experiments in labs with all equipment for they can be able to write their thesis. The government gives some relaxation to them sometime later.

Faryal: How did Students among help each other to cope up with the crisis during quarantine?

Ayesha: Here in Wuhan, we students are here as a family; they shared good bonding during the lockdown.

They all are away from our homes and experiencing the same situation so they can help each other in studies, especially related majors. Moreover, they can share good ideas for social well-being. Positive counseling is a better way to cope with all kinds of stress and panic situations.

How to protect the elderly from COVID-19

By Scientia

As the coronavirus disease 2019 (COVID-19) pandemic progresses, social distancing has emerged as an effective measure to restrain the spread of infections. Many people are now confining themselves to indoor spaces and communicating with their loved ones only through the use of electronic tools. This may have a detrimental effect on mental health, especially for adults over the age of 65 who may be less comfortable with virtual solutions.

Dr. Ali Jawaid, a Pakistani-origin Neuroscientist, based in Brain Research Institute, Zurich, Switzerland, has come up with some evidence-based recommendations for protecting the mental health of the elderly that got featured in *Science*, the highest-ranked scientific journal in the world.

Social isolation in seniors has been linked to increased depression and suicidality, as well as increased pro-inflammatory and decreased anti-viral immune responses. These effects may further increase the susceptibility of this population to COVID-19. Health care systems and communities must consider the mental health burden of social distancing for the elderly and find ways to keep them engaged and motivated.



Mainstream media, such as television and radio, can play an essential role by including content focused on the elderly and encouraging seniors to express their views through live calls. Data indicate that the elderly view television as a medium to cope with depressive symptoms and might benefit from such engagement.

Volunteers can maintain regular phone contact with the homebound elderly population, providing friendship and fostering a mentoring relationship, as it has been shown that adults over 60 years of age find their life more meaningful when they have the opportunity to give advice.

Finally, existing mental health support hotlines could add outgoing calls during which mental health professionals could reach out to the elderly and screen for symptoms of anxiety and depression. These

measures could improve older adults' compliance with social distancing and help reduce the impact of COVID-19 on their mental health.

This paper was initially published in *Science*, one of the world's best scientific journals.

Later, Team Scientia Pakistan reached out to Dr. Ali Javed and talked about the mental toll of COVID-19 on the elderly and youngsters. Below are some excerpts of this conversation.

Scientia: Let us know about your research on the mental health impact of COVID19?

Dr. Javed: I am leading this effort with scientists from 12 different countries, and we screened around 13,000 individuals globally for the psychological impact of COVID-19. We also elucidated the factors which increase the likelihood of being psychologically affected by COVID-19. As our study is in review right now, I cannot share the exact findings with you. But we need dynamic optimization of mental health services; otherwise, we are heading into a huge mental health crisis.

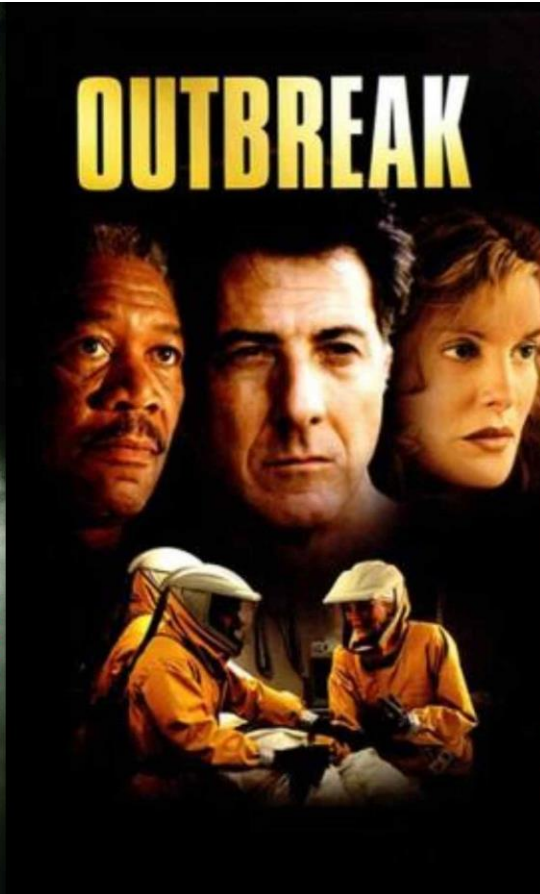
Scientia: How can other family members help to reduce the stress on people above the '60s?

Dr. Javed: Important to ensure that older adults stay engaged- take advice

from them, make them feel important, make them understand that the whole world cares for them, and that's why young people are following physical distancing. It is also crucial that they still have a routine, substitute the activities that they can't do like usual with new ones. If they would go for a walk in the park, now you take a stroll with them on the terrace. If they were meeting a friend for tea, help them with video calling their friend while serving them tea.

Scientia: Elderly in Pakistan mostly depends on Newspapers and News channels; those are increasing coronavirus anxiety with their fake/ baseless News and 24 hours transmission entirely on the pandemic. What is the duty of other family members to help the elderly in this situation?

Dr. Javed: First and foremost, give them positive stimulation. For example, instead of showing them the number of new cases, let them update about active cases, which also includes the number of recoveries. Second, it probably would be good to limit their 'screen time,' especially in the evenings, because anxiety-inducing News can affect their sleep. Also, do talk about things that you plan to do with them in the future, so they have things to look forward to.



Movie Review

Your guide to movies with a pandemic theme

By Syeda Laiba Tayyab

Quarantine, aka social distancing, has practically given us a lot of time to spare. Many people are surfing the net for coronavirus, pandemics, and how to cope with them. Luckily enough, there are many fictional worlds built out there, which help us have an insight into the situation. Let me take you through some of them to keep you busy for good enough week. Always remember that whenever you end up catching a cold, there are plenty of things you can account for that are far worse, especially if you live in a horror

movie. So here are some movies that revolve around viral outbreaks.

In real life, an *outbreak* is a sudden occurrence of a disease within a particular place and time frame in which it can affect a small town or an entire continent, whereas within a movie universe, it is usually super lethal and highly contagious, or it just turns you into some weird form of a zombie.

Outbreak (1995)

Director Wolfgang Petersen's action drama follows Virologist colonel Sam Daniels whose job within the military is to investigate nasty diseases. When a deadly airborne virus finds its way into a small city within the USA, it rapidly starts killing off the local population. Where it is now up to Col Daniels and his team to try and control this viral outbreak.

Outbreak is a tacky film with an all-star cast. Filled with all the stereotypes and clichés you would expect from the 90's movies, this film will definitely require your suspension of disbelief at times, with its unnecessary yet fun action scenes and unintentionally funny parts. But overall, it is a good popcorn movie, that should entertain and hold your attention throughout.

The Flu (2013)

Director Kim Sung-su's, Flu is a Drama thriller. After smuggling illegal immigrants into South Korea, a smuggler catches an unknown virus from one of their prisoners. Soon after, the same symptoms start to plague the residents within the suburbs of the city of Seoul, where this new kind of deadly disease can kill a person within 36 hours.

An impressive disaster movie with a rather tense premise, Flu delivers on suspense and action, with very engaging characters. But it does have some tonal issues regarding a few over-sentimental scenes. But despite its minor shortcomings and it is over the top moments, Flu is a pretty entertaining film.

28 Days Later (2002)

Twenty-eight days later is a Sci-fi Horror movie directed by Danny Boyle. The movie starts with Jim, played by the stellar Cillian Murphy, who wakes up from a short-term coma to see that the world has drastically changed. London has become somewhat of a post-apocalyptic zone, and no one can be

found. Unknown to Jim, there are plenty of people about it, it is just that they have all become blood-crazed psychopaths or as we may call zombies. The low budget instant classic redefined the zombie genre; 28 days later has loads of horror and terror with just about the right amount of realism. The characters are well developed, the plot: straight forward and haunting and the pacing: tight. Twenty-eight days later, it is very thought-provoking, with a focus on survival and what it means to be human.



Contagion (2011)

Contagion, directed by Steven Soderbergh, is a great movie that is entirely plausible. It is a realistic story about what a worldwide pandemic could look like. Right direction and great star-studded acting all come together to make this movie quite compelling and quite scary at the same time. This movie is hands down unmissable on this list. The way the film portrays the spread of the virus and the resulting symptoms have a striking familiarity with the behavior of COVID-19 and hence relatable on so many levels. This is one of those movies that have become the talk of the town

during the current crisis. It might be a fiction when it came in 2011, but after nine years, this fiction has pretty much turned into a reality, and we might be able to learn a thing or two while enjoying it in the comfort of our homes with some steaming hot popcorns.

The Crazies (2010)

He was the last on the list but not the least, the Crazies, a horror thriller directed by Breck Eisner. Set in a small town where everything is pretty standard. Until one day, a man burns down his own house, while other walks onto a school baseball game with a loaded shotgun. With all these crazy events happening, it doesn't take the sheriff long to figure out that something is affecting the people in his town.

Well, shot with plenty of jumps scares, it has a surprisingly engaging story. Tag along this movie to see how the story unravels into something extraordinary.

Now that you have had a tour of some of the most relatable and worth watching movies, get yourself all geared up for the week and start picking from the list by your priority. Do remember to take all necessary precautions, and you'll be all set for a comfort movie. While munching up on those snacks, I do keenly observe the behavior of those fictional characters and know that we, too, currently are living in the same situation. Now we surely would not want to make the same mistakes so, STAY HOME! WATCH MOVIES! STAY SAFE!



Opinions

Coronavirus, the current catastrophe of our lives

By Aniq Mazhar

To dig up some pent-up feelings, Scientia Pakistan carried out a survey as to how exactly people feel about this situation.

It has been about three months since everything shut down and activities halted due to this lamentable Coronavirus pandemic. It started in Wuhan, China, and spread across the world like wildfire. With the number of cases shooting across the globe, whole countries had to close their markets, institutes, and public places to ensure social distancing. Quarantined for an indefinite period, the public feels trapped and stressed out. Who knew we would be challenged by Nature with such a nerve-wracking situation? People all around me are affected

irrespective of their occupation and location. To dig up some pent-up feelings, Scientia Pakistan carried out a survey as to how exactly people feel about this situation and what they are doing during this trying time.

Arij Najeeb is a student of MS Biochemistry at Michigan State University. She lives in Westland, Michigan. She could not attend college due to severe lockdown restrictions, but online classes are an excellent alternative, thanks to technology. In her area, all shopping malls, gyms are closed, and all outdoor activities she did before this pandemic are affected. Arij said that even inviting friends to my place feels scary. Despite being alone, I observed that people have become more empathetic, revealing a bright side of humanity and all the things humans took for granted before.

But the pandemic affected negatively more than its positive impacts as people cannot go anywhere without the risk of getting sick and the fear of going out and interacting with others that put a heavy toll on their mental health. We, humans, are uncertain and afraid of what the future holds and

when will the pandemic ends. A large number of people have lost their jobs, all plans canceled, so yeah, it's depressing, but we should remain optimistic that's the only way to prevail our sanity."

Arij spent most of her time under quarantine studying, cook, cycling, playing board games, etc. She is unsure about when the lockdown will end. The damage that has occurred will not go back to normal anytime soon, it can take a couple of months to get back to routine lives."

Arij believes that developing an affective coronavirus vaccine is not an easy task, and scientists and researchers are working hard; hopefully, they will come up with something to eradicate this virus. The US Govt government is helpful in this situation and providing the best at our places. People here are patient and waiting for things to get back to the way they were.

Shahzadi Kausar is a housewife from Islamabad. Since most of her time spent on house chores, her routine affected severely after lockdown because her husband and kids are at home. Her other activities, like going on walks and shopping excursions, are ceased. She now spends more time cooking, spending more time with her family, and tries to keep herself busy with prayers and religious activities. "The positive outcome of this pandemic, she thinks, is that people have started appreciating smaller things in life, the value and importance of family gatherings and events, etc.,

which were previously thought of as a burden. People have also begun to concentrate on their flaws and seeking forgiveness from Allah. The negative impact is, of course, that everything is closed, including markets, parks, recreational places, important offices, etc. The functions like weddings have postponed or limited to small gatherings that seem a good impact of the pandemic. Mentally, the Coronavirus has spread fear and depression among the masses."

Her new pastimes include regular Quran recitation, prayers, and following sunnah. And because of the lockdown, she is free to catch up on her long-delayed sewing projects! She hopes that everything is normal before Ramazan. "I don't know much about what work is actually and sincerely being done, but I bet it's a lot less compared to the fuss and hype created on media." Yes, I realize that the government is trying its best, and things are still available in grocery stores, but people here are not cooperative to the government in following strict social distancing and other precautionary measures.

Obaidullah Abid is an O level student from Lahore. They now have online classes during regular school timings.

Abid says, "Life has changed now as we can't meet friends and relatives because of the fear of getting infected. Plus I can't also play outdoor sports, that I miss the most! The atmosphere is cleaner, there is less pollution, and the ozone layer is also recovering. A negative effect is that supplies are

running out as people are freaking out and buying extra stuff to stock up in their houses and not caring about others, especially the poor and needy.

Since people have more time to spend with their families, I think that's good for improving their mental health, Abid added.

He plays board games, PS4, indoor sports like table tennis with his brother. And most importantly, he has started praying five times regularly during Ramzan." I think a few months, around four to seven, will see the normalization in our old routines. But our government is not efficient as even after the lockdown, people are taking social distancing seriously.

Amna Usman Kazi is a Doctor based in Lahore and teaches at medical college. Since the students have gone home, teaching has been limited to online lectures only. Corona has completely disturbed her routine life. On the positive side, she spends more time with her family. The surroundings are pure and clean due to fewer humans roaming around destroying nature. The most negative impact of coronavirus is the irreparable loss of lives. The fear of Corona and the depression of Quarantine has a significant psychological effect on our society. People are frustrated, short-tempered, and melancholic. She uses her extra time for family bonding, homeschooling her kids, online lectures, baking, cooking, and reading. She believes that with complete lockdown, we can get hold of the situation in 4 to 6 weeks; until then, we

have to strictly follow the social distancing.

Yes, the scientists and researchers are doing their best, the problem is that the virus mutates every now and then, but let's pray we can overcome that too.

Shema Arsalan practices Medicine and lives in Gujrat." I encounter many patients that are in danger due to lack of facilities."

The Corona pandemic has forced Shema to compromise with family time. A positive effect is that accidents, street crimes, and pollution have all been reduced. The negative impact is the inculcation of fear, which will take much time to go away. Trauma and anxiety negatively affect mental health. During the lockdown, she keeps herself busy with her work and domestic chores. She thinks it will take about 1 to 2 years for things to return to normal. Yes, the scientific research community is working hard to develop a vaccine for the virus.

Amber Khalid is a housewife and mother. She lives in Washington, US. "My work and daily chores have increased twice, or I should say thrice since my kids and husband are home 24/7. I have to make more food, do more cleaning and laundry, keep up with my kids' study schedules and put in more effort to discipline them. The list goes on! "

A positive impact on her daily routine is that she doesn't have to drive the kids to and from school anymore. Since their extracurricular activities are no

more, they have learned to get along with each other and play together. “We spend more time together as a family and do activities together as well. On another note, we also have time to ponder our flaws and shortcomings and think about how we can be a better version of ourselves once this pandemic is over. Now I use these 24 hours more efficiently to do more stuff than before. I am thankful to Allah, peoples’ priorities have been changed, their focus has been shifted to what is more important and necessary. I observed that we wasted time on things that are not of importance. The real thing is our relationship with family and friends, with God, and we should give them attention and time to attain peace.

Khadija has done her M Phil in Psychology from NIP, Quaid-e-Azam University. Being a housewife and mother living in Islamabad, she observed so many changes in the personal life and the lives of her people. Anxiety after hearing the news and concern for her family’s safety is the most substantial effect. Going out is totally banned, and even playing and strolling on the lawn is limited. Entertaining a toddler with a never-ending reserve of energy is her primary job during this lockdown. Apart from physical safety, like washing hands and sanitizing the house, keeping everyone mentally healthy is a big challenge. Explaining to kids why



they can’t go out, even to school, is no easy task. The biggest challenge for her is keeping her family physically, emotionally, and mentally healthy. Entertaining her daughter, who is too young to understand what’s going on, is quite a challenge. Not being able to go outside, to play, to shop, to eat, and meet people is taking an emotional toll on everyone.” Being a psychologist, I am trying to keep the environment in

my home healthy and productive. News and television are limited and discussed to relieve anxiety, thus providing emotional catharsis and support for each other. I try to develop activities that will keep family members and children busy like arts and crafts, writing, cooking, board games, etc. It's essential that along with our physical safety, we look after our mental well-being as well."

"One positive aspect of the whole situation is that we're getting a chance to restart. Everyone is at home and has time to think about their lives and what they were doing. Priorities are being reset, and goals redefined. We're learning what really matters." The negative aspect is the lack of socialization and limited physical touch. "I have to think twice before I hug or kiss my daughter because I don't want to harm her."

She's sure the scientific community is doing its best to find a solution, and most governments are showing full support.

Noor Zaidi lives in Islamabad. She is a school teacher and owns an online bakery business by the name of 'Oh Fudge.' (To know more, see <https://cheflingtales.com/dine/islamabad/oh-fudge-an-inspiring-tale-for-would-be-home-bakers>).

While we are being paid, I'm not sure what the situation is for the smaller and less established schools across the city." Where baking is concerned, her orders have also taken a hit. People want to order but aren't because of the

current circumstances. Basically, not being able to go outside or to the market to window shop or hang out with friends can be very frustrating. One way it's had a positive impact is that the environment has started to recover somewhat worldwide. Satellite images show decreased pollution in many countries across the globe. One negative effect would be that the earnings of daily wagers or let's say, someone running a school canteen, have taken a massive hit. In Pakistan, we already have plenty of people under the poverty line. She thinks the impact on mental health is mixed." It's definitely given us time with our families and our thoughts, but I believe there is also a negative aspect. Fear of the unknown future. Not being able to plan things."

During the lockdown, she eats, watches movies/dramas, tries to get some little housework in, sits in the garden, walks, and bakes.

Dr. Muahammad Mazhar Iqbal is a Professor of Economics at Cust University and residing in Islamabad. His university is closed for the past month. Office timings are no more observed, but online classes are going on as well as meetings per schedule. There is a specific restriction on social activities. There are no prayers in the mosque, no morning walks and regular trips to the bazaar, and no meet up with friends and relatives.

"Everyone, especially teachers like me, can spend more time with family members and concentrate on research

and pending work due to relaxation from regular classes. Also, I think that the link between the rich and deprived of society is strengthened.

He feels lonely and distressed, being away from university and colleagues. Coronavirus has affected mental health, both negatively and positively. Contrary because of the continuous news of increasing deaths due to Corona. It creates panic a state of fear is taking over. Positive because the idea of the Sovereignty and Oneness of Allah is strengthened. During the lockdown, he helps around in house chores and devotes more time to spiritually uplifting activities like attending spiritual talks online.

Muhammad Usman Aslam is an MS Student, studying in Fulda, Germany. He came to visit Pakistan during his semester break last March. Due to the unfortunate circumstances, he had to return on an emergency basis and cut his trip short via a specially arranged flight. He is a student of the Masters's program studying abroad.

Due to Corona the exams have postponed, and all the activities in the university suspended. The new semester is getting delayed. It has dramatically affected all his planned activities and tasks. Above all, it ruined his travel plans, and he ended up returning backway earlier than scheduled through some evacuation plan.

The positive impact is that due to lockdown, everyone is staying at a social distance, but perhaps it gave a

chance to spend time with your family and interact far better as everyone is working from home. Parents have a lot of time for their children now to guide them and learn their routines. Contrary, as all industries are closed, and there is no much traffic ground and air, both so the pollution levels are decreasing significantly. As no activity is going on, it's becoming much more difficult for the conventional workers to earn for themselves; hence, they are forced to live hand to mouth due to this epidemic, especially the labor class.

The fear spread by this Corona has affected nearly everyone. They are becoming much more tensed as they cannot go outside and are forced to stay at home, yet they still fear they can be exposed to it. Their extra cautious attitude is making them more frustrated as they cannot be sure that they have done all the care.

Usman mostly stays at home except for groceries and other work of extreme importance. He is utilizing this time to learn more and more technologies and courses, which can be very helpful throughout his career as most of them are available without any charge.

"As it is an epidemic so I guess it will take some time and combine efforts from all around. The sooner we act together, the early we get over it." Yes, they are working very hard in close collaboration to overcome and find a cure. Already some tests have been carried out to evaluate the results to rule out this epidemic. The US government is trying its best to fight

against this epidemic by utilizing all available resources.

CONCLUSION

Even if not physically affected by the Coronavirus, people are slowly losing patience and sanity due to the

lockdown. Many sit depressed and confused about their future, while others turn to some sort of activity to keep them occupied. The halt on social activities and routine does seem like a much-needed vacation at times, but it equally can be nerve-wracking.

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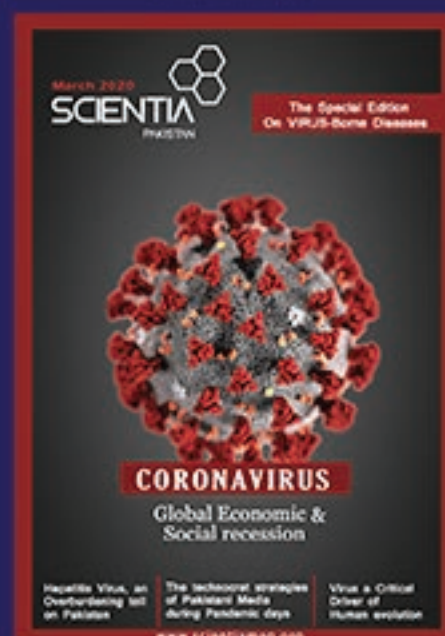
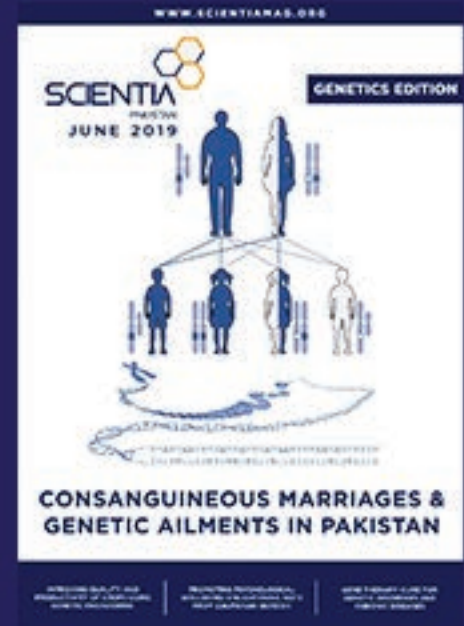
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