

## Battling the Infodemic- A Cross Sectional Study of General Population of Pakistan

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### Abstract

**Objective:** This study aimed to explore the sources of COVID-19 related information used by the general public in Pakistan it focused on the strategies being employed to fact-check information before its propagation and to identify common misperceptions and attitudes toward these myths.

**Methods:** A cross-sectional online survey of 365 Pakistani residents was conducted between 1st July and 31st July 2020. Based on literature review a Google Forms was distributed randomly via social media, it consisted of demographic information and collected data on the common sources of information, misinformation and response of people to prevalent myths and misconceptions surrounding COVID-19.

**Results:** Out of 365 participants, 60.2% of the respondents were female with the mean (SD) age of 32.2± 11.35 years. Television and social media websites were the major sources of information and WhatsApp was found as the main social media site to encounter misinformation by 118(32.2%) participants, only a small number 114(31.2%), checked the veracity of information and another few 18(4.9%) directly challenged any account. Official government sources were trusted by most Pakistanis. Sixty-three percent of participants agreed that only possible solution to COVID-19 pandemic is vaccine while misconception about dead bodies of COVID-19 patients being used by hospitals to get international funding was shared by 262(71.7%).

**Conclusion:** A concerted effort is needed to mitigate the detrimental effects of infodemic through education and participation of the stakeholders. Furthermore, the need to publicize strictly authentic information and device policies for the mainstream media regarding COVID-19 related content by the government is critical.

**Keywords:** COVID-19; Infodemic; Perceptions; Myths

### Introduction:

The novel coronavirus (COVID-19) has killed thousands, and infected millions of people round the globe. It originated in Wuhan, in December of 2019, and since then has been declared a pandemic. At the time of writing, COVID-19 has infected 13,538,312 people worldwide, and caused 445,422 confirmed deaths.<sup>1</sup> In Pakistan, first case of COVID-19 was reported in February of 2020, and the death toll has now crossed 200,000 mark with more than 4000 confirmed deaths.<sup>2</sup>

Huge demand for information regarding coronavirus, and a sea of unanswered questions created a perfect

breeding ground for all sorts of disinformation, misinformation, fake news, myths and conspiracy theories, forcing WHO to declare the situation as “infodemic”. Some of them were fairly innocuous like Russian President Vladimir Putin released 500 lions to keep people indoors, or eating sea lettuce and herbs could prevent COVID-19. Others were quite menacing, and often, life threatening – drinking methanol to cure COVID-19 led to the death of more than 700 people in Iran, and misinformed arsonists destroyed several 5G transmission towers in Britain, convinced that these 5G towers were spreading the disease in their areas. A conspiracy theory based short movie called “Plandemic” – which alleged that powerful elite have started the outbreak to make profits – had garnered millions of views on Facebook and YouTube before it was removed from these forums.<sup>3</sup>

Pakistan has its own share of myths and misinformation regarding COVID-19. People got diarrhea after taking excessive doses of Sana Maki herb. There was widespread misconception in people that the

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government was taking thousands of dollars per dead body of COVID-19 patients, and thus falsifying deaths of other patients to inflate the numbers. According to a poll by Gallup International in March, 2020,<sup>4</sup> about 25% of Pakistanis believed that a foreign power was deliberately spreading corona-virus in Pakistan. Internet, in general, and social media in particular, has enabled the rapid dissemination of false information regarding coronavirus, and there is a need to investigate this phenomenon.

Since the inception of COVID-19, numerous studies have been conducted to ascertain the frequency and impact of misinformation and disinformation on social media regarding coronavirus. Social media platforms like Facebook, Twitter, YouTube, Reddit and Instagram are a prime source of information for a majority of global populace. A study of Pew Research Center, USA, determined that about half of the adult US population got news regarding COVID-19 from the Facebook.<sup>5</sup> Roughly three-quarters (74%) of these posts used news organizations' websites as potential sources, whereas just 1% of the posts linked directly to healthcare and science websites, which indicated the prevalence of unverified information circulating on social media platforms. Research by Bruno Kessler Foundation, Italy, determined that in the month of March, on average, 46,000 misleading posts were posted on Twitter every single day.<sup>6</sup> Kouzy et al. conducted a research on Twitter using 14 different hashtags related to COVID-19, and on a dataset of 673 tweets they found out that 24.8% of tweets included misinformation and 17.4% contained unverifiable information.<sup>7</sup>

A recent survey suggested that nearly 40% of adults in UK are finding it hard to separate truth from false information about coronavirus.<sup>8</sup> Similarly, Amgain et al. also listed some very common myths surrounding the novel coronavirus, and debunked them with the relevant facts.<sup>9</sup> A study conducted in Canada, in which 1500 Canadian adults were inquired about the source of their COVID-19 news, and how much misinformation they encountered, and what they did about it,<sup>10</sup> reported that most Canadians preferred to get information regarding COVID-19 from news rather than social media, and 68% reported finding some sort of misinformation on at least one of the common social media platforms. It can be seen that globally, studies are being conducted to assess the

extent of misinformation prevalent in public regarding COVID-19, and efforts are being made to curb the spread of this Infodemic by flattening its curve<sup>11</sup>. No such study has been conducted in Pakistan as of yet.

## Methods

The study was conducted through an online survey, made on Google Forms. The ethical approval for the research was taken from the Institutional Review Board, King Edward Medical University, Lahore. No sensitive information was collected from the survey participants, and the survey was filled by participants anonymously. The target population were the residents of Pakistan with access to smartphones and Internet. Around 500 people filled the survey between 1<sup>st</sup> of July, 2020 to 31<sup>st</sup> of July, 2020. Our survey research followed the cross sectional research design to analyze the behaviours and opinions of the target population by studying a sample of that population, collected through convenience sampling. Most questions in the survey were of multiple choice or dropdown type to avoid ambiguous answers. Demographic information like age, gender, marital status, educational background and employment status were collected for analyzing responses based on demographics. Questions aiming to identify common sources of misinformation and unverified news and attitudes of people towards common myths and perception regarding covid-19 were included. The responses collected through the survey were analyzed using the tools available in the Google Forms, which automatically builds the descriptive statistics for each multiple choice type question.

## Results

365 participants completed the questionnaire. The mean age was 32.2± 11.35%. Majority were female (220, 60.2%). Only 10.7 % of the population belonged to rural settings. Most of the population were students (102, 27.9%) closely followed by Health Care Providers (99, 27.1%). Table 1 gives further demographic details of the sample.

A significant proportion of the participants (64.4%) used Television as media source to get news and updates, with a close second majority ( 61.9% ) used social media websites (Facebook, twitter, Instagram, Whatsapp). Other sources mentioned were WHO Official website, CDC official website, medical

journals and through word of mouth by doctors in the family. Only 30.7% stated that they fact checked information before sharing it through social media, 11.2 % never fact checked any news or story they shared with others.

26.3% participants expressed trusting the mainstream media a lot for accuracy of news related to Covid while 50(13.6%) participants trusted the Public service departments and Govt. ministries a great deal for accuracy of COVID-19 news. Although political parties and leaders were not trusted by 104(28.4%) respondents as trusted source of information, this mistrust was less noted for mainstream media (26,

**Table 1: Participants Characteristics (n=365)**

DEMOGRAPHICS	Total N (%)
<b>Gender</b>	
Male	145(39.7)
Female	220(60.3)
<b>Marital Status</b>	
Single	181(49.6)
Married	171(46.8)
Separated/Divorced	8(2.2)
<b>Area</b>	
Urban	326(89.3)
Rural	39(10.7)
<b>EducationUpto Grade 5</b>	
Upto class 5	13(3.6)
Upto matric	20(5.5)
Graduation	104(28.5)
Professional degree	227(62.2)
<b>Occupation</b>	
Student	102(27.9)
House wife	43(11.8)
Unemployed	9(2.5)
Unskilled worker	17(4.7)
Skilled workers	95(26)
Healthcare workers	99(27.1)

7.1%). As a source of misinformation related to COVID-19 Pandemic, WhatsApp was identified as the leading social media site among four others (Twitter, Youtube, Instagram, Facebook) by 118(32.3 %) participants, In such scenarios only 114(31.2%) consulted other sources to verify the information , 18(4.9%) directly challenged any account which shared the misinformation. About reporting misinformation sources, 200 (54.7%) respondents admitted to never report an account with fake information to law enforcement. 18(4.9%) participants reported accounts to media outlets and 23(6.3%) reported the account with misinformation to that social media site

where it was created. Table 2 provides more information on the type of media sources, the time spend on news, fact checking and perception of general population about role of media stories in spread of fake news.

Table 3 shows the participants responses 31 statements related to perception/myths circulating in News and social media about Covid-19 pandemic.

233 (63%) people stated that a vaccine is the only possible solution to this pandemic, 262 (71.1%) agreed to the statement “hospital are using dead bodies of Covid patients to get funding”,185(50%) said that religious practices like 5 times wazzu is preventive in catching infection, majority of the participants, 289(71%), disagreed with the statement ‘Poison injection (zehr ka teeka) is being given to corona patients taken to hospitals leading to their deaths’. Results show that 169(46%) participants

**Table 2: Attitude of General Public Towards Social Media News**

Question	Total n (%)
Which media sources have you used to get news and information about Covid 19 since the outbreak	
a) Television	235
b) Social media (facebook,Whatsapp,Snapchat,Instagram etc)	229
c) Newspaper(print media)	59
d) Online(news websites/mobile apps)	226
e) Radio	14
f) Others n% need to appear in front of others	17
How much time do you spend on COVID-19 related news on social media?	
a) Less than one hour	225(69.6)
b) 1-2 hours	52(14.2)
c) More than 2 hours	21(5.8)
d) Other	67(18.3)
Do you think publishing more news related to Covid-19 on different forums/Media has spread misinformation among the people	
a) Yes	236(64.7)
b) No	46(12.6)
c) Maybe	83(22.7)
Do you fact check information related to Covid-19 before liking/sharing/publishing it?	
a) Never	41(11.2)
b) Occasionally	43(11.8)
c) Sometimes	63(17.3)
d) Most of the times	106(29)
e) Always	112(30.7)

rejected the claims of preventing infections by taking certain foods like garlic and SANA MAAKI. 145(39.7%) participants stated a neutral opinion when asked if the virus was deliberately created or not. 34% of this cohort believed that hot weather kills this virus. A striking 71% agreed with the statement “ hospitals are using dead-bodies of covid patients to get funding’ .Half of the participants expressed that they think religious practices like regular Wazzu five times a day can ward off the virus.

## Discussion

Health officials around the world and here in Pakistan are grappling with both a pandemic caused by a new coronavirus, COVID-19, and a deluge of misinformation about the virus in the media and on social media.<sup>12</sup> The authors of this paper felt an urgent need to address this issue in this part of the world. The current study is believed to be one of its kind in Pakistan as it not only focuses on the perception of general population about the myths related to Covid-19 doing the rounds on social media, it also aims to

**Table 3:** : *Opinion about Perception/Myths Circulating about the Covid-19 Pandemic (Use Table No Space Option to make it more Concise wit not many Spaces in Between).*

Sr#	STATEMENTS	Agree N(%)	Disagree N(%)	Neutral N(%)
1	The COVID-19 pandemic prediction was correctly made in books and TV shows earlier.	127(34.7)	116(31.7)	122(33.4)
2	The coronavirus was deliberately created or released by scientists in a laboratory”	68(18.6)	152(41.6)	145(39.7)
3	It is fair to call COVID-19 as CHINA virus.	74(20.2)	209(57.2)	82(22.5)
4	COVID-19 is being used as a weapon of Bio-terrorism by various countries.	87(23.8)	135(36.9)	143(39.2)
5	Anti-Muslim groups have developed a deadlier strain of coronavirus against Muslim countries.	32(8.7)	253(69.3)	80(21.9)
6	The use of bat soup in Wuhan was the origin of Covid -19,	99(27.1)	84(23)	182(49.9)
7	The virus was originated as a result of 5G upgrades to cellular networks.	19(5.2)	226(61.9)	120(32.9)
	The virus does not exist, it is in fact a hoax/drama	6(1.6)	207(56.7)	24(10.1)
8	Virus is more pronounced in certain ethnic groups i.e. Chinese, Black population.	65(17.8)	187(51.2)	113(31)
9	Ordering or buying products shipped from overseas can infect you with COVID.	98(26.8)	176(48.2)	91(24.9)
10	The coronavirus affects only the elderly >60 yrs.	26(7.1)	322(88.2)	17(4.7)
11	You cannot recover completely from the coronavirus disease.	32(8.7)	274(75)	59(16.2)
12	Aspirin can aggravate COVID-19 symptoms.	48(13.1)	99(27)	218(59.7)
13	Taking a hot bath prevents the new coronavirus disease.	48(13.1)	198(54.2)	119(32.6)
14	Being able to hold your breath for 10 seconds or more without coughing means you’re free from COVID-19.	39(10.6)	221(60.5)	105(28.8)
15	Antibiotics are effective in preventing and treating the new coronavirus.	69(18.9)	175(47.9)	121(33.2)
16	Cold weather kills COVID-19.	6(1.6)	301(82.4)	57(15.6)
17	Hot weather kills COVID-19.	34(9.3)	268(73.4)	63(17.3)
18	Herd immunity is the only solution.	112(30.6)	116(31.7)	137(37.5)
19	A vaccine will be the cure to COVID-19.	233(63.8)	29(7.9)	103(28.2)
20	Certain foods can be used for prevention.e.g SANA MAKKI, GARLIC.	82(22.4)	169(46.3)	114(31.2)
21	Avoiding poultry meat and eggs will prevent covid -19 infection.	12(3.3%)	276(75.6)	77(21.1)
22	Hand-sanitizers are more effective than washing hands with soap and water.	50(13.6)	275(75.3)	40(11)
23	Wearing of face masks is promoted to boost up sales of Chinese manufactured products.	24(6.5)	292(80)	49(13.4)
24	Doctors are using experimental drug on patients admitted in hospitals.	99(27.1)	172(47.1)	94(25.8)
25	Poison injection (zehr ka teeka) is being given to corona patients taken to hospitals leading to their deaths.	22(6)	289(79.1)	54(14.8)
26	Hospitals are using dead bodies of COVID 19 patients to get funding.	262(71.7)	34(9.31)	76(20.8)
27	The Gov. and media covers up the death toll due to Covid -19	122(33.4)	114(31.2)	129(35.3)
28	Lab test results from govt. institutes are not reliable.	121(33.1)	133(36.4)	111(30.4)
29	Religious practices like 5 regular prayers, wazzu, reciting Aytal -kursi can prevent COVID 19.	185(50.6)	105(28.7)	75(20.5)
30	Vaccine should only be used if declared Halal.	96(26.3)	199(54.5)	70(19.2)

understand the sources of information used by the public and the strategies used to fact-check information before circulating it further. False narratives about COVID-19 have gone global and are spreading almost as fast and further as the virus itself, e.g. a tweet by the French health minister, on 14th March, about avoiding anti-inflammatory drugs (ibuprofen, cortisone) generated 4000 re-tweets in three days, the media buzz was so significant that the European society of Cardiology had to step in to limit the individual stances.<sup>13</sup> The World Health Organization has dubbed this phenomenon as an “infodemic” – “an overabundance of information, some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it.”<sup>14</sup>

A report by Statista.com, 2019; e-marketers, 2019<sup>15</sup> revealed that about 3.5 billion people use the social media globally in 2019, which represents about 45% of the entire population of the world and it is projected to hit 66 % of the world’s population by the end of 2020. With social distancing measures in place during the state of emergency in various countries, social media is now an indispensable lifeline for people to connect to friends, families, classmates, and co-workers. On the other hand social media has become the primary venue for propagating fake news. The results showed that 64.4% used television and 61.9% of the participants used social media as the main source of news related to Covid-19, a very few participants (4.7%) mentioned the names of other sources like official WHO and CDC’s websites which carry relatively authentic and reliable information. Even though media news stories and headlines are not verified or have clear evidence of truth, media sources of COVID news was still trusted by a big number (27%). Most Pakistani stated that they trusted the official government sources like statistics from public service/Government ministries and departments. This puts a huge responsibility on the government to publicize and support only fact-checked and authentic information and also set standard operating procedures for mainstream media about the content going on air during the pandemic. 33% participants named Whatsapp as the application where they encountered false, inaccurate or misleading information about the pandemic. Most social media companies relay on their users to flag problems in content, in

this cohort of Pakistani population, a meager 5% reported the issue to the website.

Social media shapes the ideas and thoughts of this generation. President of USA tweeted and called the virus as CHINA VIRUS, in our study population a significant proportion (20%) participants stated they had neutral opinion on whether this is a fair statement or not. 24% thought the Corona virus is a weapon of bio terrorism. Very strong speculations were created by social media sites about the use of herbal medicines and certain foods (Garlic, SANA MAKKI etc), even without any evidence present 23% participants agreed to these food items having curing abilities, and this population also included medical doctors which is a point of concern.

Hernandez-García et al. studied the available information on the Internet about COVID-19, they found that various aspects of preventive measures advocated by the WHO or CDC were found in only 32.5% of the studied web links on the Internet<sup>16</sup>. They suggested that official sources of regional/national governments should provide correct information about COVID-19 that conforms to the standard guidelines issued by the WHO/CDC and provide links to the same on other popular websites on the Internet.

This infodemic is negatively affecting people’s routine, their behaviour, and overall wellbeing. There is a flooding of information on the frequency of hand washing, how to wash consumable items or packets, disinfecting homes, etc. This compelled people to unnecessarily hoard the chemical disinfectants and cleaning products.

Similarly, information on closure of shops during lockdown resulted in buying and stocking of excess vegetables or groceries. This opened the business of false claims about miracle cures or unproven natural remedies that people have fallen prey of.<sup>17</sup>

Overall, this misinformation has created a wave of anxiety and stress among people. Moreover, people with pre-existing mental conditions like anxiety and obsessive-compulsive disorder are suffering the most. The pandemic is not only taking a heavy toll on the economy but also on the psychological health, behaviours, and livelihood of the people. A study done in India showed that 26% and 33% felt that

information about COVID-19 made them feel uncomfortable and distracts routine decision-making.<sup>18</sup> And to make matters worse, spread of misinformation has led to attacks on healthcare providers. A leading newspaper of Pakistan published a report and main stream media channels also took up the story of a huge mob vandalizing the Civil hospital in Karachi when the dead body of a Covid-19 patient was not given to the family due to the already established standard operating procedures.<sup>19</sup> This incident generated the concept of doctors using research drugs without consent, poisonous injections being injected to healthy individuals and then selling the dead bodies to get international fundings, it deeply interfered with the process of surveillance and treatment.

The COVID-19 infodemic causes confusion, sows division, incites hatred, promotes unproven cures, and provokes social panic, which directly impacts emergency response, treatment, recovery, and financial and mental health during the difficult time of self-isolation.<sup>20</sup> Social media companies are making efforts to police COVID-19 misinformation on their sites, but we should not rely on them alone.<sup>21</sup>

One of the limitations of our study was that the web based survey was mostly filled by participants with a sound educational background, participants who had education less than matric were under represented. Another limitation was that this survey was not targeted at participants from rural background who seldom use social media and more commonly use sources like Television, radio and print media for information. There is a likelihood of possibly more misinformation/ belief in myths in less educated people.

## Conclusion

DIGITAL HYGIENE practices need to be ensured, which will allow the public to have the knowledge about what resources they should bookmark for authentic news in future. Emphasis should be made by leaders of communities, government officials, health care providers and media outlets to fact check and validate information before propagating it.

## Author's Contribution:

**IA:** made group form, did data analysis, contributed to discussion and results.

**ZP:** Contributed in data collection, writing introduction and methods.

**FC:** Contributed in data collection and writing abstract and correcting references.

**NI:** Conceived the idea, supervised whole project.

**Conflict of Interest:** None

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