

PalArch's Journal of Archaeology
of Egypt / Egyptology

**INFODEMIC COVID-19: THE EFFECTS OF SOCIAL MEDIA
INFODEMIC ON PEOPLE'S ATTITUDE TOWARDS COVID-19 IN
PAKISTAN**

1 Mutie ur Rehman, 2 Ajmal Dass, 3 Jahanzeb Alamgir

Department of English Language and Literature, Allama Iqbal Open University, Islamabad

Assistant Professor of English, Higher Education Department, Punjab

Subject Specialist, School Education Department, Punjab

Mutie ur Rehman, Ajmal Dass, Jahanzeb Alamgir--INFODEMIC COVID-19: THE EFFECTS OF SOCIAL MEDIA
INFODEMIC ON PEOPLE'S ATTITUDE TOWARDS COVID-19 IN PAKISTAN -- PalArch's Journal of Archaeology
of Egypt/Egyptology 18 (4), 1085-1100. ISSN 1567-214x

Keywords: Covid-19, WHO, SOPs, Social Media, Infodemic, Fabricated Stories

ABSTRACT

Coronavirus is the most perilous pandemic of 21st Century till now. It has spread overall bringing about loss of lives and loss of world economy. WHO (World Wellbeing Association) on its official site shared Coronavirus update which demonstrated 8.7 million cases had been enlisted till 21st June 2020 and it brought about 461715 losses all through the world. Lamentably Pakistan remained among top influenced nations. Numerous Pakistani were not paying attention to it. They didn't follow the SOPs (Standard Working Methods) implemented by the Public authority of Pakistan. Online media infodemic was one of the other reasons influencing individuals' disposition towards Coronavirus. Government spent a lot in publicizing the insurances of this pandemic however individuals' non-serious disposition towards this perilous infection barred the strategies of government bringing about extraordinary number of cases and setbacks in Pakistan. This is a descriptive research and the method of this investigation is a survey study which incorporates sample size having 274 respondents. Data was gathered through an online survey in the form of questionnaire sent through WhatsApp and Facebook. Findings of the research propose that online media infodemic fundamentally influenced the behavior of the individuals. The findings additionally brought to light that Pakistani individuals believed in irrational and invented circulated through untrustworthy sources. Expanding confidence in counter-intuitive and created courses through inconsistent sources. This paper would demonstrate a milestone for other researchers to work in this field of studying factors influencing people's behavior and help the government authorities in formulating policies in future remembering the effects internet-based social media and infodemic. Interlinking strategies with infodemic, government may improve results. Obliviousness of infodemic on social media with respect to a particular issue and not dismissing all unreliable and created stories by resounding from authentic information offices may spoil all the demanding results.

1.1 INTRODUCTION

A specific multitude is doing chase of worldwide web for knowing enormous fitness facts. Because of far-flung spread Covid-19, people are moderate to live their lives at their accommodation. They utilize worldwide web for their correlations and errands. Everybody should be known all essential information regarding this span ailment. People utilize infodemic technique to explore online on Google for health and action motives. Infodemic learning comprises many huge implementation sites like Facebook, EHR (Electronic Health Record) and twitter etc.

Google trends tools are introduced by time alternative in online interest for countersign, theme and achieve knowledge. Aids (Acquired Immunodeficiency Syndrome), mental health, irrational use of junks and elegant health issues are investigated by Google tendency. That's why Google supply useful perception of human act throughout astonished detonation. People take inexact anticipations and hoax news about Covid-19 goes throughout the globe.

Sobriquet spread in the globe mainly in Pakistan during the infodemic. During Chinese new Lunar Year, coronavirus malady novel 2019 also known as COVID-19 was covered in Wuhan, China, as reported by Zhiwen Hu et al., (2020). During the epidemic worldwide tussle was hinder because of enormous infodemic. Publication in meet with fair share of recognition and legitimacy is appears in infodemic rarely. Instant and authentic details required in this infodemic spread of Covid 2019-nCOV, later renamed as COVID-19.

Global abundance of heading added to the horror, hash tags, malice, monker and bias on social media information. By transmission of social media requests and hash tags, Stigmatized monikers accomplished their positions in social media to contribute in backlash against China. When covid began in China originate diverse scheme thesis and tainted the intent and designation of two considerable nations like America, and China, this prejudiced details found its place.

Like knowledge rivalry is not related with fighting flag or deceptive campaign .Current explored coronavirus that effected the respiratory tract in humans is planned by worthy name. Global virus taxonomic and academic-commercial use is not orderly so far. First of all, Covid-19 effected in Pakistan and China .After China, West Italy was extremely effected by this Covid-19.

In Pakistan, first covid case was proclaimed on February 26, 2020 in Karachi, Sindh province by Ministry of Health. On the same day, second case of corona spanned confirmed in Islamabad by Federal Ministry of Health and Government of Pakistan. Later, within 15 days confirmed total cases extended to 20 out of 470 suspected cases. Gilgit-Baltistan increase established cases of affectees followed Sindh province.

Next month established Covid cases had extended to a high quantity that had started from London, Syria and Iran travelers. Expand number of COVID-19 demanded a excessive degree arrangement, managements and stern actions because of geographical position of Pakistan.

Management, Coordination and Ministry of National Health services introduced a plan to respond COVID-19 pandemic. "National Action Plan for Preparedness & Response to Corona Virus Disease (Covid-19) Pakistan", it was given that name. Its purpose is to give

the strength to the country against Covid-19 and to control the span of Covid-19, furthermore, reciprocate to the Corona event that occurs in Pakistan. The federal, local, geographical feud was to be taken foreseeing because that can have specific consequence on the health of people. In case of Covid-19, Government of Pakistan has taken copious steps (A, Waris et al, 2020).

1.2 STATEMENT OF THE PROBLEM

The usage of social media and receiving info online without knowing the genuineness of the facts sometime ripens no serious outlook in the users even about the utmost grave concerns. During covid-19 pandemic Pakistani government enforced stringent lockdown but people didn't take it seriously. They might be taking it as a machination or collusion of the government of Pakistan so the researcher tried to find out the impacts of infodemic / social media gen on the attitude of the people.

1.3 RESEARCH QUESTIONS

- i. How does infodemic affect attitude of the people especially towards Covid-19?
- ii. What are the key sources of the people of Pakistan for getting information about hot issues like Covid-19?
- iii. What role did Social Media infodemic play during the times of Covid-19?

1.4 HYPOTHESIS

H1. Infodemic on social media affected the attitude of the people of Pakistan towards covid-19 negatively

2. REVIEW OF THE RELATED LITERATURE

Information and more than information are the significant highlights of a general public of today. Issue isn't in having an extreme measure of data however the issue is in managing it. As web and web-based media have apparently facilitated the uprising wants of knowing more and opening up new possibilities for the clients all together that they'll effectively associate with each other and produce substance of their own. Such a circumstance is encouraged the close connection among information and residents. Lazer et al., 2018 go to an understanding that web-based media and online locales are likely essential stage which prompted bogus and temperamental data since it conveys enormous scope sharing of information and needing of customary morals for monitoring and shielding from being ruined (Vosoughi et al. in 2018 and Lewandowsky et al., 2012). Irrefutably, in web based set the presence of false update or information is becoming throughout the long term (Vosoughi et al. 2018). The term counterfeited-news has generally been employed in the earlier years (Guess, 2019) explicitly during the Presidential appointment of 2016 of United State (Gentzkow and Allcott 2017; Bovet & Maske 2019; Aziz & Hassan 2018). Ensuing, Wang et al., 2019, we shall request that bogus data clarify any intrigue including precarious stories, comments, tricks, and other confounding substance.

In 2013, there was a report with the title Digital Wildfires during a Hyper-associated World introduced by World Economic Forum during which the association recognized that bogus news are the most dangerous thing for a society (Howel, 2013; Hassan & Qureshi, 2021). Del Vicario et al., 2016; and Lazer et al., 2018 recommend that the individuals are slanted to make certain of and more impacted by that bit of gen which affirms their disposition and convictions. Results of some researches have demonstrated that untrue, valid, and blended newscast are mellowed on social media especially on

twitter just in light of the gossipy tidbits that exploit all the more rapidly and all the more effectively through and through kinds of data (Vosoughi et al , 2018; Hassan & Dzakiria, 2019). during this viewpoint, it's discovered that the truth arrive at a mean of 1000 clients and created news reach somewhere in the range of 1000 and 100,000 clients of web-based media and 70% of bogus news is retweeted a remarkable significant data. furthermore thereto , the networks of clients like better to peruse and impart data to their previous contacts and contradicted the clients of different networks thinking their shared data as false that they core just on the post shared inside their own local area (Bessi et al., 2015). The clients of logical realities aren't the most extreme sum dynamic like clients of other online media local area in spreading the logical data. (Allcott et al, 2019; Hassan & Aziz, 2019). They talk about the posts that contain baffling data to scoff their insight. the ascent of bogus data is that the dismissal of logical proof which will be the danger to residents and to majority rules system as spreading such substance which persuade and encourage pessimism, stupor and enthusiasm which influence public approach and individuals' lives. The premier destructive impact of this untruthful news is inside the field of wellbeing. Betsch , 2017 ; Hotez ,2016. Fung et al., 2016 are of the view logical examinations has indicated that the impact of bogus data is particularly fixated on inoculation and adaptable infection. Spread of bogus data can imperil general wellbeing for the most part brought about by against inoculation development (Jamison et al., 2019; Hassan & Dzakiria, 2020).

Another public worry about COVID-19 is furthermore alluded to as Covid illness. The essential instance of COVID-19 was accounted for in China on 31st December 2019. Till 7 Feb, the whole cases were 31,481 and out of these 31,481 cases, the contagion has taken 637 lives in China. There have been 270 additional cases in 24 distinct nations till seventh Feb. recorded by WHO 2020. At the point when the composition of the infection submitted, till 29 February the measure of cases raised to 83,652 in 52 nations including China. According to Chakravorti 2020; Taylor 2020, from this contagion virus 2858 people passed on over the globe (WHO 2020D). The spread of bogus data on COVID-19 is becoming so quick and incorporates references to fix like waste of time and suggestions of filling one's mouth with pungent water, eating desserts in winter or perhaps drinking dye. Other kind of bogus data adds to airing of story like utilization of 'bat soup' on the grounds that the clarification for disease or the plan that the infection is being made by US.

Now in the community, the properties of data and knowledge are extremely necessary .Having too much details is not a major issue but to face it, is an issue. For uprising wishes of knowing new, social media and Internet are opening up new potentiality for the people so that they may simply make content and interconnect with everyone. The quick relation between resident and knowledge is simplified by this type of circumstances. A contract for that online sites and social media are central stage and it conveys and divides knowledge on big scale so, it led untrustworthy and wrong information, and for preserving and managing from being impaired, it wants customary morality. No doubt, the existence of fake news is extending over the years in online setting.

In previous years and in the course of the US Presidential elections of 2016, the copy news term has generally used. To narrate any scheme, we will mention to wrong info along with deceive , comment, awkward stories and other misleading content. World

Economic Forum is introduced a report entitled digital wildfires in a hyper-connected world in which the company showed that the main risk to society from fake news. People willing and affected by that information which verify their faith and their point of views except to be definite info.

This sort of stories is subject for expanding the one-sided mentalities of people (Aguilera, 2020) however it likewise expanded the risk of sickness in individuals and furthermore influences the force of state about assurance. Prior to things, WHO declared that beside boundless danger, an infodemic has been made which give full data on this issue? To battle from this, the sites commit to abrogate legends and censure bogus data (WHO 2020 b) and supply the overall population with helpful information. Rubio Hancock (2020) asserted that however, Google online media stages like Twitter, YouTube, WhatsApp and Facebook and furthermore measuring the usage of source and spread tricky news. Allcott et al., (2019) argued that analysis have indicated that the spread of untruthful news on Facebook and Twitter is somewhere in the range of 2015 and 2016. Results from the examinations of the scenario have indicated that before 2016 races the connection with counterfeit news developed continuously. Yet, one month ahead the bogus news was one its top on Facebook a while later this communication proceeded to upswing on Twitter.

3. RESEARCH METHODOLOGY

Much concern of the researchers was provoked by the report of the information shared on social media. Data sets acquired from social media are used to be analyzed by qualitative and quantitative techniques. In this example, consequences are frequently operated in the format of score of themes or topics recognized, and to obtain the coding review of the datasets, progress of a codebook is obligatory for both approaches. Though sometimes researchers govern subject matter analysis inductively rather than utilizing a codebook. Few researchers struggle to unite other qualitative investigation methodologies with social media outcomes.

It's a detailed study in which way of fact assemblage is in-depth observation. Social media regulated an online survey. An investigation was proceeded on the footing of incidents dispersed by WhatsApp and Facebook. There have been more than fifteen hundred contacts of researcher on WhatsApp and Facebook. The researcher gathered all the certified and inaccurate data that was being shared again and again on social media by appealing on status on WhatsApp, delivering messages in various social circles on WhatsApp and publicizing on the wall of Facebook. After analyzing all messages, the facts which were not parallel to government's legally shared information were organized solely and on the ground of that data a inspection was instructed.

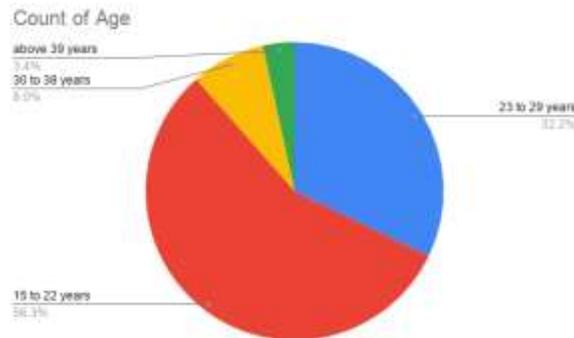
Questionnaire was consisted of three fragments: first comprising of statistical data, second people's perspective at springing of covid-19 in March, and third had questions demanding participant's opinion concerning covid-19 when it is on its climax at third the on setting of decade of June. As it was an online research, so the questionnaire was proceeded on 'Google form'. The research administered a pilot test first to check the validity and trustworthiness of inspection. It was inferred by the feedback of participants that study should be operated.

In this study, 628 people are contacted and appealed to complete the questionnaire by researcher through WhatsApp and Facebook. Survey based online questionnaire served as a mean of information accumulation. Total responders were 628 out which mostly

belonged to Rahim Yar Khan and remainder from other cities. Only 274 out of 628 respondents completed the form. Majority comprised students. Some government employees, teachers of schools and colleges participated in this research. Researcher followed all research ethics.

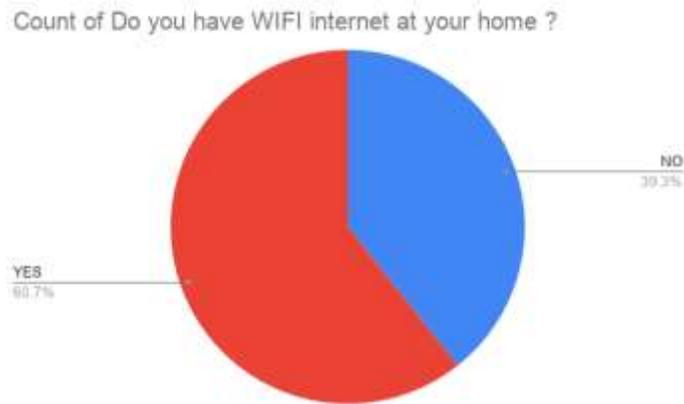
4. DATA ANALYSIS

CHART.4.1



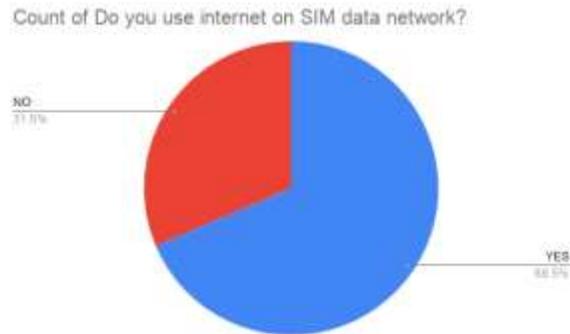
This graph portrays the demographic information of the sample members. Majority participants were of age from 15 to 22 years old. All of them were undergraduates. Classification according to age shows that 56.3% of the participants were of 15 to 22 years of age. 32.2% members were of 23 to 29 years of age. Moreover 8% of the participants in this study were from 30 to 38 years old and only 3.4% participants were above 39 years old.

CHART.4.2



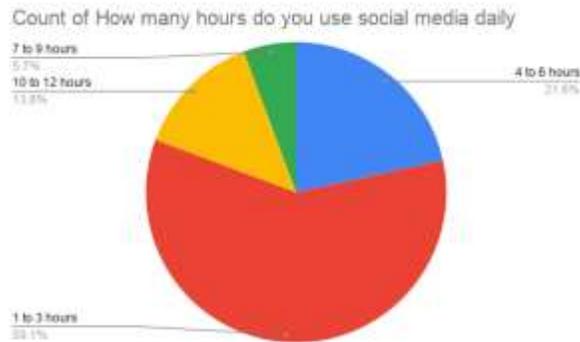
Most of the willing participants in the study own wifi connection at home to use internet for multipurpose. The ratio of the members of the study having wifi connection at home is 60.7%.

CHART.4.3



This diagram shows that 68.5% participants use internet facility of their SIM card. They don't have wifi devices at home.

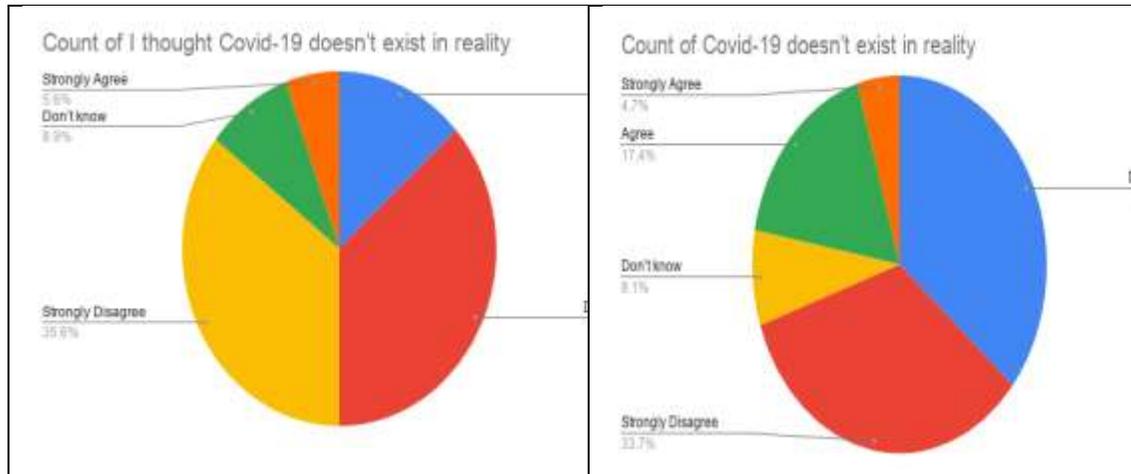
CHART.4.4



This diagram displays that how long the members utilize web-based media every day. As per gathered information 59.1% utilize social media for different purpose from 1 to 3 hours daily and 21.6% participants spend 4 to 6 hours to use online media every day. Utilization of web-based media from 7 to 9 hours daily is 5.7% and the ratio of users of social media from 10 to 12 hours daily is 13.6% .

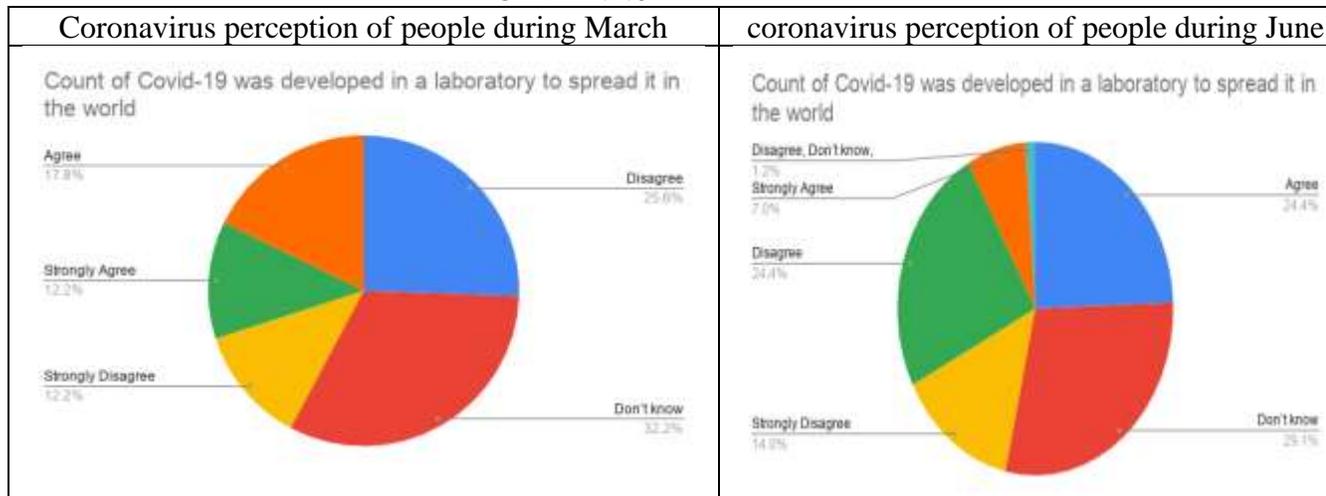
CHART.4.5

Coronavirus perception of people during March	PEOPLE'S Perspectives ABOUT Coronavirus IN JUNE
---	---



Left diagram presents individuals' reaction to Coronavirus during Spring that is 72.3% individuals accept that Coronavirus is truly existent. 8.9% individuals don't know about its reality truly. 18.9% members accepted that Coronavirus doesn't exist. On the correct side the introduction of individuals' reaction to Coronavirus when its affectees are in excess of 150 thousands. Interestingly, even in the wake of having such countless cases in Pakistan. The explanation of the diagram shows that Coronavirus is not existent truly and believers of this statement increased from 18.9% to 22.1%. It is a direct result of online media infodemic that transformed the demeanor of the individuals.

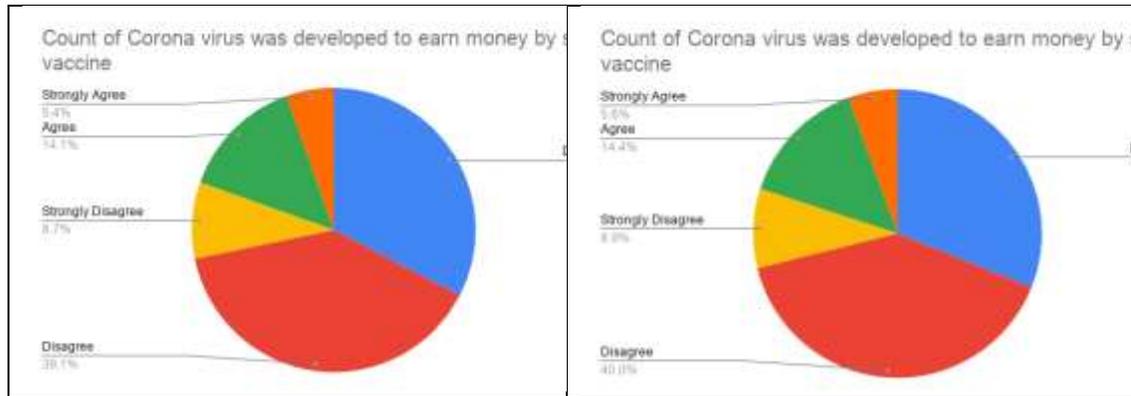
CHART.4.6



Examination of two different months' reaction displays that there is an ostensible positive transformation in the agreement to the assertion. During Spring 30% members accepted that Coronavirus was created in a research facility under the scheme to spread it in the world and in the month of June 31.4% individuals accepted the equivalent. 1.4% addition in this mistrust because of online media infodemic.

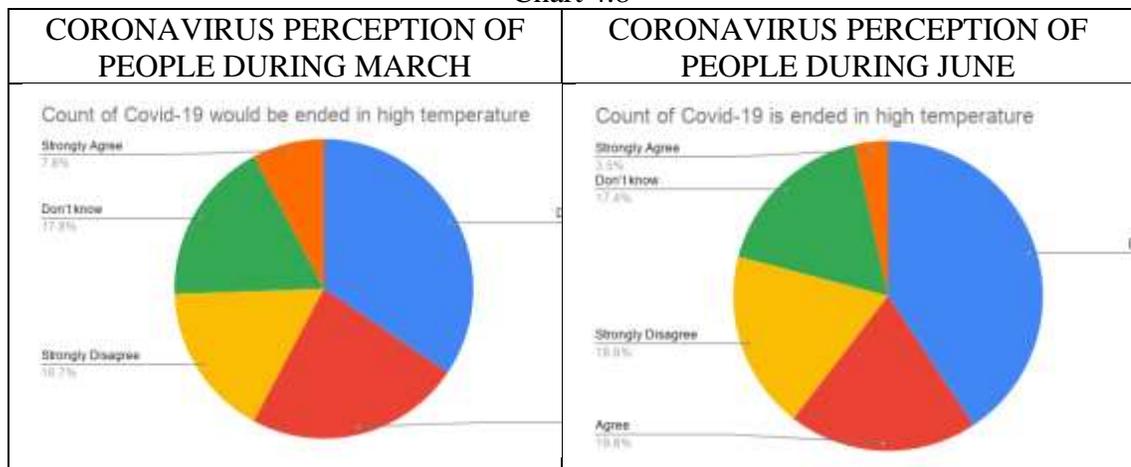
Chart 4.7

CORONAVIRUS PERCEPTION OF PEOPLE DURING MARCH	CORONAVIRUS PERCEPTION OF PEOPLE DURING JUNE
---	--



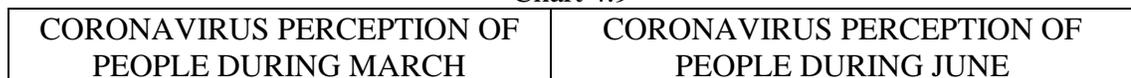
Analysis of the results of two months' reaction by the respondents demonstrates that there is an clear positive change of agreement to above assertion. During March 19.5% members accepted that Coronavirus was created in a research facility under the trick to spread it on the planet and bring in cash by selling its antibody and during June 20% individuals accepted the equivalent. 0.5% augmentation in this doubt because of online media infodemic.

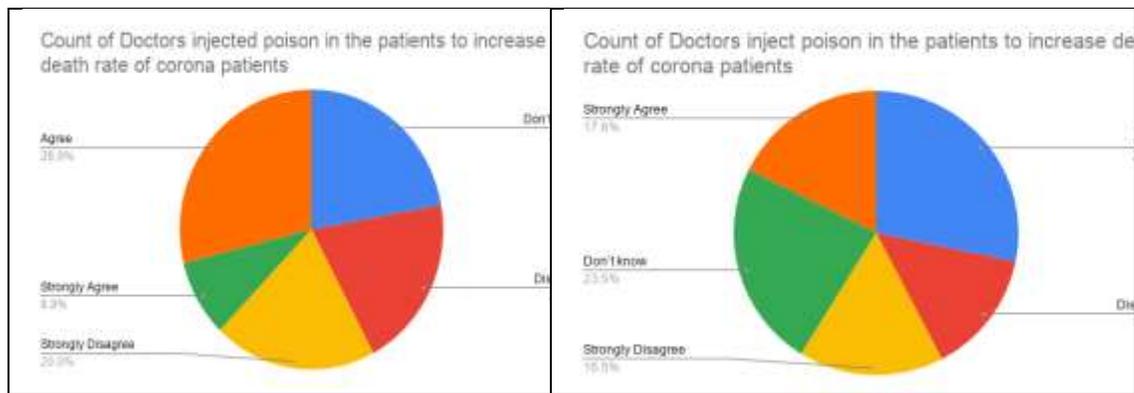
Chart 4.8



An overall discernment via web-based media that Coronavirus wouldn't spread in hot locales since it gets stuck down or kicked the bucket on high temperature in excess of 30 degree centigrade. Therefore 30.1% accepted this news during Spring. On contrary in June when the temperatures in Pakistan is on its pinnacle and despite the registered cases were over and above expectations that is why it changed individuals' mentality toward this pandemic. Presently 20.9% individuals accept this falsehood. There is a reduction of practically 9%.

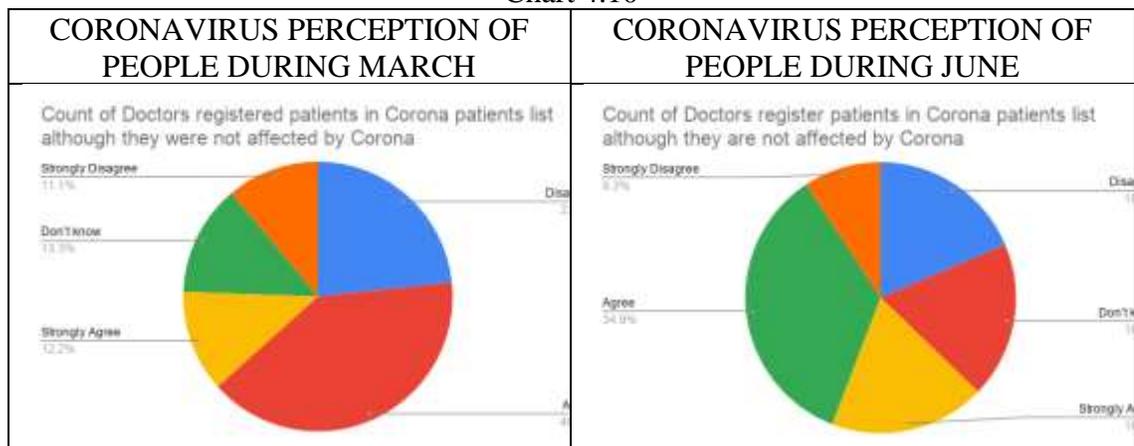
Chart 4.9





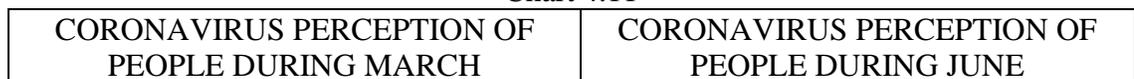
Accusing specialists being the piece of paranoid idea has been noticeable all around from the absolute first day till the day. Numerous recordings have been viralled via online media so it impacted the brain of the individuals. During Spring consent to the explanation that specialists infuse toxic substance to build the quantity of crown tolerant was 37.8% and in June it is 45.8%.

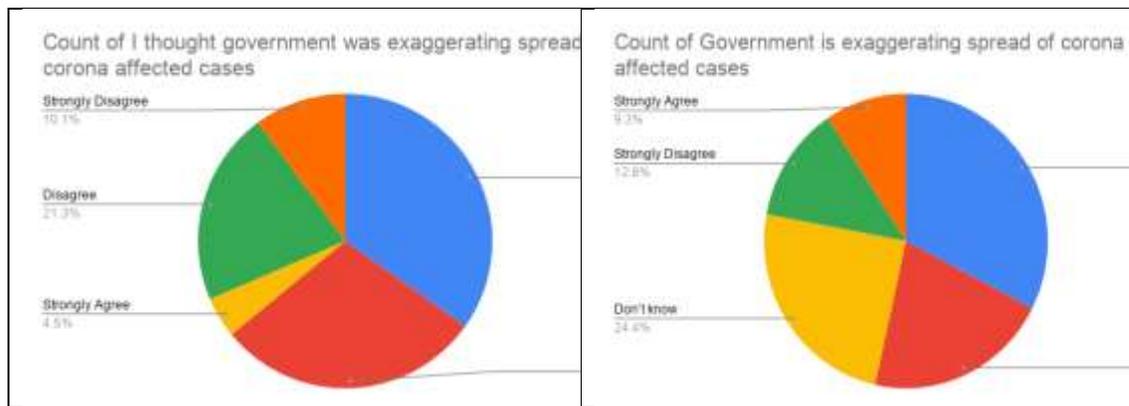
Chart 4.10



Accusing specialists being the piece of paranoid notion has been noticeable all around from the absolute first day till the day. It affected the psyche of the individuals. During Spring consent to the explanation that specialists register bogus cases to show expanded number of crown patients was 52.2% and in June it is 53.5%. In spite of the fact that demise rate and enrolled cases are more than assumption actually individuals accept that bogus cases are enlisted.

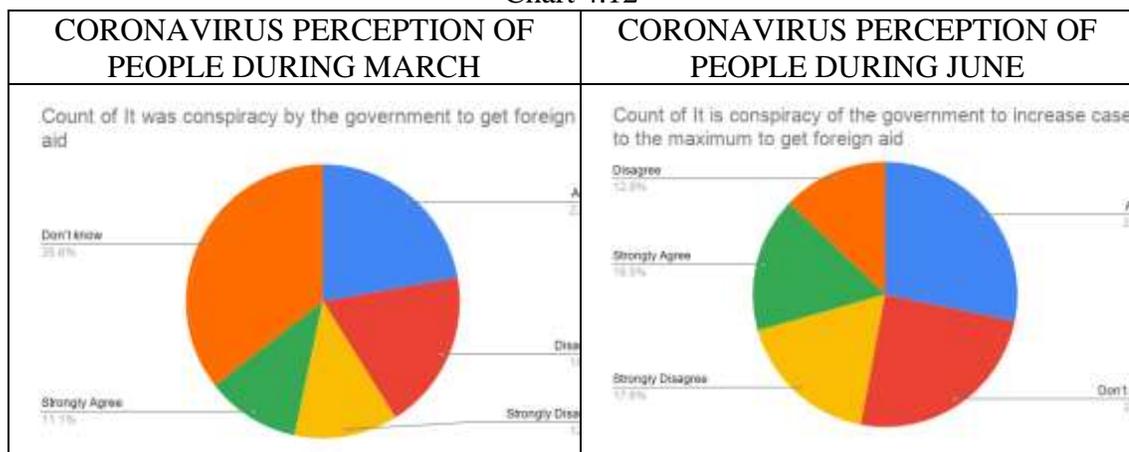
Chart 4.11





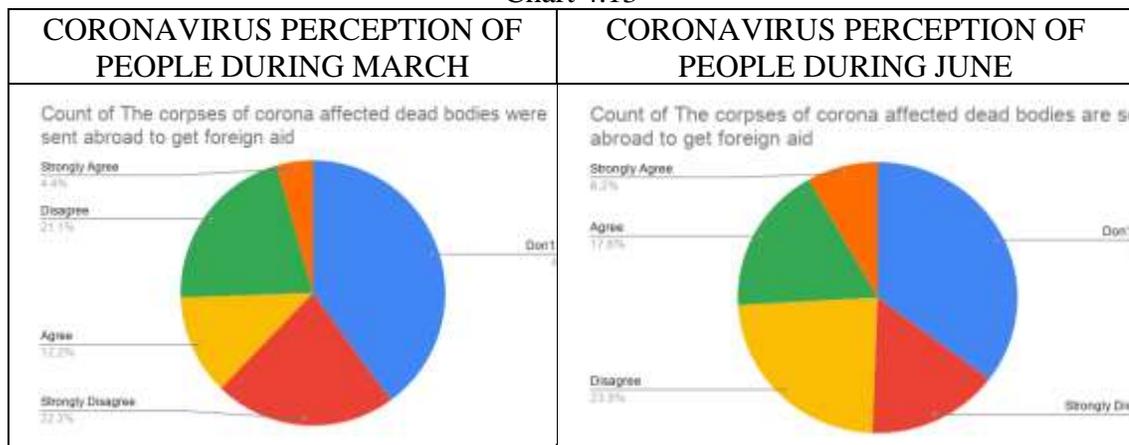
33.7% individuals accepted that administration of Pakistan is misrepresenting the spread of crown influenced cases and in June 41.9% individuals have a similar view. There is an expansion in the accepting on this story.

Chart 4.12



33.3% individuals accepted that administration of Pakistan is misrepresenting the spread of crown influenced cases to get unfamiliar guide and in June 44.7% individuals have a similar view. There is an expansion of practically 11.4% in the accepting on this story.

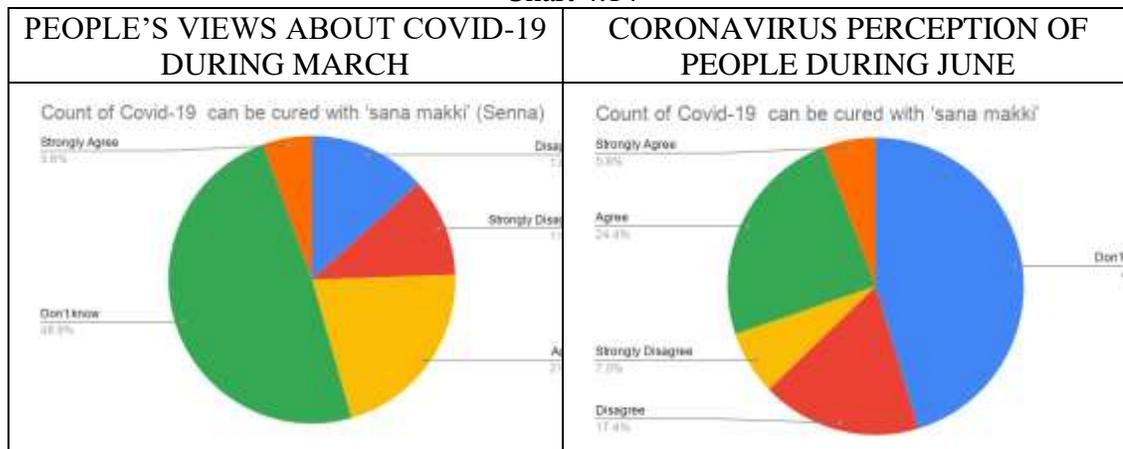
Chart 4.13



It is abnormal that individuals accept on a particularly mind boggling legend that carcasses of the crown influenced dead bodies are sent to another country to get

unfamiliar guide. During Spring 16.6% members trusted it and in June 25.8% actually trust it.

Chart 4.14



With respect to of Coronavirus, 26.7% accepted that it tends to be restored by utilization of Senna(Sana makki). Also, still 30.2% accept that its fix is utilization of Senna. 48.9% of the members didn't know about its fix with Senna during Spring however in June it is 45.3% which 5.6% members made their psyche clear about it.

As the poll was created on 'Google structure' since it was an online study research so information was gathered on the web and saved in Google drive. Based on the synopses consequently created by the Google Structure the information was changed over in Google spread sheets. It was investigated through google examination and spread sheets. The accompanying diagrams demonstrating the level of the respondents' answer. All out 274 respondents effectively partook in the examination and based on those reactions the information is broke down as bicharts that are additionally clarified momentarily.

5. FINDINGS AND DISCUSSION

Social media infodemic had impact on the behaviour of people. It is shown by assessment of the consequences gathered from instances. Social media is utilized 1 to 3 hours by 59% people and 4 to 6 hours by 21% people every day. It shows that it is generally used mostly by students and teachers who are connected through it.It is weird that 22.1% people in Pakistan are not prepare to accede to the presence of Covid-19 even after so many cases in the country. The attitude of people towards it was changed by social media infodemic. It is presumed by 31.4% people that due to the scheme to circulate Covid-19 in the world and earn money by supplying its vaccine, it was cultivated in the laboratory. In June, as the temperature reaches its climax and the listed cases exceeds 160 thousands so people altered their behaviour for epidemic. Now it is believed by 20.9% people that at high temperature covid-19 would expire, in March 30% believed in this fantasy. From the beginning till today, doctors are criticized for being the part of conspiracy theory of government. On social media, many videos have been reared up viral to affect the minds of the people. With the fear that doctors may inject the injection of poison just to raise corona patients, many people didn't visit hospital even in extreme situations. The inferences of the study reveal that 45.8% people trusted this fantasy though they were 37.8% in March. Though death rates and recorded cases jumped up the

expectations, yet people supposed that inaccurate cases are listed. Misleadingly and inexcusably 53.5% people thought that doctors recorded normal patients in Corona and this exhibits ultimate doubt in doctors by public of Pakistan. Government is included in this conspiracy of listing incorrect cases of covid-19 by 41.9% people, 44.7% has the mindset that government perform this to attain external help further and 25.8% presume that to obtain advantage deceased are transported abroad. Fantasies about the treatment of Covid-19 has been propagated on social media. Senna(sana makki) was supposed to be the therapy of corona though it have no scientific basis till yet. 30% still have this perspective.

Due to social media infodemic, people of Pakistan don't take the severe and menacing epidemic strictly. Some trusted in the myths and some make fun of this pandemic. Those who has taken it seriously,are not part of such fables. "H1. Infodemic influenced people's behaviour towards covid-19 adeversary" hypothesis attested to be authentic as majority took impact of such yarns.

i. How people's perspective regarding covid-19 is influenced by infodemic?

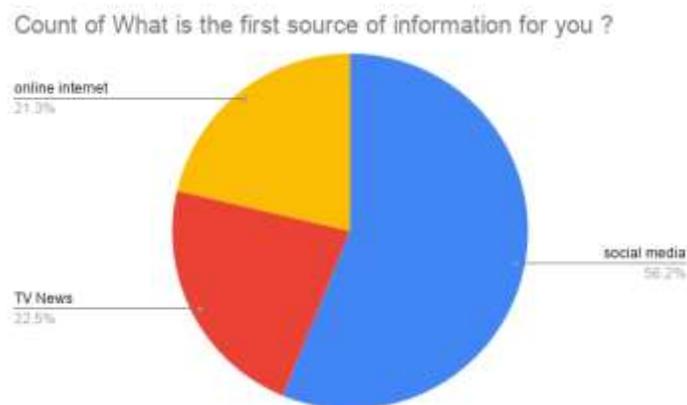
Consequences of the research exhibit that weighty number of people believed the myths spread on social media. Nobody perceived the accuracy of such fables so they might proved dangerous. As the people don't trust even in the presence of this pandemic, so program of Pakistani government of enforcing strict lock down in order to regulate the propagation of covid-19, was destroyed.

ii. Share the effect of social media on minds of people.

It affected both in positive and negative way. This research is regarding to covid-19 that have been propagated across the world. Social media was taken positively to have information, but this virus is severe and harmful because each native must have to beware of all precautionary measures regarding this epidemic. In case if one doesn't obey the SOPs, he/she proves harmful for others too. So even the unawareness of the minority harms the life of majority. Some people can't build trust in doctors due to social media fools.

iii. What are people's general information origin?

In the era of social media and internet, people take it at leading source of information. Chart displays that 56.2% people utilize social media, 21.3% utilize internet and only 22.5% watch TV News as majority source of information.



5.1 CONCLUSION

To terminate, people of Pakistan were affected negatively by social media infodemic although majority stayed safe due to their trust in the true sources demonstrated by the government. Consequences of the research proved that majority didn't search for the validity of information rather they depend on the data supplied to them without any hardwork on social media. Government must facilitate the public by supplying the actual information in order to aware the mass and save them from imprecise data of social media. Role of social media should kept in mind while organizing a policy regarding covid-19. Many people affected the lives of others along with theirs due to their non-serious attitude. According to WHO, till 22 June 2020, 8.7 million cases have been listed, and it results in 461715 victims worldwide. Unluckily Pakistan is at the peak of top influenced countries. Irrespective of the fact, Pakistanis still mistook the virus as conspiracy by doctors or government. Efforts of people who obey SOPs were nullified by such mindset of this kind of people. These rumors harm the life of millions. To help policy organizers in having maximum output, researchers need to work on role of social media in the life of civilians.

To windup, social media affected the frame of mind of people towards Covid-19 in pakistan. Government of pakistan should take strict actions against this false information, in shot to save youth. It would ease the policy makers in having a maximum yield of it.

References

- Waris, A., et al. (2020). COVID-19 outbreak: current scenario of Pakistan. *New Microbes and New Infections*. Volume 35 Number C, May 2020.
- Aguilera, J. (2020). Xenophobia 'is a pre-existing condition'. How harmful stereotypes and racism are spreading around the coronavirus. *Time*, 1 February. Available at: <https://time.com/5775716/xenophobia-racism-stereotypes-coronavirus/> (accessed 8 February 2020).
- Ali, I. (2020). Pakistan confirms first two cases of coronavirus, govt says "no need to panic". <https://www.dawn.com/news/amp/1536792>.
- Allcott, H. and Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31(2): 211–236.
- Allcott, H., Gentzkow, M. and Yu C (2019). Trends in the diffusion of misinformation on social media. *Research & Politics*, 6(2).
- Bessi, A., Coletto, M., Davidescu, G.A. et al. (2015). Science vs conspiracy: Collective narratives in the age of misinformation.
- Betsch, C. (2017). Advocating for vaccination in a climate of science denial. *Nature Microbiology* 2: 17106.
- Bovet, A. and Makse, H.A. (2019). Influence of fake news in Twitter during the 2016 US presidential election. *Nature Communications* 10(1): 1–14.
- Chakravorti, B. (2020). As coronavirus spreads, so does fake news. *Bloomberg Opinion*, 5 February. Available at: www.bloomberg.com/opinion/articles/2020-02-05/as-coronavirus-spreads-sodoes-fake-news (accessed 8 February 2020).

- Del Vicario, M., Bessi, A., Zollo, F., et al. (2016). The spreading of misinformation online. *Proceedings of the National Academy of Sciences of the United States of America* 113(3): 554–559.
- Fung, H., Chan, C.H., et al. (2016). Social media's initial reaction to information and misinformation on Ebola, August 2014: Facts and rumors. *Public Health Reports* 131(3): 461–473.
- Galarza Molina, R.A. (2019). Networked gatekeeping and networked framing on Twitter protests in Mexico about the Ayotzinapa case. *RIMCIS* 8(3): 235–266. Available at: <https://dialnet.unirioja.es/servlet/articulo?codigo=7216311>
- Gómez, A., Padrós, M., Ríos, O., et al. (2019). Reaching social impact through communicative methodology. Researching with rather than on vulnerable populations: The Roma case. *Frontiers in Education* 4: 9.
- Guess, A., Nagler, J. and Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. *Science Advances* 5(1): eaau4586.
- Harpan, H., et al, (2020), Coronavirus disease 2019 (COVID-19): A literature review, *Journal of Infection and Public Health*.
- Hassan, M.U. & Dzakiria, H. (2020). Investigating Pakistani EFL Learners' Beliefs towards written CF and their impact on L2 writing accuracy: The Case of Urban and Rural context. *St. Theresa Journal of Humanities and Social Sciences*, 6 (2), 147-167.
- Hassan, M.U. & Aziz, A.A. (2019). Investigating the use of Computer Technology for E-learning in Pakistani Maddaris: Case of Religious Teachers. *International Journal of Distance Education and E-Learning*, 5 (1), 44-56.
- Hassan, M.U. & Dzakiria, H. (2019). The University Students' Beliefs towards Corrective Feedback in Learning English as Foreign Language in Pakistan. *International Journal of Recent Technology and Engineering*, 8(3), 4094-4100.
- Hassan, M.U. & Qureshi, A. (2021). Investigating Phonological Accuracy among Pakistani EFL Instructors at Higher Secondary Level in Pakistan. *Palarch's Journal of Archaeology of Egypt/Egyptology*, 18 (2), 401-411.
- Aziz, A.A. & Hassan, M.U. (2018). Growing Trends of Using Mobile in English Language Learning. *Mediterranean Journal of Social Sciences*, 9(4), 235-239.
- Hotez, P.J. (2016). Texas and its measles epidemics. *PLoS Medicine* 13(10): e1002153.
- Howel, L. (2013). Digital Wildfires in a Hyperconnected World. *Global Risks Report*. World Economic Forum. Available at: www.weforum.org/docs/WEF_GlobalRisks_Report_2013.pdf
- Jamison, A.M., Broniatowski, D.A., and Quinn, S.C. (2019). Malicious actors on Twitter: A guide for public health researchers. *American Journal of Public Health* 109(5): 688–692.
- Lazer, D.M.J., Baum, M.A., Benkler, Y. et al. (2018). The science of fake news. *Science* 359(6380): 1094–1096.
- Lewandowsky, S., Ecker, U.K.H., Seifert, C.M., et al. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological Science in the Public Interest* 13(3): 106–131.
- Merino, J.G. (2014). Response to Ebola in the US: Misinformation, fear, and new opportunities. *BMJ* 349: g6712.

- Pauwels, L. (2019). Exposing globalization: Visual approaches to researching global interconnectivity in the urban every day. *International Sociology* 34(3): 256–280
- Pulido, C.M., Redondo-Sama, G., Sordé-Martí, T., et al. (2018). Social impact in social media: A new method to evaluate the social impact of research. *PloS One* 13(8): e0203117.
- Redondo-Sama, G., Díez-Palomar, J., Campdepadrós, R. et al. (2020). Impact assessment in psychological research and communicative methodology. *Frontiers in Psychology*, 11: 286.
- Scheufele, D.A. and Krause, N.M. (2019). Science audiences, misinformation, and fake news. *Proceedings of the National Academy of Sciences*, 116(16): 7662–7669.
- Snelson, C.L. (2016). Qualitative and mixed methods social media research: a review of the literature. *International Journal of Qualitative Methods* 15(1).
- Taylor, J. (2020). Bat soup, dodgy cures and ‘diseasology’: The spread of coronavirus misinformation. *The Guardian*, 31 January. Available at: www.theguardian.com/world/2020/jan/31/bat-soupdodgy-cures-and-diseasology-the-spread-of-coronavirus-bunkum (accessed 8 February 2020).
- The Ministry of National Health Services. Regulation and coordination. <http://covid.gov.pk/facilities/List%20of%20COVID-19>.
- Vosoughi, S., Roy, D., and Aral, S. (2018). The spread of true and false news online. *Science* 359(6380): 1146–1151.
- Wang, Y., McKee, M., Torbica, A. et al. (2019). Systematic literature review on the spread of healthrelated misinformation on social media. *Social Science & Medicine* 240: 112552.
- World Health Organization, (2020a). Novel Coronavirus (2019-nCoV). Situation Report 13, 2 February. Available at: www.who.int/docs/default-source/coronaviruse/situation-reports/20200202-sitrep-13-ncov-v3.pdf (accessed 7 February 2020).
- World Health Organization, (2020b) Novel Coronavirus (2019-nCoV) advice for the public: Myth busters. Available at: www.who.int/emergencies/diseases/novel-coronavirus-2019/advicefor-public/myth-busters (accessed 11 February 2020).
- World Health Organization, (2020c) Novel Coronavirus (2019-nCoV). Situation Report 18, 7 February. Available at: www.who.int/docs/default-source/coronaviruse/situation-reports/20200207-sitrep-18-ncov.pdf?sfvrsn=fa644293_2 (accessed 29 February 2020)
- World health organization (WHO). Accessed at on 21 June 2020 <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>